TABLES

Table 6-1. Soil Screening Level Values for Ecological Receptors (mg/kg).

Structural Compound Class	Chemical	Soil Screening Level Values[a]							
		Plants		Invertebrates		Birds		Mammals	
Metals	Aluminum	5.00E+01	o	6.00E+02	o	4.50E+02	o	1.07E+02	o
Metals	Antimony	5.00E+00	o	7.80E+01	ssl			2.70E-01	o
Metals	Arsenic	1.80E+01	ssl	6.00E+01	o	4.30E+01	ssl	4.60E+01	ssl
Metals	Cadmium	3.20E+01	ssl	1.40E+02	ssl	7.70E-01	ssl	3.60E-01	ssl
Metals	Chromium	1.00E+00	o	4.00E-01	o	2.60E+01	ssl	3.40E+01	o
Metals	Copper	7.00E+01	ssl	8.00E+01	ssl	2.80E+01	ssl	4.90E+01	ssl
Metals	Lead	1.20E+02	ssl	1.70E+03	ssl	1.10E+01	ssl	5.60E+01	ssl
Metals	Mercury	3.00E-01	o	1.00E-01	o	1.50E+00	o	7.30E+01	o
Metals	Nickel	3.80E+01	ssl	2.80E+02	ssl	2.10E+02	ssl	1.30E+02	ssl
Metals	Silver	5.60E+02	ssl	5.00E+01	o	4.20E+00	ssl	1.40E+01	ssl
Metals	Zinc	1.60E+02	ssl	1.20E+02	ssl	4.60E+01	ssl	7.90E+01	ssl
SVOCs	Benzoic acid								
SVOCs	Benzyl alcohol							6.6E+01	epa5
SVOCs	Bis(2-chloroethyl) ether							2.4E+01	epa5
SVOCs	Carbazole								
SVOCs	Dibenzofuran							2.0E-03	o
SVOCs	Hexachlorobenzene			1.0E+03	o				
SVOCs	Hexachlorobutadiene							4.0E-02	epa5
SVOCs	Hexachloroethane							6.0E-01	epa5
Phthalates	Dimethyl phthalate			2.0E+02	o				
Phthalates	Diethyl phthalate	1.0E+02	o					2.5E+05	o
Phthalates	Dibutyl phthalate	2.0E+02	o			4.5E-01	o	3.0E+04	o
Phthalates	Butylbenzyl phthalate							2.4E-01	epa5
Phthalates	Di-n-octyl phthalate	2.0E+02	o			4.5E-01	o	3.0E+04	o
Phthalates	Bis(2-ethylhexyl) phthalate					4.5E+00	o	1.0E+03	o
Phenols	2,3,4,5-Tetrachlorophenol			2.0E+01	ornl				
Phenols	Pentachlorophenol	5.0E+00	ssl	3.1E+01	ssl	2.1E+00	ssl	2.8E+00	ssl
VOCs	Tetrachloroethene	1.0E+01	o					8.0E+01	o
HPAH	High Molecular Weight PAH			1.8E+01	ssl			1.1E+00	ssl
LPAH	Low Molecular Weight PAH			2.9E+01	ssl			1.0E+02	ssl
Dioxin/Furans	Dioxin TEQ WHO1998 Bird (ND = 1/2 DL)					5.5E-05	o	1.2E-04	o
Dioxin/Furans	PCB TEQ WHO1998 Bird (ND = 1/2 DL)					5.5E-05	o	1.2E-04	o
Dioxin/Furans	TEQ WHO1998 Bird (ND = 1/2 DL)					5.5E-05	o	1.2E-04	o
Dioxin/Furans	Dioxin TEQ WHO2005 Mammal (ND = 1/2 DL)					5.5E-05	o	1.2E-04	o
Dioxin/Furans	PCB TEQ WHO2005 Mammal (ND = 1/2 DL)					5.5E-05	o	1.2E-04	o
Dioxin/Furans	TEQ WHO2005 Mammal (ND = 1/2 DL)					5.5E-05	o	1.2E-04	o
Pesticides	Total of 2,4' and 4,4'-DDD					9.3E-02	ssl	2.1E-02	ssl
Pesticides	Total of 2,4' and 4,4'-DDE					9.3E-02	ssl	2.1E-02	ssl
Pesticides	Total of 2,4' and 4,4'-DDT					9.3E-02	ssl	2.1E-02	ssl
Pesticides	Total of 2,4' and 4,4'-DDx					9.3E-02	ssl	2.1E-02	ssl
Pesticides	Aldrin							2.5E+01	o
Pesticides	alpha-Hexachlorocyclohexane	2.5E-03	epa4	2.5E-03	epa4	2.5E-03	epa4	2.5E-03	epa4
Pesticides	beta-Hexachlorocyclohexane	1.0E-03	epa4	1.0E-03	epa4	1.0E-03	epa4	1.0E-03	epa4
Pesticides	gamma-Hexachlorocyclohexane					8.0E+00	o	1.0E+03	o
Pesticides	trans-Chlordane					9.0E+00	o	2.5E+02	o
Pesticides	Oxychlordane					9.0E+00	o	2.5E+02	o
Pesticides	cis-Nonachlor	0.0E+00	o	0.0E+00	o	0.0E+00	o	0.0E+00	o
Pesticides	trans-Nonachlor	0.0E+00	o	0.0E+00	o	0.0E+00	o	0.0E+00	o
Pesticides	Total Chlordanes					9.0E+00	o	2.5E+02	o
Pesticides	Dieldrin					2.2E-02	ssl	4.9E-03	ssl
Pesticides	Endrin					4.0E-02	o	5.0E+00	o

Table 6-1. Soil Screening Level Values for Ecological Receptors (mg/kg).

Structural Compound Class	Chemical	Soil Screening Level Values[a]			
		Plants	Invertebrates	Birds	Mammals
Pesticides	Heptachlor epoxide				1.5E-01 [epa5]
Pesticides	Hexachlorobenzene		1.0E+03 [o]		
PCBs	Total Aroclors	4.0E+01 [o]			4.0E+00 [o]

Notes:

[a] Soil screening values were adopted hierarchically in the following order of decreasing priority: EPA Eco-SSLs, Oregon DEQ Guidance, ORNL, and EPA Region 4 or EPA Region 5.

[o] Oregon DEQ
[ssl] Eco SSL
[ornl] Oak Ridge National Laboratory
[epa4] USEPA Region 4
[epa5] USEPA Region 5

DEQ - Department of Environmental Quality
DDD - dichloro-diphenyl-dichloroethane
DDE - dichloro-diphenyl-dichloroethene
DDT - dichloro-diphenyl-trichloroethane
DDx - sum of 2,4'- and 4,4'-DDD, DDE, and DDT
DL - detection limit
EPA - U.S. Environmental Protection Agency
HPAH - high molecular weight polycyclic aromatic hydrocarbon
LPAH - low molecular weight polycyclic aromatic hydrocarbon
ND - non-detect
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
SLV - screening level value
SSL - soil screening level
SVOC - semivolatile organic compound
VOC - volatile organic compound
TEQ - toxicity equivalent

Table 6-2. Detected Potential COIs in Soils for Which No Soil SLVs Were Available.

CAS Number	Structural Compound Class	Chemical
65-85-0	SVOCs	Benzoic acid
86-74-8	SVOCs	Carbazole
5103-73-1	Pesticides	cis-Nonachlor
39765-80-5	Pesticides	trans-Nonachlor

Notes:
SVOC - semivolatile organic compound
CAS - Chemical Abstracts Service
COI - contaminant of interest
SLV - screening level value

Table 6-3. Analytes Detected and Level II COIs Identified in Site Soils.

Structural Compound Class	Chemical	Max Concentration (mg/kg)	SLV (mg/kg)	Max HQ	Level II COI
Metals	Aluminum	1.52E+04	5.00E+01	3.04E+02	a
Metals	Antimony	6.40E-01	2.70E-01	2.37E+00	Yes
Metals	Arsenic	7.61E+01	1.80E+01	4.23E+00	Yes
Metals	Cadmium	1.40E+00	3.60E-01	3.89E+00	a
Metals	Chromium	8.10E+02	4.00E-01	2.03E+03	Yes
Metals	Copper	1.08E+02	2.80E+01	3.86E+00	Yes
Metals	Lead	2.09E+03	1.10E+01	1.90E+02	Yes
Metals	Mercury	2.40E-02	1.00E-01	2.40E-01	
Metals	Nickel	3.82E+01	3.80E+01	1.01E+00	b
Metals	Silver	8.70E-02	4.20E+00	2.07E-02	
Metals	Zinc	4.80E+02	4.60E+01	1.04E+01	Yes
SVOCs	Benzoic acid	1.2E-01	NA	NA	
SVOCs	Benzyl alcohol	1.8E-02	6.6E+01	2.7E-04	
SVOCs	Bis(2-chloroethyl) ether	1.4E-02	2.4E+01	5.9E-04	
SVOCs	Carbazole	2.3E-02	NA	NA	
SVOCs	Dibenzofuran	1.0E-02	2.0E-03	5.0E+00	Yes
SVOCs	Hexachlorobenzene	2.2E-02	1.0E+03	2.2E-05	
SVOCs	Hexachlorobutadiene	6.1E-03	4.0E-02	1.5E-01	
SVOCs	Hexachloroethane	2.2E+00	6.0E-01	3.7E+00	Yes
Phthalates	Dimethyl phthalate	9.7E-04	2.0E+02	4.9E-06	
Phthalates	Diethyl phthalate	2.6E-02	1.0E+02	2.6E-04	
Phthalates	Dibutyl phthalate	6.9E-01	4.5E-01	1.5E+00	Yes
Phthalates	Butylbenzyl phthalate	1.2E-01	2.4E-01	5.0E-01	
Phthalates	Di-n-octyl phthalate	1.8E-02	4.5E-01	4.0E-02	
Phthalates	Bis(2-ethylhexyl) phthalate	9.5E+00	4.5E+00	2.1E+00	Yes
Phenols	2,3,4,5-Tetrachlorophenol	8.2E-04	2.0E+01	4.1E-05	
Phenols	Pentachlorophenol	6.6E-01	2.1E+00	3.1E-01	
VOCs	Tetrachloroethene	2.5E-02	1.0E+01	2.5E-03	
HPAH	High Molecular Weight PAH	1.6E+01	1.1E+00	1.5E+01	Yes
LPAH	Low Molecular Weight PAH	3.2E-01	2.9E+01	1.1E-02	
Dioxin/Furans	Dioxin TEQ WHO1998 Bird (ND = 1/2 DL)	1.2E-03	5.5E-05	2.1E+01	Yes
Dioxin/Furans	PCB TEQ WHO1998 Bird (ND = 1/2 DL)	5.3E-06	5.5E-05	9.6E-02	Yes
Dioxin/Furans	TEQ WHO1998 Bird (ND = 1/2 DL)	2.0E-04	5.5E-05	3.6E+00	Yes
Dioxin/Furans	Dioxin TEQ WHO2005 Mammal (ND = 1/2 DL)	1.9E-03	5.5E-05	3.4E+01	Yes
Dioxin/Furans	PCB TEQ WHO2005 Mammal (ND = 1/2 DL)	6.1E-06	5.5E-05	1.1E-01	Yes
Dioxin/Furans	TEQ WHO2005 Mammal (ND = 1/2 DL)	1.6E-04	5.5E-05	2.9E+00	Yes
Pesticides	Total of 2,4' and 4,4'-DDD	7.9E+00	2.1E-02	3.7E+02	Yes
Pesticides	Total of 2,4' and 4,4'-DDE	4.0E+00	2.1E-02	1.9E+02	Yes
Pesticides	Total of 2,4' and 4,4'-DDT	1.7E+02	2.1E-02	8.0E+03	Yes
Pesticides	Total of 2,4' and 4,4'-DDX	1.8E+02	2.1E-02	8.5E+03	Yes
Pesticides	Aldrin	2.5E-03	2.5E+01	9.9E-05	
Pesticides	alpha-Hexachlorocyclohexane	1.1E-01	2.5E-03	4.4E+01	Yes
Pesticides	beta-Hexachlorocyclohexane	7.4E-02	1.0E-03	7.4E+01	Yes
Pesticides	gamma-Hexachlorocyclohexane	1.8E-03	8.0E+00	2.3E-04	
Pesticides	trans-Chlordane	9.0E-03	9.0E+00	1.0E-03	
Pesticides	Oxychlordane	1.2E-02	9.0E+00	1.3E-03	
Pesticides	cis-Nonachlor	6.2E-04	NA	NA	
Pesticides	trans-Nonachlor	3.3E-03	NA	NA	
Pesticides	Total Chlordanes	3.9E-03	9.0E+00	4.4E-04	
Pesticides	Dieldrin	2.0E-03	4.9E-03	4.1E-01	
Pesticides	Endrin	1.9E-03	4.0E-02	4.8E-02	
Pesticides	Heptachlor epoxide	1.3E-03	1.5E-01	8.6E-03	
Pesticides	Hexachlorobenzene	7.9E-03	1.0E+03	7.9E-06	
PCBs	Total Aroclors	7.4E-01	4.0E+00	1.9E-01	

Notes:

a - Maximum is less than background (see Table 6-4).

b - HQ is not significantly greater than 1. Therefore nickel was not identified as a COI.

COI - contaminant of interest
DDD - dichloro-diphenyl-dichloroethane
DDE - dichloro-diphenyl-dichloroethene
DDT - dichloro-diphenyl-trichloroethane
DDx - sum of 2,4'- and 4,4'-DDD, DDE, and DDT
DL - detection limit
HPAH - high-molecular weight PAH
HQ - hazard quotient
LPAH - low-molecular weight PAH
NA - not available
ND - non-detect
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
SLV - screening level value
SVOC - semivolatile organic compound
TEQ - toxicity equivalent
VOC - volatile organic compound

Table 6-4. Identification of Level II COIs - Comparison of Maximum Detected Metal Concentrations in Site Soils with Washington State Background (BG) Concentration 90th Percentile Values (mg/kg dw).

Detected Metal	Background Soil Concentration[a]	Site-Wide Maximum	Environment Overlay Maximum
Aluminum[b]	3.72E+04	1.52E+04	1.52E+04
Antimony	NA	6.40E-01 *	6.40E-01 *
Arsenic	7.00E+00	7.61E+01 *	7.00E+01 *
Cadmium[c]	1.00E+00	1.40E+00	1.40E+00
Chromium	4.20E+01	8.10E+02 *	8.10E+02 *
Copper	3.60E+01	1.08E+02 *	1.08E+02 *
Lead	1.70E+01	2.09E+03 *	2.09E+03 *
Mercury[b]	7.00E-02	2.40E-02	2.40E-02
Silver	NA	8.70E-02	8.70E-02
Zinc	8.60E+01	4.80E+02 *	4.80E+02 *

Notes:

[a] Background soil concentrations taken from Table 1: Statewide & Regional 90th Percentile Values in Natural Background Soil Metals Concentrations in Washington State: Publication # 94-115. Washington Department of Ecology, October 1994.

[b] Removed from further screening.

[c] Removed from screening after rounding to comparable significant figures.

[*] Exeeds background level or background unknown and is retained for futher evaluation.

NA - not available

Table 6-5. Concentrations (mg/kg dw) of Level II COIs in Site Soils (0-3 ft).

			Detected				Not Detected[a]			Summary Statistics[b]			
Present Class	Analyte	No. Samples	No. Detected	Frequency Detection	Min	Max	No. Not Detected	Min	Max	Mean	SD	UCL90[c]	Max
Metals	Antimony	2	1	50%	6.40E-01	6.40E-01	1	7.00E-02	7.00E-02	3.55E-01	4.03E-01	ND	6.40E-01
Metals	Arsenic	30	30	100%	1.55E+00	7.61E+01				1.45E+01	2.12E+01	2.61E+01	7.61E+01
Metals	Chromium	37	37	100%	1.40E+01	8.10E+02				7.51E+01	1.45E+02	1.46E+02	8.10E+02
Metals	Copper	3	3	100%	1.52E+01	1.08E+02				4.79E+01	5.21E+01	ND	1.08E+02
Metals	Lead	37	37	100%	7.50E+00	2.09E+03				1.04E+02	3.37E+02	2.70E+02	2.09E+03
Metals	Zinc	37	37	100%	5.10E+01	4.80E+02				1.29E+02	7.66E+01	1.44E+02	4.80E+02
SVOCs	Dibenzofuran	46	6	13%	3.5E-04	1.0E-02	40	2.5E-03	8.0E-01	5.6E-02	1.2E-01	3.4E-03	8.0E-01
SVOCs	Hexachloroethane	46	6	13%	5.4E-04	2.2E+00	40	1.1E-04	8.0E-01	1.2E-01	3.5E-01	1.2E-01	2.2E+00
Phthalates	Dibutyl phthalate	46	3	7%	2.1E-02	6.9E-01	43	1.6E-03	8.0E-01	1.1E-01	1.8E-01	9.3E-02	8.0E-01
Phthalates	Bis(2-ethylhexyl) phthalate	46	22	48%	4.6E-02	9.5E+00	24	7.0E-03	2.0E+00	8.8E-01	1.7E+00	1.5E+00	9.5E+00
HPAH	High Molecular Weight PAH	51	44	86%	1.4E-02	1.6E+01	7	2.2E-02	8.0E-01	9.4E-01	2.3E+00	1.9E+00	1.6E+01
Dioxin/Furans	Dioxin TEQ WHO1998 Bird (ND = 1/2 DL)	20	20	100%	1.9E-06	1.2E-03				2.8E-04	3.6E-04	4.4E-04	1.2E-03
Dioxin/Furans	PCB TEQ WHO1998 Bird (ND = 1/2 DL)	1	1	100%	5.3E-06	5.3E-06				5.3E-06	NA	ND	5.3E-06
Dioxin/Furans	TEQ WHO1998 Bird (ND = 1/2 DL)	1	1	100%	2.0E-04	2.0E-04				2.0E-04	NA	ND	2.0E-04
Dioxin/Furans	Dioxin TEQ WHO2005 Mammal (ND = 1/2 DL)	20	20	100%	1.9E-06	1.9E-03				2.4E-04	5.4E-04	4.5E-04	1.9E-03
Dioxin/Furans	PCB TEQ WHO2005 Mammal (ND = 1/2 DL)	1	1	100%	6.1E-06	6.1E-06				6.1E-06	NA	ND	6.1E-06
Dioxin/Furans	TEQ WHO2005 Mammal (ND = 1/2 DL)	1	1	100%	1.6E-04	1.6E-04				1.6E-04	NA	ND	1.6E-04
Pesticides	Total of 2,4' and 4,4'-DDD	55	39	71%	3.7E-03	7.9E+00	16	2.3E-04	5.5E-02	3.9E-01	1.1E+00	8.4E-01	7.9E+00
Pesticides	Total of 2,4' and 4,4'-DDE	55	55	100%	3.3E-03	4.0E+00				7.1E-01	1.1E+00	1.7E+00	4.0E+00
Pesticides	Total of 2,4' and 4,4'-DDT	55	55	100%	1.5E-02	1.7E+02				1.2E+01	3.4E+01	3.0E+01	1.7E+02
Pesticides	Total of 2,4' and 4,4'-DDx	55	55	100%	1.9E-02	1.8E+02				1.3E+01	3.5E+01	3.0E+01	1.8E+02
Pesticides	alpha-Hexachlorocyclohexane	50	2	4%	3.3E-04	1.1E-01	48	7.4E-05	1.4E-01	1.7E-02	2.9E-02	1.2E-02	1.4E-01
Pesticides	beta-Hexachlorocyclohexane	50	2	4%	3.6E-04	7.4E-02	48	7.4E-05	1.4E-01	1.6E-02	2.7E-02	8.7E-03	1.4E-01

Notes:

[a] Non-detected values are presented as 1/2 the detection limit.

[b] Summary statistics were calculated using all data and setting non-detected values equal to 1/2 the detection limit. Mean and SD values are based on arithmetic averages calculated in Excel. Pro-UCL was used to estimate UCL90 values, which in turn were used to calculate hazard quotients to assess risk.

[c] UCLs were calculated using methods and recommendations provided in ProUCL.

COI - contaminant of interest
DDD - dichloro-diphenyl-dichloroethane
DDE - dichloro-diphenyl-dichloroethene
DDT - dichloro-diphenyl-trichloroethane
DDx - sum of 2,4'- and 4,4'-DDD, -DDE, and -DDT
DL - detection limit
HPAH - high-molecular weight PAH
NA - not applicable due to low sample size
ND - non-detect
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
SD - standard deviation
SVOC - semivolatile organic compound
TEQ - toxicity equivalent
UCL - upper confidence limit

Table 6-6. Concentrations (mg/kg dw) of Level II COIs in Soils (0-3 ft) in the Proposed River Environmental Overlay Zone.

			Detected				Not Detected[a]			Summary Statistics[b]			
Present Class	Analyte	No. Samples	No. Detected	Freq. Det.	Min	Max	No. Not Detected	Min	Max	Mean	SD	UCL90[c]	Max
Metals	Antimony	2	1	50%	6.40E-01	6.40E-01	1	7.00E-02	7.00E-02	3.55E-01	4.03E-01	ND	6.40E-01
Metals	Arsenic	24	24	100%	1.55E+00	7.00E+01				1.08E+01	1.75E+01	2.15E+01	7.00E+01
Metals	Chromium	31	31	100%	1.40E+01	8.10E+02				7.80E+01	1.56E+02	1.62E+02	8.10E+02
Metals	Copper	3	3	100%	1.52E+01	1.08E+02				4.79E+01	5.21E+01	ND	1.08E+02
Metals	Lead	31	31	100%	7.50E+00	2.09E+03				1.16E+02	3.68E+02	3.14E+02	2.09E+03
Metals	Zinc	31	31	100%	5.10E+01	4.80E+02				1.26E+02	8.10E+01	1.46E+02	4.80E+02
SVOCs	Dibenzofuran	45	6	13%	3.5E-04	1.0E-02	39	2.5E-03	8.0E-01	5.7E-02	1.3E-01	3.4E-03	8.0E-01
SVOCs	Hexachloroethane	45	6	13%	5.4E-04	2.2E+00	39	1.1E-04	8.0E-01	1.2E-01	3.5E-01	1.3E-01	2.2E+00
Phthalates	Dibutyl phthalate	45	3	7%	2.1E-02	6.9E-01	42	1.6E-03	8.0E-01	1.1E-01	1.8E-01	9.5E-02	8.0E-01
Phthalates	Bis(2-ethylhexyl) phthalate	45	22	49%	4.6E-02	9.5E+00	23	7.0E-03	2.0E+00	8.8E-01	1.7E+00	1.5E+00	9.5E+00
HPAH	High Molecular Weight PAH	45	38	84%	1.4E-02	1.6E+01	7	2.2E-02	8.0E-01	9.3E-01	2.4E+00	2.0E+00	1.6E+01
Dioxin/Furans	Dioxin TEQ WHO1998 Bird (ND = 1/2 DL)	20	20	100%	1.9E-06	1.2E-03				2.8E-04	3.6E-04	4.4E-04	1.2E-03
Dioxin/Furans	PCB TEQ WHO1998 Bird (ND = 1/2 DL)	1	1	100%	5.3E-06	5.3E-06				5.3E-06	NA	ND	5.3E-06
Dioxin/Furans	TEQ WHO1998 Bird (ND = 1/2 DL)	1	1	100%	2.0E-04	2.0E-04				2.0E-04	NA	ND	2.0E-04
Dioxin/Furans	Dioxin TEQ WHO2005 Mammal (ND = 1/2 DL)	20	20	100%	1.9E-06	1.9E-03				2.4E-04	5.4E-04	4.5E-04	1.9E-03
Dioxin/Furans	PCB TEQ WHO2005 Mammal (ND = 1/2 DL)	1	1	100%	6.1E-06	6.1E-06				6.1E-06	NA	ND	6.1E-06
Dioxin/Furans	TEQ WHO2005 Mammal (ND = 1/2 DL)	1	1	100%	1.6E-04	1.6E-04				1.6E-04	NA	ND	1.6E-04
Pesticides	Total of 2,4' and 4,4'-DDD	49	33	67%	3.7E-03	2.2E+00	16	2.3E-04	5.5E-02	2.2E-01	4.2E-01	3.0E-01	2.2E+00
Pesticides	Total of 2,4' and 4,4'-DDE	49	49	100%	3.3E-03	4.0E+00				6.6E-01	1.1E+00	1.6E+00	4.0E+00
Pesticides	Total of 2,4' and 4,4'-DDT	49	49	100%	1.5E-02	1.5E+02				8.8E+00	2.7E+01	1.9E+01	1.5E+02
Pesticides	Total of 2,4' and 4,4'-DDx	49	49	100%	1.9E-02	1.5E+02				9.7E+00	2.8E+01	2.0E+01	1.5E+02
Pesticides	alpha-Hexachlorocyclohexane	49	2	4%	3.3E-04	1.1E-01	47	7.4E-05	1.4E-01	1.7E-02	2.9E-02	1.2E-02	1.4E-01
Pesticides	beta-Hexachlorocyclohexane	49	2	4%	3.6E-04	7.4E-02	47	7.4E-05	1.4E-01	1.7E-02	2.7E-02	8.9E-03	1.4E-01

Notes:

[a] Non-detected values are presented as 1/2 the detection limit.

[b] Summary statistics were calculated using all data and setting non-detected values equal to 1/2 the detection limit. Mean and SD values are based on arithmetic averages calculated in Excel. Pro-UCL was used to estimate UCL90 values, which in turn were used to calculate hazard quotients to assess risk.

[c] UCLs were calculated using methods and recommendations provided in ProUCL.

DDD - dichloro-diphenyl-dichloroethane
DDE - dichloro-diphenyl-dichloroethene
DDT - dichloro-diphenyl-trichloroethane
DDx - sum of 2,4'- and 4,4'-DDD, DDE, and DDT
DL - detection limit
HPAH - high-molecular weight PAH
NA - not applicable due to low sample size
ND - non-detect
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
SD - standard deviation
SVOC - semivolatile organic compound
TEQ - toxicity equivalent
UCL - upper confidence limit

Table 7-1. Chemistry-Toxicity Screen for Level II COIs in Site Soils (mg/kg).

		ECs			Individual Risks[a]					Aggregate Risks[b]				
Structural Compound Class	Chemical	MDC[c]	Ecd		Plant	Invertebrate	Bird	Mammal	Retained as CPEC	Plant	Invertebrate	Bird	Mammal	Retained as CPEC
Metals	Antimony	6.40E-01	6.40E-01	m	1.28E-01	8.21E-03	--	2.37E+00		2.25E-04	6.64E-06	--	4.86E-03	
Metals	Arsenic	7.61E+01	2.61E+01	u	4.23E+00	1.27E+00	6.08E-01	5.68E-01		7.42E-03	1.03E-03	3.50E-03	1.17E-03	
Metals	Chromium	8.10E+02	1.46E+02	u	**8.10E+02**	**2.03E+03**	**5.63E+00**	4.31E+00	*	**1.42E+00**	**1.64E+00**	3.25E-02	8.84E-03	*
Metals	Copper	1.08E+02	1.08E+02	m	1.54E+00	1.35E+00	3.86E+00	2.20E+00		2.71E-03	1.09E-03	2.22E-02	4.52E-03	
Metals	Lead	2.09E+03	2.70E+02	u	**1.74E+01**	1.23E+00	**2.46E+01**	4.83E+00	*	3.06E-02	9.96E-04	1.42E-01	9.90E-03	
Metals	Zinc	4.80E+02	1.44E+02	u	3.00E+00	4.00E+00	3.12E+00	1.82E+00		5.27E-03	3.24E-03	1.80E-02	3.73E-03	
SVOCs	Dibenzofuran	8.0E-01	3.4E-03	u	--	--	--	1.7E+00		--	--	--	3.5E-03	
SVOCs	Hexachloroethane	2.2E+00	1.2E-01	u	--	--	--	2.1E-01		--	--	--	4.2E-04	
Phthalates	Dibutyl phthalate	8.0E-01	9.3E-02	u	4.0E-03	--	2.1E-01	3.1E-06		7.0E-06	--	1.2E-03	6.4E-09	
Phthalates	Bis(2-ethylhexyl) phthalate	9.5E+00	1.5E+00	u	--	--	3.3E-01	1.5E-03		--	--	1.9E-03	3.0E-06	
HPAH	High Molecular Weight PAH	1.6E+01	1.9E+00	u	--	8.9E-01	--	1.7E+00		--	7.2E-04	--	3.5E-03	
Dioxin/Furans	Dioxin TEQ WHO1998 Bird (ND = 1/2 DL)	1.2E-03	4.4E-04	u	--	--	**8.0E+00**	--	*	--	--	4.6E-02	--	
Dioxin/Furans	Dioxin TEQ WHO2005 Mammal (ND = 1/2 DL)	1.9E-03	4.5E-04	u	--	--	--	3.8E+00		--	--	--	7.7E-03	
Pesticides	Total of 2,4' and 4,4'-DDx	1.8E+02	3.0E+01	u	--	--	**3.2E+02**	**1.4E+03**	*	--	--	**1.9E+00**	**2.9E+00**	*
Pesticides	alpha-Hexachlorocyclohexane	1.4E-01	1.2E-02	u	**5.4E+01**	**5.4E+01**	4.9E+00	4.9E+00	*	9.5E-02	4.4E-02	2.8E-02	1.0E-02	
Pesticides	beta-Hexachlorocyclohexane	1.4E-01	8.7E-03	u	**1.4E+02**	**1.4E+02**	**8.7E+00**	**8.7E+00**	*	2.4E-01	1.1E-01	5.0E-02	1.8E-02	
Total HQs ($HQ_{total,i/k}$)					1.0E+03	2.2E+03	3.8E+02	1.5E+03						
Total COIs ($N_{total,k}$)					9.0E+00	9.0E+00	1.1E+01	1.5E+01						

Notes:

[a] The maximum detected concentration is used for determining risks to plants and soil invertebrates.

[b] The lesser of the maximum detected value and the UCL_{90} is used as the EC to determine risks to birds and mammals. ECs are noted as maximum (m) values or UCL (u) values.

[c] Risks of individual COIs were determined by the formula $HQ_{i/k}>Q$, where $HQ_{i/k}=C_i/SLV_k$ and Q=5. SLVs from Table 6-3 were used. If $HQ_{i/k} > 5$, the value is marked in bold and the COI was retained as a CPEC for its respective receptor.

[d] Risks of aggregate COIs were determined by the formula $HQ_{i/k/HQtotal,i/k} \geq (Q/N_{total,k})$, where N_{totalk} is the total number of COIs for receptor k, $HQ_{total,i/k}$ is the sum of all $HQ_{i/k}$'s, and Q=5. If $HQ_{i/k}/HQ_{total,i/k}>(5/N_{total,k})$, the value is marked in bold type and the COI was retained as a CPEC for its respective receptor.

COI - contaminant of interest
CPEC - contaminant of potential ecological concern
DDx - sum of 2,4'- and 4,4'-DDD, DDE, and DDT
DL - detection limit
EC - exposure concentration
HPAH - high-molecular weight PAH
HQ - hazard quotient
MDC - maximum detected concentration
ND - non-detect
PAH - polycyclic aromatic hydrocarbon
SLV - screening level value
SVOC - semivolatile organic compound
TEQ - toxicity equivalent

Table 7-2. Chemistry-Toxicity Screen for Level II COIs in the Proposed River Environmental Overlay Zone Soils (mg/kg).

		ECs			Individual Risks[a]					Aggregate Risks[b]				
Structural Compound Class	Chemical	MDC[c]	Ecd		Plant	Invertebrate	Bird	Mammal	Retained as CPEC	Plant	Invertebrate	Bird	Mammal	Retained as CPEC
Metals	Antimony	0.64	0.64	m	1.28E-01	8.21E-03	--	2.37E+00		2.25E-04	6.64E-06	--	7.25E-03	
Metals	Arsenic	70	21	u	3.89E+00	1.17E+00	5.00E-01	4.67E-01		6.83E-03	9.45E-04	3.96E-03	1.43E-03	
Metals	Chromium	810	162	u	**8.10E+02**	**2.03E+03**	**6.23E+00**	4.77E+00	*	**1.42E+00**	**1.64E+00**	4.94E-02	1.46E-02	*
Metals	Copper	108	108	m	1.54E+00	1.35E+00	3.86E+00	2.20E+00		2.71E-03	1.09E-03	3.06E-02	6.74E-03	
Metals	Lead	2090	314	u	**1.74E+01**	1.23E+00	**2.86E+01**	**5.61E+00**	*	3.06E-02	9.96E-04	2.27E-01	1.72E-02	
Metals	Zinc	480	146	u	3.00E+00	4.00E+00	3.17E+00	1.85E+00		5.27E-03	3.24E-03	2.51E-02	5.65E-03	
SVOCs	Dibenzofuran	0.80	0.00337	u	--	--	--	1.7E+00		--	--	--	5.1E-03	
SVOCs	Hexachloroethane	2.20	0.13	u	--	--	--	2.1E-01		--	--	--	6.4E-04	
Phthalates	Dibutyl phthalate	0.80	0.09	u	4.0E-03	--	2.1E-01	3.2E-06		7.0E-06	--	1.7E-03	9.7E-09	
Phthalates	Bis(2-ethylhexyl) phthalate	10	1.52	u	--	--	3.4E-01	1.5E-03		--	--	2.7E-03	4.6E-06	
HPAH	High Molecular Weight PAH	16	2.01	u	--	8.9E-01	--	1.8E+00		--	7.2E-04	--	5.6E-03	
Dioxin/Furans	Dioxin TEQ WHO1998 Bird (ND = 1/2 DL)	0.0012	0.00044	u	--	--	**8.0E+00**	--	*	--	--	6.4E-02	--	
Dioxin/Furans	Dioxin TEQ WHO2005 Mammal (ND = 1/2 DL)	0.0019	0.00045	u	--	--	--	3.8E+00		--	--	--	1.1E-02	
Pesticides	Total of 2,4' and 4,4'-DDx	150	19.783	u	--	--	**2.1E+02**	**9.4E+02**	*	--	--	**1.7E+00**	**2.9E+00**	*
Pesticides	alpha-Hexachlorocyclohexane	0.1350	0.0125	u	**5.4E+01**	**5.4E+01**	5.0E+00	5.0E+00	*	9.5E-02	4.4E-02	4.0E-02	1.5E-02	
Pesticides	beta-Hexachlorocyclohexane	0.1350	0.009	u	**1.4E+02**	**1.4E+02**	**8.9E+00**	**8.9E+00**	*	2.4E-01	1.1E-01	7.0E-02	2.7E-02	
Total HQs ($HQ_{total,i/k}$)					1.0E+03	2.2E+03	2.8E+02	9.8E+02						
Total COIs ($N_{total,k}$)					9.0E+00	9.0E+00	1.1E+01	1.5E+01						

Notes:

[a] The maximum detected concentration is used for determining risks to plants and soil invertebrates.

[b] The lesser of the maximum detected value and the UCL_{90} is used as the EC to determine risks to birds and mammals. ECs are noted as maximum (m) values or UCL (u) values.

[c] Risks of individual COIs were determined by the formula $HQ_{i/k}>Q$, where $HQ_{i/k}=C_i/SLV_k$ and Q=5. SLVs from Table 6-3 were used. If $HQ_{i/k} > 5$, the value is marked in bold and the COI was retained as a CPEC for its respective receptor.

[d] Risks of aggregate COIs were determined by the formula $HQ_{i/k/HQtotal,i/k}>(Q/N_{total,k})$, where N_{totalk} is the total number of COIs for receptor k, $HQ_{total,i/k}$ is the sum of all $HQ_{i/k}$'s, and Q=5. If $HQ_{i/k}/HQ_{total,i/k}>(5/N_{total,k})$, the value is marked in bold type and the COI was retained as a CPEC for its respective receptor.

COI - contaminant of interest
CPEC - contaminant of potential ecological concern
DDx - sum of 2,4'- and 4,4'-DDD, DDE, and DDT
DL - detection limit
EC - exposure concentration
HPAH - high-molecular weight PAH
HQ - hazard quotient
MDC - maximum detected concentration
ND - non-detect
PAH - polycyclic aromatic hydrocarbon
SLV - screening level value
SVOC - semivolatile organic compound
TEQ - toxicity equivalent

Table 7-3. Contaminants of Potential Ecological Concern in Site Soils.

Structural Compound Class	Chemical[a]	Site Wide	Receptors at Risk[b]	Environmental Overlay	Receptors at Risk[b]
Metals	Chromium	■	pib	■	pib
Metals	Lead	□	pb	□	pbm
Dioxin/Furans	Dioxin TEQ WHO1998 Bird (ND = 1/2 DL)	□	b	□	b
Pesticides	Total of 2,4' and 4,4'-DDx	■	bm	■	bm

Notes:

□ CPEC based on individual risks.

■ CPEC based on individual and cumulative risks for one or more of the receptors of concern.

[a] Alpha-HCH and beta-HCH were not included as CPECs because the frequency of detection was less than 5 percent and because detection limits were too high to assess risk.

[b] p = plant, I = invertebrate, b = bird, m = mammal.

CPEC - contaminants of potential ecological concern
DDx - sum of 2,4'- and 4,4'-DDD, DDE, and DDT
DL - detection limit
HCH - hexacyclochlorohexane
ND - non-detect
TEQ - toxicity equivalent