

Revised Draft

WORK PLAN

ENGINEERING EVALUATION/COST ANALYSIS ARKEMA REMOVAL ACTION

PORTLAND, OREGON

APPENDIX H ARKEMA DATABASE REFERENCE TABLE

Prepared for

Legacy Site Services, LLC

468 Thomas Jones Way
Exton, PA 19341

DO NOT QUOTE OR CITE

This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

Prepared by



319 SW Washington Street, Suite 1150
Portland, OR 97204

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Arkema Database / C167.0101
 5/19/2006
 Stations in Database as of May 19, 2006

Data Source (Sample collection dates)	Matrix	Stations	Source Reference(s)	Remarks
LWG Multiplate Tissue Data (Sept 10, 2005)	Tissue	MIT356	Integral and Windward. 2006. Round 2 Multiplate Invertebrate Tissue Data Report. IC06-0015. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.	
LWG Round 2B Subsurface Sediment (Oct 2005)	Sediment	C358, C360, C360-2	Integral. 2006. Round 2B Subsurface Sediment Data Report. Draft. IC06-0014. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA. May 22, 2006.	
LWG Round 2A Archived Core Sediment (Jul-Nov 2004)	Sediment	C326, C327, C329, C331, C334, C335, C348, C356, C361, C366-1, C366-2, C371, C377	Integral. 2006. Round 2A Archived Core Sediment Data Report. Draft. IC06-0011. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA. May 8, 2006.	
LWG Round 2A PCB Congeners in Surface Sediment (Jul-Nov 2004)	Sediment	G310, G327, G328, G332, G335, G339, G351, G353, G355, G358, G360, G371, G373, G381, G399, G401, U2C-2, U4Q	Integral. 2006. PCB Congeners in Archived Round 2A Surface Sediment Data Report. Draft. IC06-0009. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA. April 10, 2006.	

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LWG Round 2 Groundwater and Transition Zone Water Investigation (Oct-Nov 2005)	Sediment and Groundwater	AP-02-A-TR, AP-02-D-TR, AP-03-A-TR, CP-09-A-TR, AP-03-D-TR, R2-AP-02-TR, CP-07-A-TR, CP-07-B-TR, CP-06-A-TR, CP-07-D-TR, CP-08-B-TR, AP-03-D-PR, R2-AP-01-PR, CP-09-D-PR, CP-07-D-PR, AP-04-C-PR, R2-CP-01-PR, R2-AP-02-PG, CP-09-D-PG, CP-09-A-PG, CP-07-D-PG, CP-07-A-PG, AP-04-C-PG-2, AP-04-C-PG, AP-02-D-PG, AP-02-A-PG	LWG transition zone water data available for download from portal March 16, 2006. http://lwg.webpe.com/portal/page?_pageid=34,2554598&_dad=portal&_schema=PORTAL . Data report pending.	
LWG Surface Water Sampling (Nov 2004, Mar 2005, Jul 2005)	Surface Water	"W0" series stations. 6 stations in database.	Integral. 2005. Round 2A Surface Water Data Report for November 2004 and March 2005 Sampling Events. Draft. IC05-0036. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA. Integral. 2006. Round 2A Surface Water Site Characterization Summary Report. Draft. IC06-0006. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA. April 26, 2006.	
LWG Round 2A Surface Sediment Investigation (Jul-Nov 2004)	Sediment (surface), toxicity testing	"G" series stations (selected stations from G310 to G404); 56 stations in database. "U" series stations (ambient upstream stations); 6 stations in database. "B" series stations (beach sediment stations); 4 stations in database.	Integral. 2005. Round 2A Sediment Site Characterization Summary Report, Portland Harbor RI/FS. Draft. IC05-0025. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA. Windward. 2005. Round 2A Data Report, Sediment Toxicity Testing. Draft. WE05-0001. Prepared for Lower Willamette Group. Windward Environmental, LLC., Seattle, WA.	Subsurface sediment cores were collected at or near some surface sediment stations.

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LWG Round 2A Subsurface Sediment Investigation (Sep-Nov 2004)	Sediment (subsurface)	"C" series stations (selected stations from C313 to C403). 27 stations in database.	Integral. 2005. Round 2A Sediment Site Characterization Summary Report, Portland Harbor RI/FS. Draft. IC05-0025. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.	Surface sediment samples were collected at or near most sediment core stations.
Upland Data from Exponent Database and ERM (1994-2005)	Surface water, outfall water, soil, groundwater, groundwater elevation	"VP", "VES", "US", "IB", "NMP", "MWA", "BPA", "B", "outfall", "AP", "CS", "GA-SB", "GA-TP", "GA-GW", "P", "PD", "PMP", "S", "RP", "PS", "SS", "SW" series stations. "SDC", "SLTEST", DRM18-20, "DRUM-15R", "E-SETCON", "FIREHYNT" individual stations.	ERM. 2005. Upland Remedial Investigation Report, Lots 3 & 4 and Tract A, ATOFINA Chemicals Facility, Portland, OR. Prepared for ATOFINA Chemicals, Inc., Portland, OR. ERM-West, Inc., Bellevue, WA.	These data have not been through QA/QC by Integral. ERM was provided with a copy of the database to use for the RI report and was to notify Integral of any QA/QC changes to the upland data. No changes have been received by Integral as of March 1, 2006.
ATOFINA Phase II Stage 1 & 2 Investigation (Jun 2002; Feb-Mar 2003)	Sediment, in-river groundwater, Willamette River water	"WB" series stations (WB-1 to WB-25). 25 stations in database. Two Willamette River water samples in database.	Integral. 2003. Phase II Stage 1 & 2 In-River Groundwater and Sediment Investigation Report. Prepared for ATOFINA Chemicals, Inc. Integral Consulting Inc., Portland, OR.	
Weston Portland Harbor Sediment Investigation (Sep-Oct 1997)	Sediment	"SD" series stations (selected stations from SD-80 to SD-100). 13 stations in database.	Weston. 1998. Portland Harbor Sediment Investigation Report, Multnomah County, OR. Report No. 04000-019-036-AACE. Prepared for the U.S. Environmental Protection Agency and Oregon Department of Environmental Quality, Portland, OR. Roy F. Weston, Inc., Seattle, WA.	
Offshore Sediment Sampling (Jan 1999)	Sediment	"OSS" series stations (OSS-1 to OSS-6). 6 stations in database.	Exponent. 1999. Elf Atochem Acid Plant Area Remedial Investigation, Interim Data Report. Prepared for Elf Atochem North America, Inc., Portland Oregon. Exponent, Inc., Lake Oswego, OR.	

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Riverbank (beach) Sediment Sampling (Nov 1998)	Sediment	"RB" series stations (RB-1 to RB-6). 6 stations in database.	Exponent. 1999. Elf Atochem Acid Plant Area Remedial Investigation, Interim Data Report. Prepared for Elf Atochem North America, Inc., Portland Oregon. Exponent, Inc., Lake Oswego, OR.	
Riverbank Soil Sampling (Aug 2000)	Soil	"RB" series stations (RB-7 to RB-12). 6 stations in database.	ERM. 2005. Upland Remedial Investigation Report, Lots 3 & 4 and Tract A, ATOFINA Chemicals Facility, Portland, OR. Prepared for ATOFINA Chemicals, Inc., Portland, OR. ERM-West, Inc., Bellevue, WA.	Three pairs of stations located between Docks 1 and 2
LWG Round 1 Sediment Investigation (Aug-Nov 2002)	Sediment, tissue	"06", "07", and "08" series stations. 8 stations in database.	Integral. 2004. Round 1 Site Characterization Summary Report, Portland Harbor RI/FS. Draft. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.	
LWG Groundwater Pilot Study (Nov 2004-Jan 2005)	Sediment, sediment groundwater, porewater	LWP1-AP04D, LWP1-AP03B-1, LWP1-AP04B, LWP1-CP07B, LWP1-CP08D-1, LWP1-CP06C, LWP1-CP10A, LWP1-AP03B-2, LWP1-CP08D-2	Integral. 2005. Round 2 Groundwater Pathway Assessment Sampling and Analysis Plan, Appendix B: Groundwater Pathway Assessment Pilot Study Data Report. Draft. IC05-0013B. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.	

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Willamette River Stage Elevations (Jan 1997-Dec 1999)	River stage elevations	Data were collected from the Morrison Street Bridge gauge (1996-1997) or the stilling well on Dock 1 (1999 data). A total of 14 elevations in database.	ERM. 2005. Upland Remedial Investigation Report, Lots 3 & 4 and Tract A, ATOFINA Chemicals Facility, Portland, OR. Prepared for ATOFINA Chemicals, Inc., Portland, OR. ERM-West, Inc., Bellevue, WA.	
LWG Monitored natural recovery study (Oct 2004)	Sediment	"NA" series station. One station in database.	Anchor. 2005. Draft Monitored Natural Recovery (MNR) Technical Memorandum-Step 2 Data Evaluation Methods. Prepared for Lower Willamette Group, Portland, OR. Anchor Environmental, L.L.C., Seattle, WA.	Sample station located upstream of Arkema at Willbridge Bulk fuel terminal.
Chinook tissue data from LWG Portal (May 2005)	Tissue	"T" series stations. 4 stations (T01, T02, T03, T04) in database.	Integral and Windward. 2006. Round 2 Subyearling Chinook Data Report. IC06-0008. Prepared for Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA. March 31, 2006.	
Army Corps of Engineers, dredge material characterization work (May 2005)	Sediment	"WR-PG" series stations. 8 stations in database.	Tetra Tech. 2006. Dredged Material Management Plan Sediment Characterization Report. Prepared for US Army Corps of Engineers, Portland District. Tetra Tech EC, Inc., Portland, OR.	These are Power Grab sample stations located slightly up-slope from the Vibracore stations and are designed to include material that is likely to slump after dredging activities.
Army Corps of Engineers, dredge material characterization work (May 2005)	Sediment	"WR-VC" series stations. 7 stations in database.	Tetra Tech. 2006. Dredged Material Management Plan Sediment Characterization Report. Prepared for US Army Corps of Engineers, Portland District. Tetra Tech EC, Inc., Portland, OR.	These are Vibracore stations that are located in areas that may potentially require dredging.

References

Exponent. 1998. Elf Atochem Acid Plant Area Remedial Investigation and Feasibility Study Work Plan. Prepared for Elf Atochem North America, Inc., Portland, OR. Exponent Inc., Portland, OR.

Kennedy/Jenks and Integral. 2004. Portland Harbor RI/FS Round 2 Quality Assurance Project Plan. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.

Integral. 2004a. Portland Harbor RI/FS Round 2 QAPP Addendum 2: PCB Congener Analysis in Sediment Samples. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.

Integral. 2004b. Portland Harbor RI/FS Round 2 QAPP Addendum 1: Surface Water. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.

Integral. 2005a. Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Addendum 5: Invertebrate Tissue Collection Using Multiplate Samplers. IC05-0015. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.

Integral. 2005b. Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Supplement to Addendum 3: Groundwater Pathway Transition Zone Water Sampling. Draft. IC05-0023. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.

Integral. 2005c. Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Dioxin Analysis Attachment to Supplement of Addendum 3. Draft. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.

Integral. 2005d. Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Supplement to Addendum 4: Subyearling Chinook Tissue Collection – Semivolatile Organic Compounds. IC05-0019. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.

Integral. 2005e. Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Addendum 4: Subyearling Chinook Tissue Collection. IC05-0005. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.

Integral. 2005f. Portland Harbor RI/FS Groundwater Pathway Assessment Sampling and Analysis Plan Attachment 2: Field Sampling Plan Transition Zone Water Sampling. Draft. IC05-0022. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA. (*final report pending*)

Integral and Windward. 2004. Portland Harbor RI/FS Round 2 Quality Assurance Project Plan. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.

SEA. 2002. Portland Harbor RI/FS Round 1 Quality Assurance Project Plan. Prepared for the Lower Willamette Group, Portland, OR. Striplin Environmental Associates, Inc., Olympia, WA.