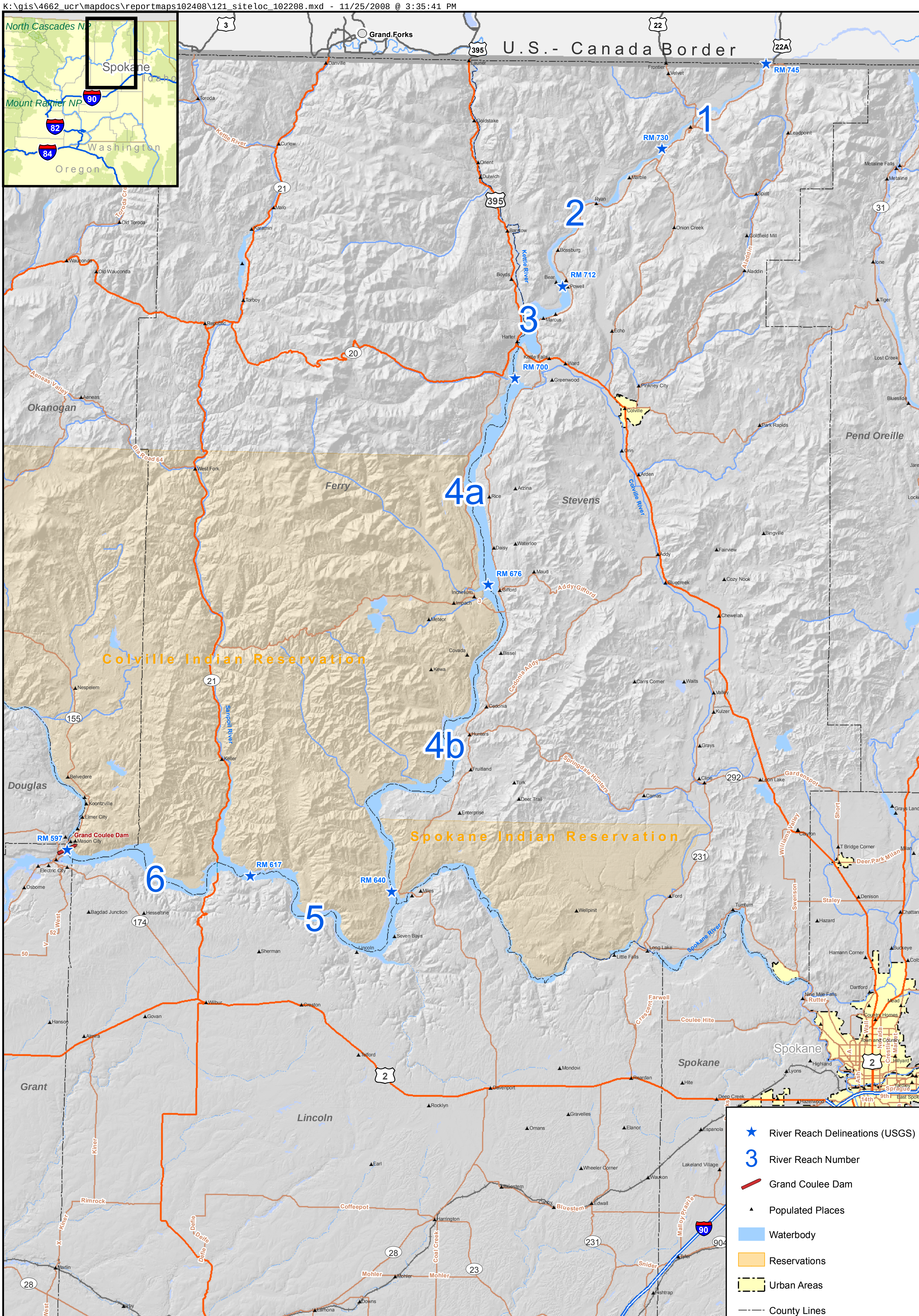
MAPS

K:\gis\4662_ucr\mapdocs\reportmaps102408\121_siteloc_102208.mxd - 11/25/2008 @ 3:35:41 PM



Exponent Parametrix

Km 0 5 10

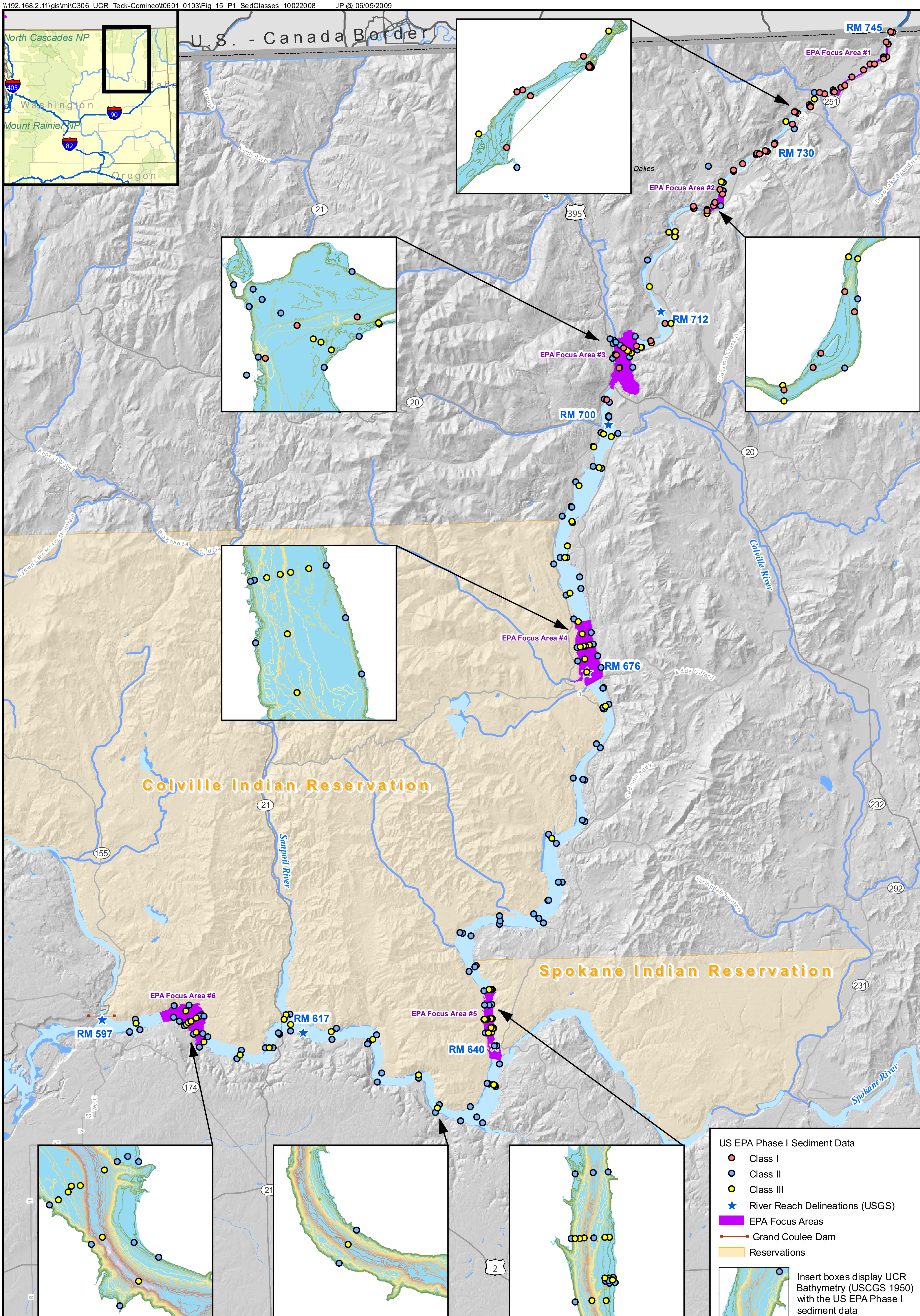
Miles 0 5 10

N

Map 2-1. **Site Location and River Reach Delineation**

Upper Columbia River, WA

\\192.168.2.11\gis\mi\C306_UCR_Teck-Cominco\t0601_0103\Fig_15_P1_SedClasses_10022008 JP @ 06/05/2009



Exponent Parametrix

Km 0 5 10

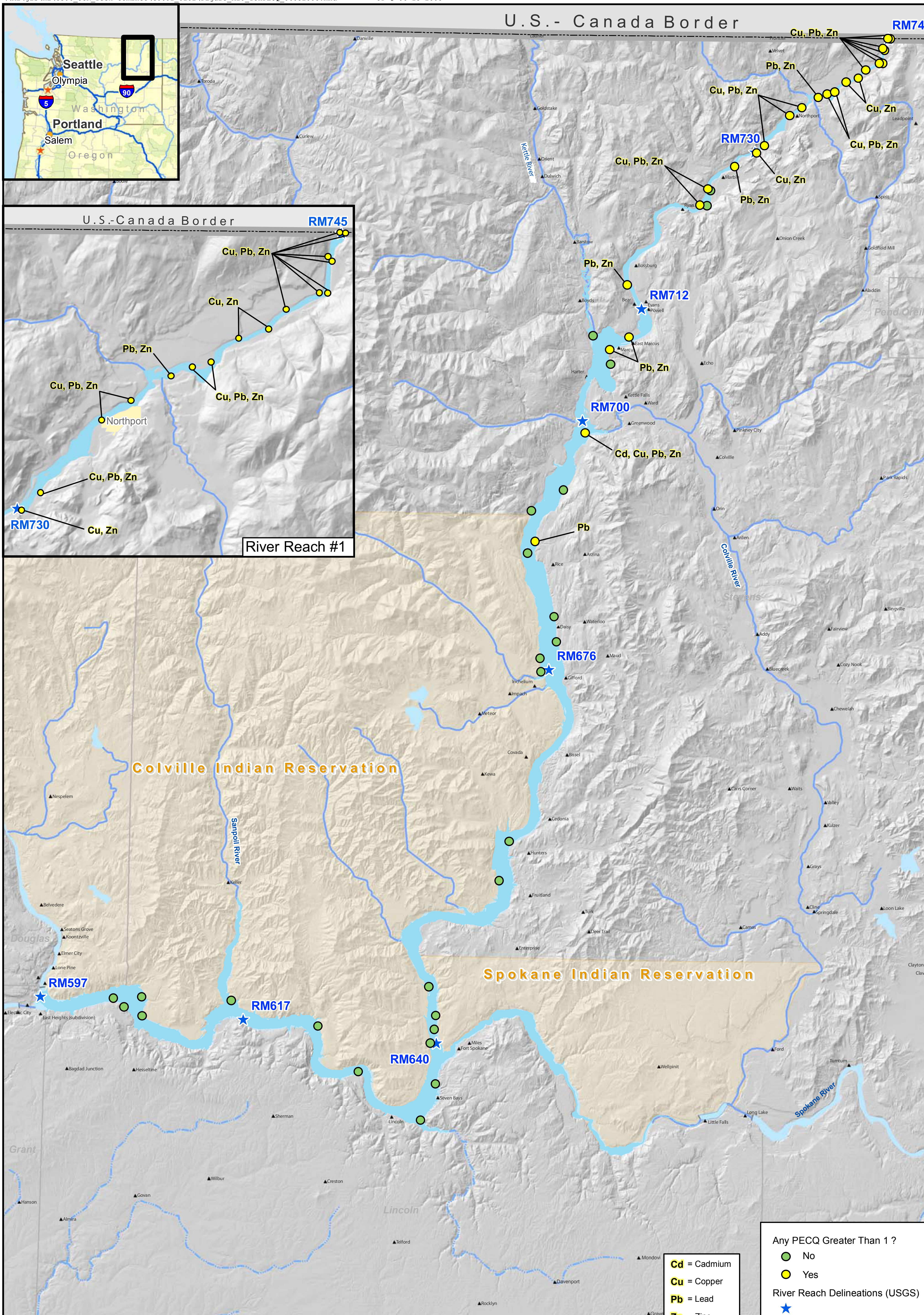
Miles 0 5 10

N

Map 3-1. **Spatial Distribution of Sediment Classes in Phase I Data**

Upper Columbia River, WA

\\Mi\gis\mi\C306_UCR_Teck-Cominco\t0601_0102\Figure_A10_ToxPECQ_06052008.mxd JP @ 06-13-2008



Exponent Parametrix

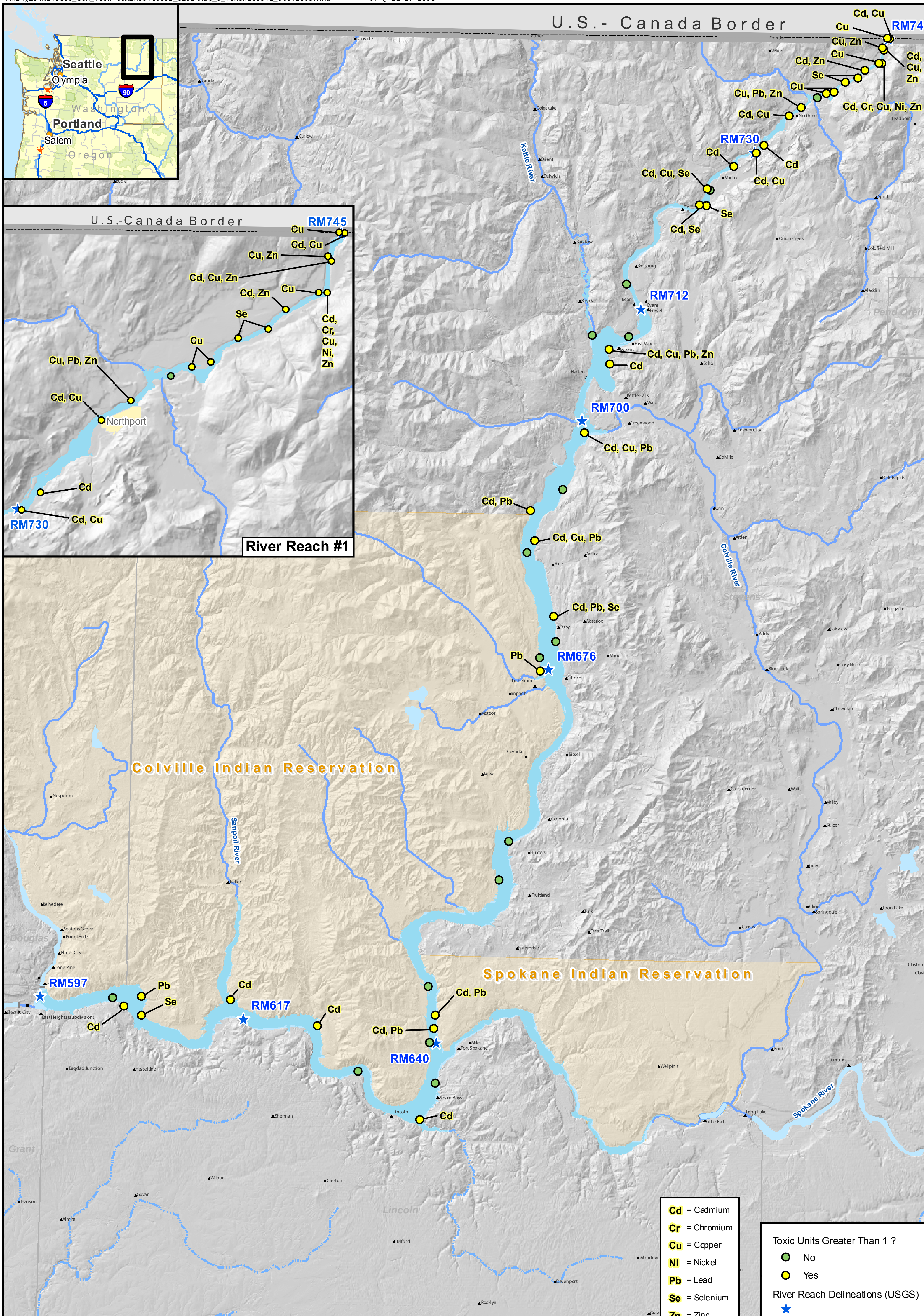
Km
0 5 10

Miles
0 5 10

N

Map 3-2. **Summary of PECQs Greater Than 1.0 for Sediment in the 2005 Sediment Toxicity Study**

Upper Columbia River, WA



Exponent Parametrix

Km 0 5 10

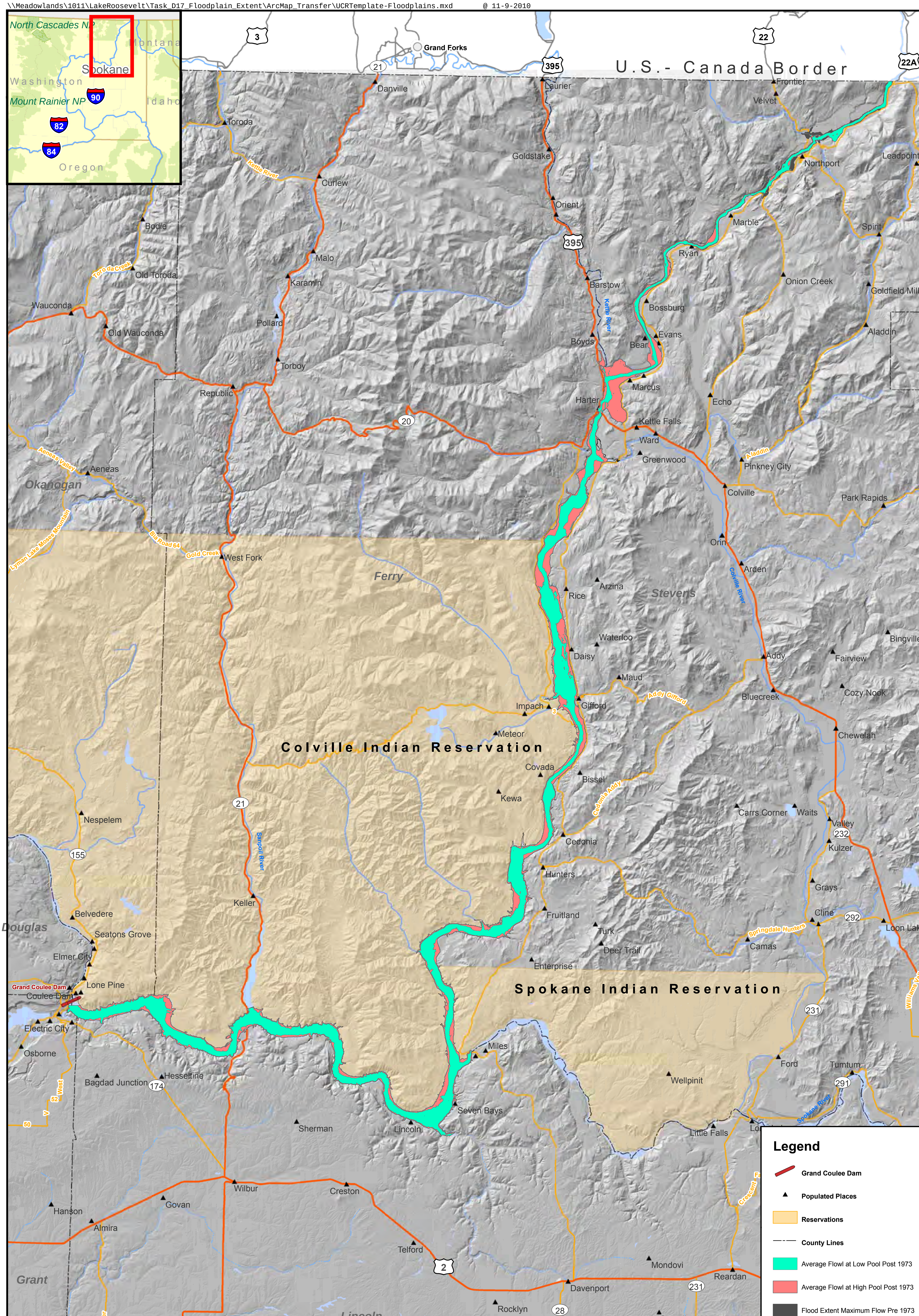
Miles 0 5 10

N

Map 3-3. **Summary of Toxic Units Greater Than 1.0 for Porewater in the 2005 Sediment Toxicity Study**

Upper Columbia River, WA

\\Meadowlands\1011\LakeRoosevelt\Task_D17_Floodplain_Extent\ArcMap_Transfer\UCRTemplate-Floodplains.mxd @ 11-9-2010



Exponent Parametrix

Km: 0 5 10

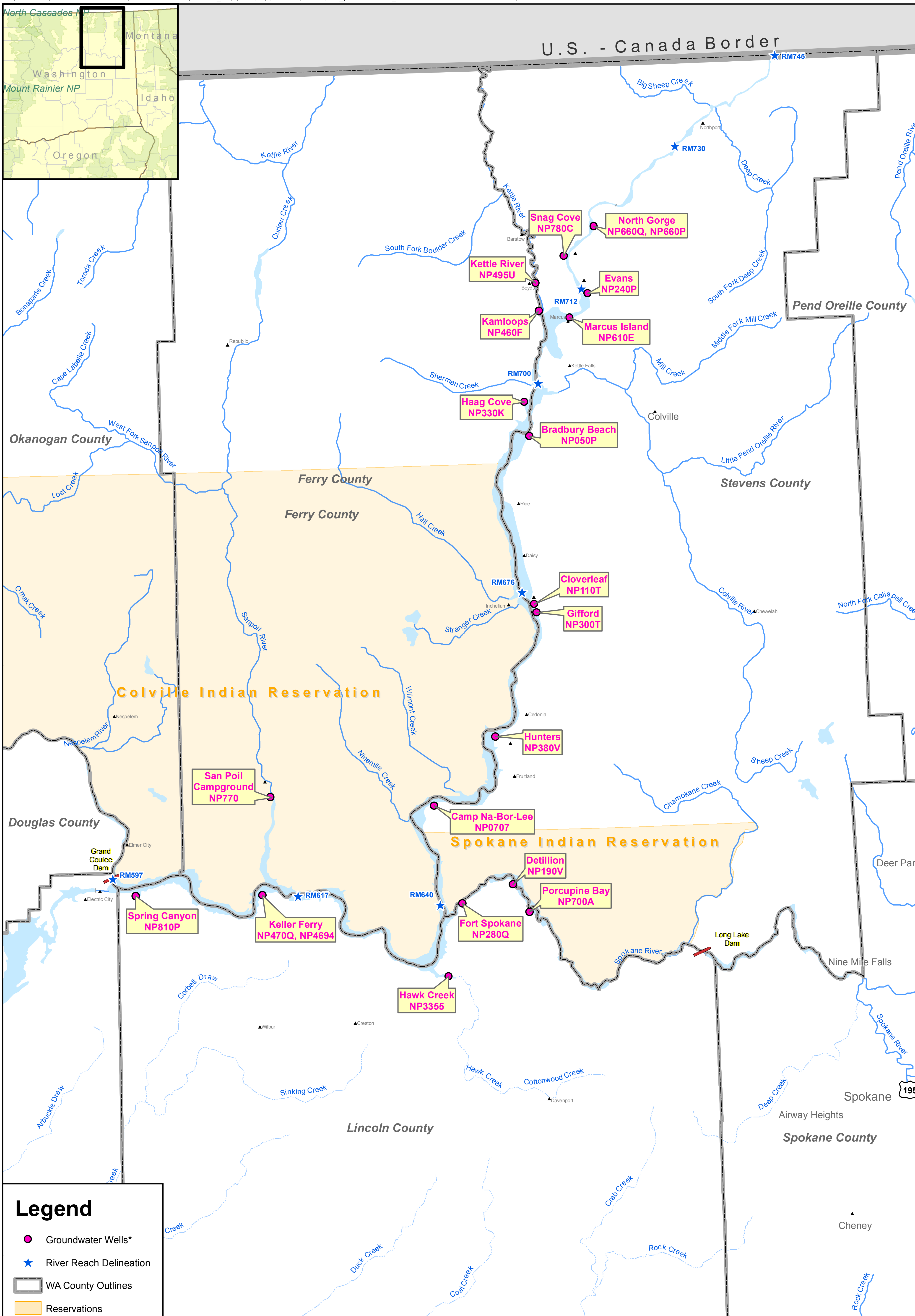
Miles: 0 5 10

N

Map 3-4. **Calculated Floodplains for Post-1973 Average Daily Flow and Pre-1973 Maximum Flow Conditions from the U.S. - Canada Border to Grand Coulee Dam**

Upper Columbia River, WA

P:\Clients\4662-Teck Cominco\598-4662-002 (UCR RI_FS)\GIS\support\mapdocs\UCR_parkservice_020108.mxd Date: 26 February 2008



Exponent **Parametrix**

N

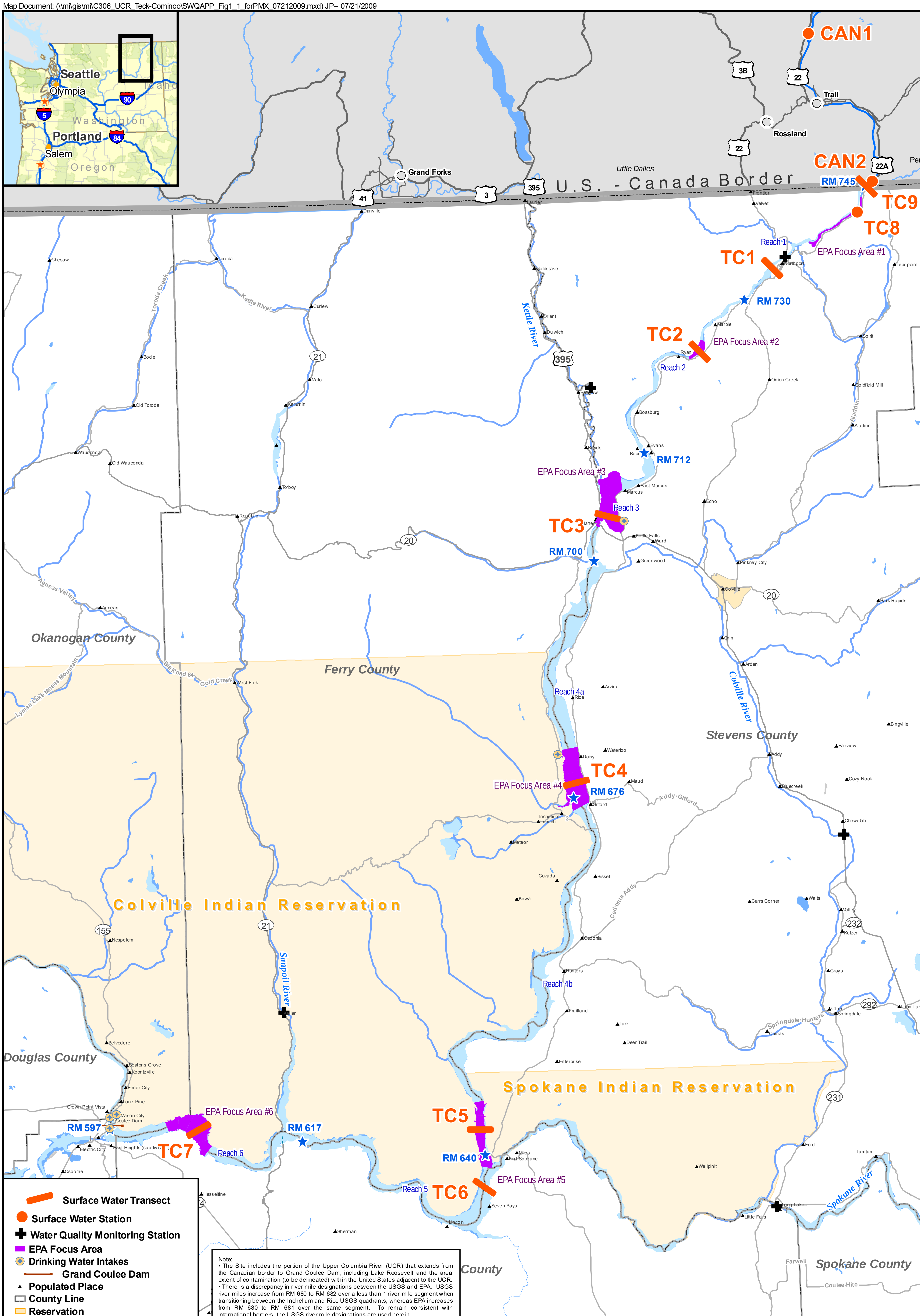
Km: 0 5 10

Miles: 0 2.5 5

Map 3-5. **National Park Service Groundwater Well Locations**

Upper Columbia River, WA

Map Document: (\\mi\gis\mi\C306_UCR_Teck-Cominco\SWQAPP_Fig1_1_forPMX_07212009.mxd) JP-- 07/21/2009



Exponent Parametrix

Km 0 5 10

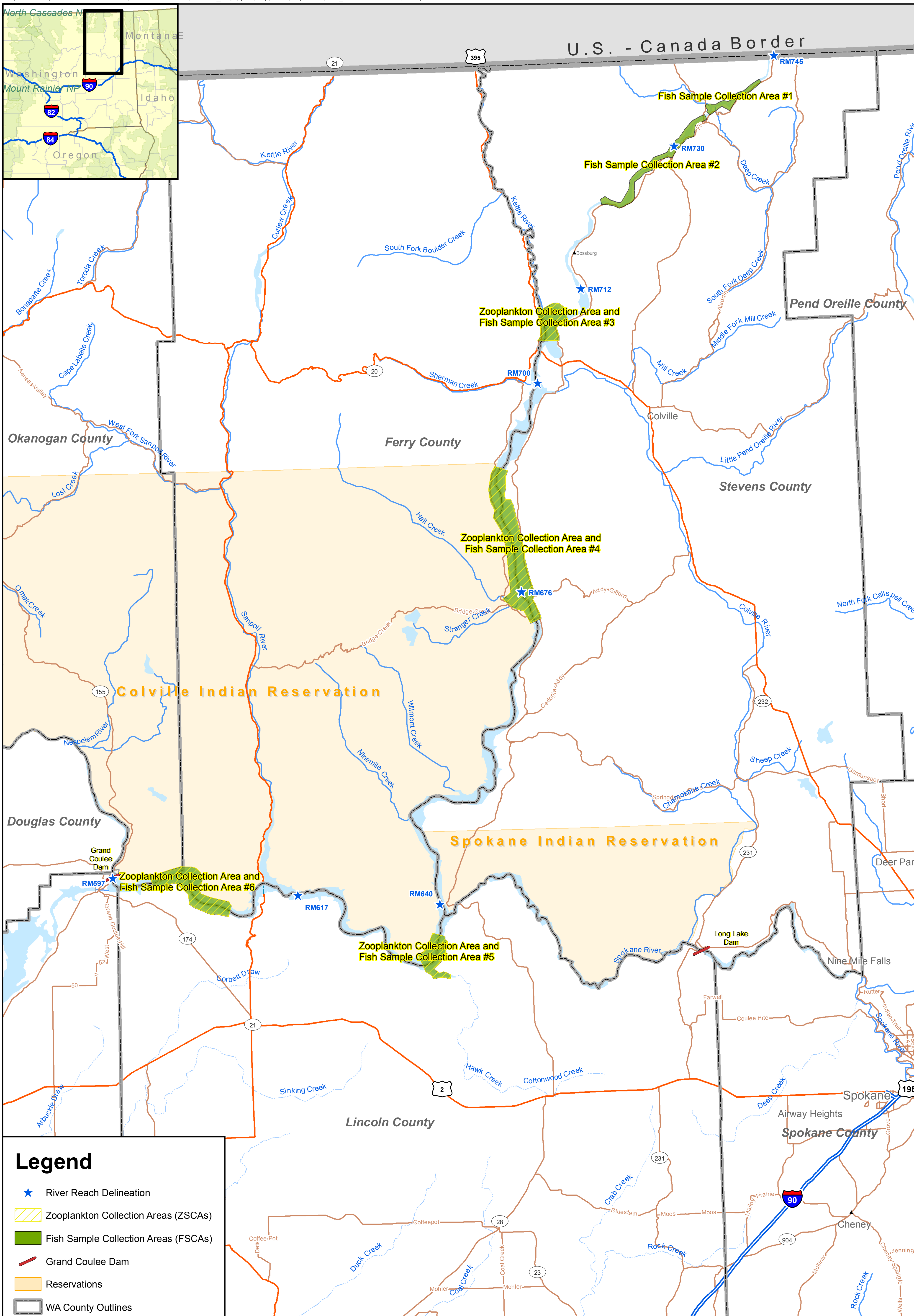
Miles 0 5 10

N

Map 6-1. **Phase II Surface Water Sampling Stations**

Upper Columbia River, WA

P:\Clients\4662-Teck Cominco\598-4662-002 (UCR RI_FS)\gis\support\mapdocs\UCR_FishTissueSamplingLocations072109.mxd



Exponent Parametrix

N

0 5 10 Km

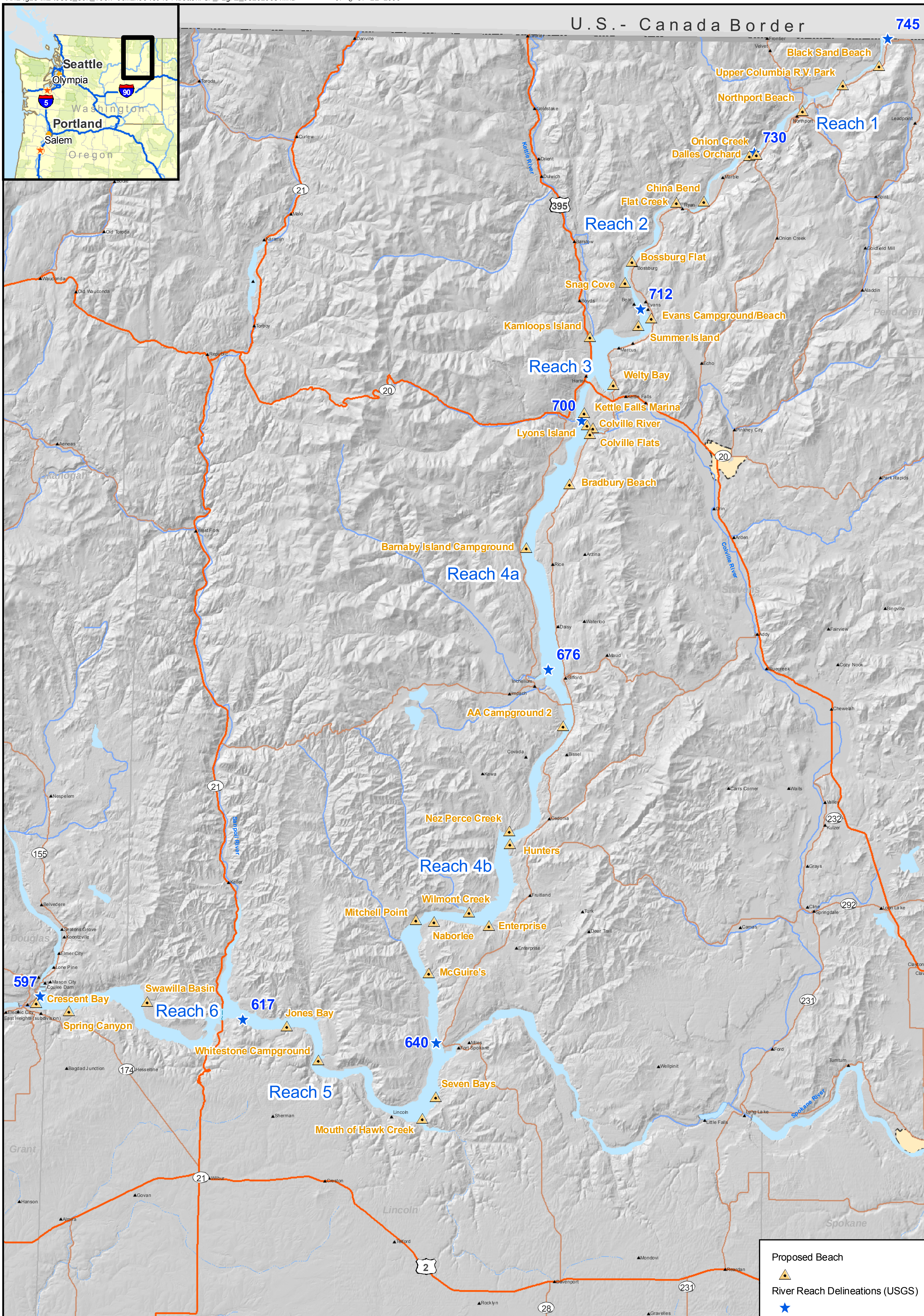
0 2.5 5 Miles

Map 6-2. **2009 Fish Sample Collection Areas**

Note: 2009 FSCAs are equivalent to the EPA 2005 FSCAs

Upper Columbia River, WA

\\Mi\gis\mi\C306_UCR_Teck-Cominco\t0404\BeachFSP_FigA1_05192008.mxd JP @ 07-21-2009



Exponent Parametrix

Km 0 5 10

Miles 0 5 10

N

Map 6-3. **Phase II Beach (Shallow Water) Sediment Sampling Locations**

Upper Columbia River, WA

TABLES

Table 2-1. Threatened and Endangered Terrestrial Species Present in the Surrounding Area of the UCR

Scientific Name	Common Name	Federal Status	State Status
Amphibians			
Rana pipiens	Northern leopard frog	FCo	SE
Birds			
Pelecanus erythrorhynchos	American white pelican		SE
Buteo regalis	Ferruginous hawk	FCo	ST
Centrocercus urophasianus	Sage-grouse	FC	ST
Tympanuchus phasianellus	Sharp-tailed grouse	FCo	ST
Grus canadensis	Sandhill crane		SE
Bartramia longicauda	Upland sandpiper		SE
Mammals			
Brachylagus idahoensis	Pygmy rabbit	FE	SE
Sciurus griseus	Western gray squirrel	FCo	ST
Canis lupus	Gray wolf	FT	SE
Ursus arctos	Grizzly bear	FT	SE
Martes pennanti	Fisher	FCo	SE
Lynx canadensis	Lynx	FT	ST
Rangifer tarandus	Woodland caribou	FE	SE
Vulpes rulpes cascadensis	Cascade red fox	FT	SC

Federal Status Codes:
- FE = federal endangered
- FT = federal threatened
- FC = federal candidate
- FCo = federal species of concern

State Status Codes:
- SE = state endangered
- ST = state threatened

Table 2-2. Chemicals of Potential Concern for the UCR SLERA

Chemical Group	Analyte(s)
Target Analyte List (TAL) Metals and Metalloids	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, K, Se, Ag, Na, Tl, U, V, Zn
Other Metals and Metalloids	Bi, B, Ce, Cs, Dy, Er, Eu, F-, Gd, Ga, Ge, Au, Ho, In, La, Li, Lu, Nd, Nb, Pr, Rb, Sm, Sc, Si, Sr, S, Ta, Te, Tb, Th, Tm, Sn, Ti, W, Yb, Y, Zr
Nutrients	Ammonia, Nitrite-Nitrate, Phosphorous
Semi-volatile Organic Compounds (SVOCs)	1,1'-Biphenyl, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,2'-oxybis(1-chloropropane), 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chloronaphthalene, 2-Chlorophenol, 2-Methylphenol (o-cresol), 2-Nitroaniline, 2-Nitrophenol, 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4,6-Dinitro-2-methylphenol, 4-Bromophenyl-phenylether, 4-Chloro-3-methylphenol, 4-Chloroaniline, 4-Chlorophenyl-phenyl ether, 4-Methylphenol (p-cresol), 4-Nitroaniline, 4-Nitrophenol, Acetophenone, Benzaldehyde, Benzoic acid, Benzyl alcohol, bis(2-Chloroethoxy)methane, Bis(2-chloroethyl)ether, Bis(2-ethylhexyl)phthalate, Butyl benzyl phthalate, Caprolactam, Carbazole, Dibenzofuran, Diethyl phthalate, Dimethyl phthalate, Di-n-butyl phthalate, Di-n-octylphthalate, 1-Phenyl-ethanone, Hexachlorobenzene, Hexachlorocyclopentadiene, Hexachloroethane, Isophorone, Nitrobenzene, N-Nitrosodi-n-propylamine, N-Nitrosodiphenylamine, Pentachlorophenol, Perchlorocyclopentadiene, Phenol
Polycyclic Aromatic Hydrocarbons (PAHs)	Anthracene, Acenaphthene, Acenaphthylene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, 2-Methylnaphthalene, Naphthalene, Phenanthrene, Pyrene
Pesticides	2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Aldrin, alpha-BHC, alpha-Chlordane, Atrazine, beta-BHC, cis-Nonachlor, delta-BHC, Dieldrin, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin aldehyde, Endrin ketone, gamma-BHC (Lindane), gamma-Chlordane, Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Hexachlorobutadiene, Methoxychlor, Oxychlordane, Toxaphene, trans-Nonachlor
Polychlorinated Biphenyls (PCBs)	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, Aroclor 1260, PCB Congeners (209 forms)
Polybrominated Diphenylethers (PBDEs)	PBDE-47, PBDE-66, PBDE-71, PBDE-99, PBDE-100, PBDE-138, PBDE-153, PBDE-154, PBDE-183, PBDE-184, PBDE-191, PBDE-209
Polychlorinated Dibenzo-p-dioxins (PCDDs)	1,2,3,4,6,7,8-Heptachlorodibenzodioxin, 1,2,3,4,7,8-Hexachlorodibenzodioxin, 1,2,3,6,7,8-Hexachlorodibenzodioxin, 1,2,3,7,8,9-Hexachlorodibenzodioxin, 1,2,3,7,8-Pentachlorodibenzodioxin, 2,3,7,8-Tetrachlorodibenzodioxin, Octachlorodibenzodioxin
Polychlorinated Dibenzo-furans (PCDFs)	1,2,3,4,6,7,8-Heptachlorodibenzofuran, 1,2,3,4,7,8,9-Heptachlorodibenzofuran, 1,2,3,4,7,8-Hexachlorodibenzofuran, 1,2,3,6,7,8-Hexachlorodibenzofuran, 1,2,3,7,8-Pentachlorodibenzofuran, 1,2,3,7,8-Pentachlorodibenzofuran, 2,3,4,6,7,8-Hexachlorodibenzofuran, 2,3,4,7,8-Pentachlorodibenzofuran, 2,3,7,8-Tetrachlorodibenzofuran (TCDF), Octachlorodibenzofuran

Table 2-3. Scientific Management Decision Summary for the UCR SLERA

Analyte	Surface Water/Porewater Screening Results for Aquatic Life [a]		Sediment Screening Results for Benthic Invertebrates		Tissue Bioaccumulation Screening Results		Soil Screening Results for Terrestrial Plants, Invertebrates and Wildlife	
	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision
Nutrients								
Ammonia	**2**	Gaps in spatial coverage	**2**	Gaps in spatial coverage	**2**	K_{ow} not applicable	**2**	Not measured
Cyanide	**2**	Gaps in spatial coverage	**2**	Gaps in spatial coverage	**2**	K_{ow} not applicable	**2**	Not measured
Nitrite-Nitrate	**2**	Gaps in spatial coverage	**2**	Gaps in spatial coverage	**2**	K_{ow} not applicable	**2**	Not measured
Phosphorous	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Not measured
Metals/Metalloids								
Aluminum	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Antimony	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Arsenic	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Barium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Beryllium	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Bismuth	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Boron	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Cadmium	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Calcium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Cerium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Cesium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Chloride	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Chromium	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Cobalt	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Copper	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Dysprosium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Erbium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Europium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Fluoride	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Gadolinium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Gallium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Germanium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Gold	**2**	Gaps in spatial coverage	**3**	Not measured	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Holmium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Indium	**2**	Gaps in spatial coverage	**3**	Not measured	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Iron	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Lanthanum	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Lead	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Lithium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Lutetium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Magnesium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Manganese	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Mercury	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Molybdenum	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Neodymium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Nickel	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Niobium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Potassium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Praseodymium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV

Table 2-3. Scientific Management Decision Summary for the UCR SLERA

	Surface Water/Porewater Screening Results for Aquatic Life [a]		Sediment Screening Results for Benthic Invertebrates		Tissue Bioaccumulation Screening Results		Soil Screening Results for Terrestrial Plants, Invertebrates and Wildlife	
Analyte	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision
Metals/Metalloids (con't)								
Rubidium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Samarium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Scandium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Selenium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Silicon (Silica)	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Silver	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Sodium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Strontium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Sulfur (Sulfate)	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Tantalum	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Tellurium	**2**	Gaps in spatial coverage	**3**	Not measured	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Terbium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Thallium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Thorium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Thulium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Tin	**2**	Gaps in spatial coverage	**3**	Not measured	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Titanium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Tungsten	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Uranium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Vanadium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Ytterbium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Yttrium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Zinc	**2**	Gaps in spatial coverage	**3**	Max Msd Conc. ≥ SEV	**2**	K_{ow} not applicable	**3**	Max Msd Conc. ≥ SEV
Zirconium	**2**	Gaps in spatial coverage	**2**	No SEV	**2**	K_{ow} not applicable	**2**	Gaps in spatial coverage/No SEV
Dioxins/Furans								
1,2,3,4,6,7,8-HpCDD	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,4,6,7,8-HpCDF	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,4,7,8,9-HpCDF	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,4,7,8-HxCDD	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,4,7,8-HxCDF	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,6,7,8-HxCDD	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,6,7,8-HCDF	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,7,8,9-HxCDD	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,7,8,9-HxCDF	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,7,8-PCDF	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,3,7,8-PCDD	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
2,3,4,6,7,8-HxCDF	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
2,3,4,7,8-PCDF	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
2,3,7,8-TCDD	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
2,3,7,8-TCDF	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Octachlorodibenzodioxin	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Octachlorodibenzofuran	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
TCDD TEQ	**2**	Not measured	**3**	Max Msd Conc. > SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured

Table 2-3. Scientific Management Decision Summary for the UCR SLERA

Analyte	Surface Water/Porewater Screening Results for Aquatic Life [a]		Sediment Screening Results for Benthic Invertebrates		Tissue Bioaccumulation Screening Results		Soil Screening Results for Terrestrial Plants, Invertebrates and Wildlife	
	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision
PAHs								
2-Methylnaphthalene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**1** [c]	Log K_{ow} < 4.0	**2**	Not measured
Acenaphthene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**1** [c]	Log K_{ow} < 4.0	**2**	Not measured
Acenaphthylene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Anthracene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Benzo(a)anthracene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Benzo(a)pyrene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Benzo(b)fluoranthene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Benzo(ghi)perylene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Benzo(k)fluoranthene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Chrysene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Dibenzo(a,h)anthracene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Fluoranthene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Fluorene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Indeno[1,2,3-cd]pyrene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Naphthalene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**1** [c]	Log K_{ow} < 4.0	**2**	Not measured
Phenanthrene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Pyrene	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Total PAHs	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
PCBs								
Aroclor 1016	**2**	Not measured	**1** [c]	Total PCB Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Aroclor 1221	**2**	Not measured	**1** [c]	Total PCB Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Aroclor 1232	**2**	Not measured	**1** [c]	Total PCB Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Aroclor 1242	**2**	Not measured	**1** [c]	Total PCB Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Aroclor 1248	**2**	Not measured	**1** [c]	Total PCB Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Aroclor 1254	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Aroclor 1260	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Total PCBs	**2**	Not measured	**1** [c]	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
PBDEs								
Total PBDEs	**2**	Not measured	**2**	Not measured	**2**	Log K_{ow} > 4.0	**2**	Not measured
Pesticides								
2,4'-DDD	**2**	Not measured	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
4,4'-DDD	**2**	Not measured	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Total DDD	**2**	Not measured	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
2,4'-DDE	**2**	Not measured	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
4,4'-DDE	**2**	Gaps in spatial coverage	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Total DDE	**2**	Not measured	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
2,4'-DDT	**2**	Not measured	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
4,4'-DDT	**2**	Not measured	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Total DDT	**2**	Not measured	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Total DDx	**2**	Not measured	**3**	Total DDT and Metabolites ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Aldrin	**2**	Not measured	**1**	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Atrazine	**2**	Gaps in spatial coverage	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
alpha-BHC	**2**	Gaps in spatial coverage	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
beta-BHC	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured

Table 2-3. Scientific Management Decision Summary for the UCR SLERA

	Surface Water/Porewater Screening Results for Aquatic Life [a]		Sediment Screening Results for Benthic Invertebrates		Tissue Bioaccumulation Screening Results		Soil Screening Results for Terrestrial Plants, Invertebrates and Wildlife	
Analyte	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision
Pesticides (con't)								
gamma-BHC (Lindane)	**2**	Gaps in spatial coverage	**1**	DLs < SEV provide adequate spatial coverage	**1**	Log K_{ow} < 4.0	**2**	Not measured
alpha-Chlordane	**2**	Not measured	**1**	Total Chlordane < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
gamma-Chlordane	**2**	Not measured	**1**	Total Chlordane < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
cis-Nonachlor	**2**	Not measured	**1**	Total Chlordane < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
trans-Nonachlor	**2**	Not measured	**1**	Total Chlordane < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Oxychlordane	**2**	Not measured	**1**	Total Chlordane < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Total Chlordane	**2**	Not measured	**1**	Total Chlordane < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
delta-BHC	**2**	Not measured	**1**	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Dieldrin	**2**	Gaps in spatial coverage	**1**	DLs < SEV provide adequate spatial coverage	**2**	Log K_{ow} > 4.0	**2**	Not measured
Endosulfan I	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**1**	Log K_{ow} < 4.0	**2**	Not measured
Endosulfan II	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**1**	Log K_{ow} < 4.0	**2**	Not measured
Endrin	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**2**	Log K_{ow} > 4.0	**2**	Not measured
Endrin aldehyde	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Endrin ketone	**2**	Not measured	**1**	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Endosulfan sulfate	**2**	Not measured	**1**	Max Msd Conc. < SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Heptachlor	**2**	Not measured	**1**	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Heptachlor epoxide	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**2**	Log K_{ow} > 4.0	**2**	Not measured
Hexachlorobenzene	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Hexachlorobutadiene	**2**	Not measured	**1**	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Methoxychlor	**2**	Not measured	**3**	Max Msd Conc. ≥ SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Toxaphene	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**2**	Log K_{ow} > 4.0	**2**	Not measured
SVOCs								
1,1'-Biphenyl	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2,4-Trichlorobenzene	**2**	Not measured	**1**	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
1,2-Dichlorobenzene	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**1**	Log K_{ow} < 4.0	**2**	Not measured
1,3-Dichlorobenzene	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**1**	Log K_{ow} < 4.0	**2**	Not measured
1,4-Dichlorobenzene	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**1**	Log K_{ow} < 4.0	**2**	Not measured
2,2'-oxybis(1-Chloropropane)	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2,4,5-Trichlorophenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2,4,6-Trichlorophenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2,4-Dichlorophenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2,4-Dimethylphenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2,4-Dinitrophenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2,4-Dinitrotoluene	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2,6-Dinitrotoluene	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2-Chloronaphthalene	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2-Chlorophenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2-Methylphenol (o-cresol)	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2-Nitroaniline	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
2-Nitrophenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
3,3'-Dichlorobenzidine	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
3-Nitroaniline	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
4,6-Dinitro-2-methylphenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
4-Bromophenyl-phenylether	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**2**	Log K_{ow} > 4.0	**2**	Not measured

Table 2-3. Scientific Management Decision Summary for the UCR SLERA

Analyte	Surface Water/Porewater Screening Results for Aquatic Life [a]		Sediment Screening Results for Benthic Invertebrates		Tissue Bioaccumulation Screening Results		Soil Screening Results for Terrestrial Plants, Invertebrates and Wildlife	
	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision	Decision [b]	Basis for Decision
SVOCs (con't)								
4-Chloro-3-methylphenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
4-Chloroaniline	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
4-Chlorophenyl-phenyl ether	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
4-Methylphenol (p-cresol)	**2**	Not measured	**1**	Max Msd Conc. < SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
4-Nitroaniline	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
4-Nitrophenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Acetophenone	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Benzaldehyde	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Benzoic acid	**2**	Not measured	**1**	Not detected, Max DL Conc. < SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Benzyl alcohol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
bis(2-Chloroethoxy)methane	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Bis(2-chloroethyl)ether	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
bis(2-Ethylhexyl)phthalate	**2**	Not measured	**1**	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Butyl benzyl phthalate	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**2**	Log K_{ow} > 4.0	**2**	Not measured
Caprolactam	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Carbazole	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**1**	Log K_{ow} < 4.0	**2**	Not measured
Dibenzofuran	**2**	Not measured	**1**	Max Msd Conc. < SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Diethyl phthalate	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**1**	Log K_{ow} < 4.0	**2**	Not measured
Dimethyl phthalate	**2**	Not measured	**3**	All DL > SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Di-n-butyl phthalate	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**2**	Log K_{ow} > 4.0	**2**	Not measured
Di-n-octylphthalate	**2**	Not measured	**3**	All DL > SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Hexachlorocyclopentadiene	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Hexachloroethane	**2**	Not measured	**1**	DLs < SEV provide adequate spatial coverage	**2**	Log K_{ow} > 4.0	**2**	Not measured
Isophorone	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Nitrobenzene	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
N-Nitrosodi-n-propylamine	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
N-Nitrosodiphenylamine	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured
Pentachlorophenol	**2**	Not measured	**2**	No SEV	**2**	Log K_{ow} > 4.0	**2**	Not measured
Phenol	**2**	Not measured	**2**	No SEV	**1**	Log K_{ow} < 4.0	**2**	Not measured

Notes:

DL = detection limit

Msd = measured

SEV = screening ecotoxicity value

[a] Surface water data are only available for a limited number of locations. Screening was conducted on available data; however, all analytes require further evaluation in the BERA.

[b] The three types of decisions are as follows:

SMD 1 = This COPC **will** not be carried forward in the ecological risk assessment process for this medium and this receptor group. There is adequate information to conclude that this COPC does not pose an unacceptable ecological risk with respect to this medium and receptor group.

SMD 2 = This COPC **will** be carried forward in the ecological risk assessment process for this medium and this receptor group. There is inadequate information to evaluate whether this COPC poses an unacceptable ecological risk with respect to this medium and receptor group.

SMD 3 = This COPC **will** be carried forward in the ecological risk assessment process for this medium and this receptor group. There is adequate information to conclude that this COPC may pose an unacceptable ecological risk with respect to this medium and receptor group.

[c] PAHs and PCBs have been screened out for benthic invertebrates exposed to sediments in this evaluation. Some PAHs have been screened out based on Log K_{ow}.

Table 3-1. Summary of Existing Data Sources

Year	Study Name	Study Authors	Purpose	Media	Analytes	Comments	UCR Data collected during or after 1996
1979-2007	Environment Canada database	Environment Canada	Routine monitoring at various stations	Surface water	Metals, nutrients, acid/base chemistry, major ions, TOC, physical parameters		Yes
1995-2007	Washington State Department of Ecology, Contaminant Monitoring Program database	Ecology	Routine monitoring at various stations	Surface water	Metals, nutrients, major ions, other parameters		Yes
1958-2007	USGS database	USGS	Routine monitoring at various stations	Surface water	Total recoverable metals		Yes
1985	Basic water monitoring program, fish tissue and sediment sampling for 1984. Ecology Publication No. 85-7.	Hopkins, B.S., D.K. Clark, M. Schlender, and M. Stinson	To obtain information on the incidence and distribution of metals and synthetic organic compounds in the aquatic environment, and to identify potential problem areas requiring further investigation.	Fish and sediments	Pesticides and metals	This document form Ecology reports data from the 1984 field season, and BWMP data from 1978 to 1983 for reference.	No
1989	Survey of mercury and dioxin in Lake Roosevelt sport fish in 1989. Preliminary results for mercury. Ecology Publication No. 89-e29.	Johnson, A. and W. Yake	To address concerns raised by the Colville Tribes and the Lake Roosevelt Water Quality Council on mercury contamination.	Fish muscle tissue	Mercury + dioxin		No
1989	An assessment of metals contamination in Lake Roosevelt. Segment No. 26-00-04.	Johnson, A., B. Yake, and D. Norton	To determine the extent and significance of metal contamination in Lake Roosevelt.	Sediment, water, and fish tissue	Metals (As, Cd, Cu, Hg, Pb, Zn) and toxicity tests	Ecology field surveys conducted in 1986.	No
1990	Transboundary Metal Pollution of the Columbia River (Franklin D. Roosevelt Lake).	Johnson, A., D. Norton, B. Yake and S.Twiss	To determine the extent and significance of contamination in response to reports of elevated metal concentrations in fish and other environmental samples.	Sediment	Metals	Ecology field surveys conducted in 1986.	No
1990	Results of screen for dioxin and related compounds in Lake Roosevelt sport fish. Ecology Technical Memorandum.	Johnson, A.	To evaluate the extent of contamination of dioxins and furans in sport fish in response to concerns raised in an Environment Canada report which found elevated concentrations of dioxins and furans in lake whitefish below the Celgar Pulp Mill.	Fish tissue	Dioxins and furans	This is a journal article focused on sediment data reported in 1988 by Johnson et al.	No
1991a	Review of metals, bioassay, and macroinvertebrate data from Lake Roosevelt benthic samples collected in 1989. Publication No. 91-e23.	Johnson, A.	This study was a follow-up study of the initial UCR sediment toxicity conducted in 1986 by Johnson et al. (1989). It employed one test (Microtox®) that was not used in the 1986 study, as well as the two of the tests that were used in 1986 (Hyalella and Daphnia).	Sediment	Metals and toxicity tests	Samples were collected by Ecology between August 14 and 17, 1989.	No
1991	Metals concentrations in Lake Roosevelt (Columbia River) largescale suckers. Memorandum to Carl Nuechterlein June, 21, 1991. Ecology Publication 91-e26.	Johnson, A., and D. Serdar	Not provided, but assumed to assess metal concentrations in fish.	Fish muscle tissue were analyzed for mercury, bone tissue for lead, and liver tissue for cadmium.		Fish collected in September 1989 and kept frozen as part of a B.C. Ministry of Environment study were given to Ecology in 1990.	No
1991b	Polychlorinated dioxins and furans in Lake Roosevelt (Columbia River) sport fish, 1990. Ecology Publication No. 91-4.	Johnson, A., D. Serdar, and S. Magoon	To estimate the mean concentrations of TCDD and TCDF in muscle tissue of major sport fish in Lake Roosevelt.	Fish tissue	TCDD and TCDF		No
1991a	Spatial trends in TCDD/TCDF concentrations in sediment and bottom fish collected in Lake Roosevelt (Columbia River). Ecology Publication No. 91-29	Johnson, A., D. Serdar, and D. Norton	To better understand the spatial distribution of these compounds as a result of their discharge by the Celgar bleached kraft pulp mill in Castlegar, B.C.	Sediment and fish tissue	PCDDs and PCDFs and 44 other compounds	Ecology collected samples in June 1990.	No
1991b	Results of screen for EPA xenobiotics in sediment and bottom fish from Lake Roosevelt (Columbia River). Ecology Publication No. 91-a24.	Johnson, A.					
1992	Cominco sediment bioassays, sediment and water chemistry -October and November 1991. Regional Data Report DR 92-12.	Godin, B. and M. Hagen	To evaluate the toxicity of slag from the Trail smelter, as well as sediment from the Columbia River, both above and below Trail.	Surface sediments and a sample of mid-tap furnace slag was collected during the middle of a pulse of quenched slag discharge.	Metals and toxicity tests	Teck collected samples in October and November 1991.	No
1993	Cadmium, lead, zinc, copper, and nickel in agricultural soils in the United States of America.	Holmgren, G.G.S., M.W. Meyer, R.L. Chaney, and R.B. Daniels	To define a range of values that represent the natural concentration of metals in surficial soils throughout Washington State. Ecology (1994) provides data on soil chemistry for the Spokane Basin that are useful for comparison to Site soils. The Spokane Basin group was a combination of data from Spokane, Lincoln, and Pend Oreille Counties.	Soil	Metals (cadmium, lead, zinc, copper, and nickel)	Sampling was conducted by USGS Water Resources Division personnel between June 1987 and January 1993.	No

Table 3-1. Summary of Existing Data Sources

Year	Study Name	Study Authors	Purpose	Media	Analytes	Comments	UCR Data collected during or after 1996
1993	A 1992 biological reconnaissance and sediment sampling in the Columbia River between the Hugh Keenleyside Dam and the International Boundary.	Norecol Environmental Consultants Ltd.	To evaluate the environmental quality of the Columbia River between the Hugh Keenleyside Dam and the U.S.-Canadian border.	Aquatic communities (i.e., periphyton, macrophytes, and benthic macroinvertebrates), sediment chemistry,	Organic pollutants and metals	Sampling was conducted in April and October of 1992 for the Columbia River Integrated Environmental Monitoring Program (CRIEMP).	No
1994	Contaminant trends in Lake Roosevelt. Publication No. 94-185.	Serdar, D., B. Yake, and J. Cubbage	To evaluate changes in pollutant loads to Lake Roosevelt over time in lake whitefish and largescale suckers; and thereby document the effects of pollution controls being implemented by Canadian industries related to contaminants from Celgar and Cominco.	Fish tissues and suspended particles separated from surface water	Dioxins, furans, and trace metals (Cd, Cu, Pb, Hg, and Zn). Toxicity (not in sed tox section), and bioaccumulation by macrophytes and benthic macroinvertebrates (not in tox or benthic invertebrate sections)	Fish were collected by Ecology from the UCR in 1992 and 1993. During 1990, 1992, and 1993, Ecology monitored concentrations of these analytes.	No
1994	Bioavailability of trace metals in Franklin D. Roosevelt Lake, Washington, sediments. Washington State University. Masters Thesis. December 1994.	Tielens, J.T.	To evaluate metal concentrations in surface sediments, porewater, and benthic macroinvertebrates in the UCR.	Sediments, porewater, and benthic macroinvertebrates tissue	Metals	Sampling was conducted in August of 1994.	No
1994	Air Monitoring Data and Evaluation of Health Concerns in Areas of Northeast Tri-County; Summary of Activities.	WDOH	Parts I and II of a four phase study to 1) determine the possibility of cross-border transport of pollutants, 2) identify a potential contributing source(s), and 3) measure pollutant concentrations.	Air	TSP, PM-10, metals (Sn, As, Cd, Cu, Pb, Mn, Zn), SO_2; wind speed, direction; air temperature; meteorological data.	Samples collected samples from December 1992 - October 1993.	No
1994	Sediment-quality assessment of Franklin D. Roosevelt Lake and the upstream reach of the Columbia River, Washington, 1992. USGS Report 94-315.	Bortleson, G.C., S.E. Cox, M.D. Munn, R.J. Schumaker, and E.K. Block	To provide a comprehensive characterization of the distribution of metals and organic compounds in surface sediments throughout the UCR, and represents a more detailed characterization of surface sediments than Johnson et al. (1989 and 1991a) in the Columbia River upstream of Lake Roosevelt to the Canadian border.	Bed sediments, suspended sediments, surface water, pore water.	Metals and organic compounds associated with urban and industrial activities and pulp-mill discharge, and 3 species toxicity tests	Sampling was conducted in September and October of 1992 by USGS in cooperation with USEPA.	No
1994	Natural background soil metals concentrations in Washington State.	Ecology	Define background concentrations for WA state	Soil	Metals		No
1995	Concentrations of mercury and other trace elements in walleye, smallmouth bass, and rainbow trout in Franklin D. Roosevelt Lake and the Upper Columbia River, USGS 95-195.	Munn, M.D., S.E. Cox, and C.J. Dean	To determine the concentrations of mercury and other trace elements in sport fish in the Columbia River.	Total mercury, arsenic, cadmium, copper, lead, manganese, selenium, and zinc in fish fillets, and cadmium, copper, lead, and zinc in liver tissue.		Composites of fish muscle tissue were collected by USGS in 1994.	No
1997	Lower Columbia River from Birchbank to the International Border: Water Quality Assessment and Recommended Objectives	MacDonald Environmental Sciences Ltd.	Assess and recommend water quality objectives (WQOs), sediment quality objectives (SQOs) and tissue residue objectives (TROs).	Surface water, sediments, benthic invertebrate tissues	Metals (As, Cd, Cr, Cu, Pb, Tl, and Zn)	These assessments and recommendations were made for the Columbia River in British Columbia, Canada.	Yes
1997	Lake Roosevelt National Recreation Area, Washington: Water resources scoping report. National Park Service Technical Report NPS/NRWRD/NRTR-97/107.	Riedel, J.L.	To summarize the state of knowledge about water quality in Lake Roosevelt at the time of writing	Water	Metals (As, Cd, Pb, Zn), dioxins, furans, Also review bacterial pollution and bank erosion	No new measurements were made; summary of existing information.	No
1998a	Northport, Washington Air Quality Study: Phase III. Publication No. 98-210.	Ecology	Part III of a four phase study to 1) determine the possibility of cross-border transport of pollutants, 2) identify a potential contributing source(s), and 3) measure pollutant concentrations.	Air	TSP, PM-10, metals (Sn, As, Cd, Cu, Pb, Mn, Zn), SO_2; wind speed, direction; air temperature; meteorological data.	Samples collected November 1993 - August 1994.	No
1998b	Northport, Washington Air Quality Study: Phase IV. Publication No. 98-211.	Ecology	Part IV of a four phase study to 1) determine the possibility of cross-border transport of pollutants, 2) identify a potential contributing source(s), and 3) measure pollutant concentrations.	Air	TSP, PM-10, metals (Sn, As, Cd, Cu, Pb, Mn, Zn), SO_2; wind speed, direction; air temperature; meteorological data.	Samples collected September 1997 - December 31, 1998.	Yes
1997a 1997b 2000 2001 2003 2007	Teck Cominco Ecological risk Assessment (EcoRA) and Related Studies.	Antcliffe et al. Antcliffe et al. Lewis Teck Cominco Golder Golder	To monitor efforts for smelter improvements and conduct an ERA. These studies include separate reports on the Problem Formulation portion of the EcoRA, a fish health study, and the results of the tissue chemistry monitoring efforts.	Whole fish and fis muscle tissue	Metals (As, Cd, Cu, Fe, Hg, Se, Ag, Pb, Zn)	Fish were collected by the DFO in 1994, 1995, 1996, 1999, 2001, and 2004.	Yes

Table 3-1. Summary of Existing Data Sources

Year	Study Name	Study Authors	Purpose	Media	Analytes	Comments	UCR Data collected during or after 1996
1998	Assessment of dioxins, furans, and PCBs in fish tissue from Lake Roosevelt, Washington, 1994.	EVS Environmental Consultants, Inc.	In 1994, USEPA initiated a study to measure concentrations of dioxins, furans, and PCBs in fillet tissue, and to compare tissue concentrations between different geographic areas, between size classes, between composites and individual, and for comparison with historical data for whitefish.	Fish fillet and muscle tissue	Dioxins, furans, and PCBs		No
1999 2002 2003 2004 2005 2005 2006 2007	Lake Roosevelt Fisheries Evaluation Program (LRFEP)	McLellan et al. Shields et al. Lee et al. Scofield et al. Fields et al. Pavlik-Kunkel et al. Lee et al. Scofield et al.	Various water quality parameters were collected as part of an ongoing program to monitor limnological and biological resources in the lentic portion of the UCR from Marcus Flats to the vicinity of the Grand Coulee Dam.	Water	Water quality parameters and nutrients: temperature, DO, conductivity, turbidity, pH, redox potential, total dissolved gas, NO_3 as N, NO_2 as N, NH3 as N, TKN, total nitrogen, TP, OP, alkalinity, TSS, turbidity.		Yes
2000	The effects of contaminants on reproduction, embryo development and related physiological processes in Kootenai River white sturgeon, *Acipenser transmontanus* .	Kruse, G.O.	This study used biomarkers to evaluate the effects environmental levels of organochlorine, organophosphate, organitrate, and carbamate pesticides, polychlorinated biphenyls (PCBs) and metals in the aquatic system on Kootenai River white sturgeon.	Fish tissue	organochlorine, organophosphate, organitrate, and carbamate pesticides, polychlorinated biphenyls (PCBs) and metals		No
2000	Effect of sublethal concentrations of mercury, cadmium, and copper salts on the lysozyme content in fry of the Lena River Sturgeon (*Acipenser baeri*).	Lapirova T.B., V.R. Mikryakova, A.S. Mavrin, and G.A. Vinogradova	To investigate the sublethal effects of metals on juvenile sturgeon over a 30 to 60 day period.	Fish toxicity (Sturgeon)	Copper, cadmium, and mercury Sub-lethal toxicity tests on 2-month-old Siberian sturgeon (*Acipenser baeri*) were evaluated by examining changes in lysozyme content of individual body tissues (spleen, liver, and heart).		No
2000	Contaminant trends in sport fish from Lake Roosevelt and the Upper Columbia River, Washington, 1994-1998. USGS Report 00-4024.	Munn, M.D.	To compare data and to follow-up on prior fish tissue studies in the Columbia River area.	Fish tissue	Mercury, PCBs, dioxins, and furans	Data are from 1994-1998.	No
2001	Reassessment of toxicity of Lake Roosevelt sediments. Publication No. 01-03-043.	Era, B., and D. Serdar	To reassess metal concentrations and toxicity of sediments and to make recommendations on the continued listing or de-listing of the upper Columbia River and Lake Roosevelt sites on the 303(d) list.	Surface sediments	Metals Toxicity tests on sediments and pore water	Sampling was conducted by Ecology in May of 2001.	Yes
2002a	Assessment of bioaccumulated metal and organochlorine compounds in relation to physiological biomarkers in Kootenai River white sturgeon.	Kruse, G.O., and D.L. Scarneccia	To assess the potential effect of environmental mixtures of metals and organochlorine chemicals on white sturgeon.	Fish (sturgeon) tissue	Metals and organochlorine compounds (e.g. DDE, DDT, and Aroclor 1260)		No
2002b	Contaminant uptake and survival of white sturgeon.	Kruse, G.O., and D.L. Scarneccia	To investigated the potential effects of various deadhesion treatments commonly used during rearing of white sturgeon eggs on contaminant uptake and survival of embryos in Kootenay River water. The study was part of a larger concern that the exposure of eggs or sperm to contaminants from sediments, water coumn, or suspended sediment during fertilization might have an impact on recovery efforts.	Fish tissue (sturgeon embryos)	Metals, organochlorine pesticides, and PCBs		No
2002b	Columbia River Basin Fish Contaminant Survey; 1996 – 1998.	USEPA	To estimate risks to Columbia River Intertribal Fish Commission's member tribes and to quantify differences in contamination among fish species and study sites.	Whole fish, fillet and eggs	Metals, pesticides, PCBs, dioxins, furans, and other organics	Fish were collected in 1996 and 1998.	No

Table 3-1. Summary of Existing Data Sources

Year	Study Name	Study Authors	Purpose	Media	Analytes	Comments	UCR Data collected during or after 1996
2002a	Upper Columbia River/Lake Roosevelt expanded site inspection – Northeast Washington, Sediment Investigation Statistical Analysis.	USEPA	To provide information for determining whether the UCR site should be included on the National Priorities List, and to establish priorities for additional action, if warranted.	Surface sediments, subsurface sediments and soils	Metals, Pesticides/ polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs).	Sampling was conducted by USEPA in May and June of 2001.	Yes
2003a	Upper Columbia River expanded site inspection report, Northeast Washington, TDD: 01-02-0028.	USEPA					
2003	Mercury in Edible Fish Tissue and Sediment from Selected Lakes and Rivers of Washington State.	Fischnaller et al.	To conducted a screening survey for mercury concentrations in fish tissue and sediments from selected lakes and rivers across Washington State.	Fish and sediments	Mercury	Ecology collected samples during 2001 and 2002.	Yes
2003	Concentrations and distributions of slag-related trace elements and mercury in fine-grained beach and bed sediments of Lake Roosevelt, Washington, April-May 2001.	Majewski, M.S., S.C. Kahle, J.C. Ebbert, and E.G. Josberger	To determine the concentrations and distribution of trace elements in the fine-grained fraction of exposed beach, bed, and bank sediments (i.e., <63 μm) along the Columbia River from the Canadian border to the Grand Coulee Dam.	Surface sediments	Metals (arsenic, cadmium, copper, lead, mercury, and zinc)	Sampling was conducted by USGS in April and May of 2001 during the spring drawdown of the lake.	Yes
2004	Effects of two industrial effluents on juvenile white sturgeon (*Acipenser transmontanus*).	Bruno, J.	To assess the toxicity of two effluents on early life stage of white sturgeon over 50 days in support of the UCR White Sturgeon Recovery Initiative (UCRWSRI). The larger question was "…what role might pollution play in the lack of successful recruitment of Columbia River white sturgeon?" In addition to sturgeon, the toxicity tests included early life stage rainbow trout and bacterial bioluminescence for short term tests.	Combined Sewer Outfall III (CSOIII) effluent from Teck's Trail smelter, effluent from the secondary foam tank of Celgar Pulp Company Ltd in Castlegar.	Metals Toxicity to sturgeon and trout fish fry, bacteria.	Studies were conducted during summer/fall of 2002.	Yes
2004	Geochemistry of sediments in the US from the NURE-HSSR database. http://tin.er.usgs.gov/nure/sediment/. U.S. Geological Survey. Accessed September 2007.	USGS	Documentation of the field and laboratory methods followed during the NURE-HSSR program was reviewed to assess the usability of these data.	Soil and sediments	Uranium	The NURE-HSSR program, a nationwide survey of the elemental compositionof soils and sediments, was conducted to assess the location of potential deposits of uranium and other strategic minerals in the U.S. Data collected in the 1970s, 1980s, and 2004.	Yes
2004	Biomonitoring of Environmental Status and Trends (BEST) Program: Environmental contaminants and their effects on fish in the Columbia River Basin. USGS Scientific Investigations Report 2004 - 5154.	Hinck, J.E., C.J. Schmitt, T.M. Bartish, N.D. Denslow, V.S. Blazer, P.J. Anderson, J.J. Coyle, G.M. Dethloff, and D.E. Tillitt	To document and assess spatial and temporal trends in the concentrations of environmental contaminants and their effects on fish throughout the Columbia River Basin, and to compare results from the Columbia River Basin to other U.S. river systems, to further define benchmarks for the quantification of long-term trends, and interpretation of biomarker results.	Whole fish	Metals, pesticides and PCBs	Most fish were collected by USGS between early September and November 1997. A suite of chemical and biological methods was used to characterize the exposure of fish to chemicals including reproductive biomarkers, measures of cytochrome P450 enzyme induction and concentrations of chemicals in whole fish. Measures of potential effects of chemical exposures included fish health assessments; measures of fish health included 1) gross abnormalities; 2) condition factor (CF); hepatosomatic index (HSI); splenosomatic index (SSI); 3) histopathology; and, 4) several measures of reproductive condition.	Yes
2006	Environmental contaminants and biomarker responses in fish from the Columbia River and its tributaries: Spatial and temporal trends. Sci. Tot. Environ. 366(2006):549-578.	Hinck, J.E., C.J. Schmitt, T.M. Bartish, V.S. Blazer, N.D. Denslow, T.M. Bartish,P.J. Anderson, J.J. Coyle, G.M. Dethloff, and D.E. Tillitt					
2005	Vertical distribution of trace-element concentrations and occurrence of metallurgical slag particles in accumulated bed sediments of Lake Roosevelt, Washington, September 2002. Scientific Investigations Report 2004-5090	Cox, S.E., P.R. Bell, J.S. Lowther, and P.C. VanMetre	To evaluate the vertical distributions of trace elements within the accumulated bed sediments and pore water of Lake Roosevelt; to determine if the potential exists for remobilization of trace elements within the buried sediments; and to evaluate sediment from selected core intervals for the occurrence of metallurgical slag.	Sediment	Metals (arsenic, cadmium, lead, mercury, zinc, copper, antimony, and silver)	Sampling was conducted by USGS in September 2002	Yes

Table 3-1. Summary of Existing Data Sources

Year	Study Name	Study Authors	Purpose	Media	Analytes	Comments	UCR Data collected during or after 1996
2005	Assessing contaminant sensitivity of endangered and threatened aquatic species: Part 1. Acute toxicity of five chemicals.	Dwyer, F.J., F.L. Mayer, L.C. Sappington, D.r. Buckler, C.M. Bridges, I.E. Greer, D.K. Hardesty, C.E. Henke, C.G. Ingersoll, J.L. Kunz, D.W. Whites, T. Augspurger, D.R. Mount, K. Hattala, and G.N. Neurderfer	A literature review of the acute toxicity of selected chemicals to aquatic species (96 hr. LC-50s).	Fish Toxicity (Sturgeon)	Carbaryl, copper, 4-nonylphenol, pentachlorophenol, and permethrin. Waterborne toxicity.	This review of the sensitivity of 20 threatened aquatic vertebrate species included 3 sturgeon species.	No
2005	Occurrence and distribution of trace elements in air along Lake Roosevelt. Summary and data available from http://wa.water.usgs.gov/projects/roosevelt/summary.htm.	USGS	To compare the occurrence, composition, and concentration of trace elements measured in airborne dust samples collected before, during, and after the drawdown of the reservoir to the results of a previous study that sampled exposed bed sediments along the entire length of Lake Roosevelt.	Air	Approximately 30 inorganics and particulate matter (PM-10);	Samples were collected by USGS from 2002 -2006.	Yes
2005	Le Roi Smelter removal action report, Northport, Stevens County, Washington.	Weston, R.F.	Phase 2 sampling in May 2004 for CERCLA removal action.	Soil	Arsenic, cadmium, copper, and lead		Yes
2006	PBDE Flame retardants in Washington rivers and lakes: Concentrations in fish and water 2005-06. Ecology Publication No. 06-03-027.	Johnson, A., K. Seiders, C. Deligeannis, K. Kinney, P. Sandvik, B. Era-Miller, and D. Alkire	To establish baseline conditions that could be used to evaluate the effectiveness of the Washington State PBDE Chemical Action Plan and other efforts to reduce PBDE inputs to the environment, and to identify spatial, temporal and between species patterns in the environmental distribution of PBDEs.	Fish fillet and water	polybrominated diphenyl ether (PBDE) flame retardants	Samples were collected statewide by Ecology during 2005-2006.	Yes
2006	Upper Columbia River White Sturgeon Contaminant and Deformity Evaluation and Summary	Kruse and Webb	Not provided, but assumed to determine contaminant effects on sturgeon physiology.	Fish tissues	Metals, PCBs, PDBEs, organochlorine pesticides, dioxins, and furans. Toxicity to sturgeon	Fish were collected in 2002.	Yes
2006d	Phase I sediment sampling data evaluation, Upper Columbia River site, CERCLA RI/FS.	USEPA	To conducted a comprehensive survey of the concentrations of metals and organic compounds in surface sediments of the UCR in 2005, as Phase I of the UCR RI/FS.	Surface sediments	Metals, organic compounds (As, Cd, Cu, Fe, Pb, Mn, Hg, Zn) and toxicity	Sediment sampling by USEPA was conducted in April and May 2005 during the period of low pool in the UCR.	Yes
2006	Concentrations of elements in sediments and selective fractions of sediments, and in natural waters in contact with sediments from Lake Roosevelt, Washington, September 2004. Open-file Report 2006-1350.	Paulson, A.J., R.J. Wagner, R.F. Sanzolone, and S.E. Cox	To present analytical results regarding the elemental composition of sediments, and to evaluate the release of elements from the sediments after sequential selective extraction, and Surface water, porewater, selective fractions of sediments to determine the concentration of elements in filtered water after contact with the sediments.	Surface water, porewater, and selective fractions of sediments	Inorganics (As, Al, Cu, Cd, Co, Pb, Zn, Fe, Mn, Ag, Bi, V, Ur)	Sampling was conducted by USGS in 2004.	Yes
2007	Release of elements to natural water from sediments of Lake Roosevelt, Washington, USA.	Paulson, A.J. and S.E. Cox					
2007	Field reconnaissance and sediment sampling report - Upper Columbia River site, Washington	Dowling, B.	To evaluate the general sediment depositional patterns and conditions in the upper portions of the UCR, including visual indications of slag material, and to evaluate metal concentrations in surface sediemnts collected from selected locations, including exposed river shorelines and island locations	Sediments	Metals	Sampling was conducted by Ecology on May 14, 2007.	Yes
2007	Site-specific natural background concentrations of metals in topsoil form the Trail region, British Columbia, Canada	Sanei, H., F. Goodarzi, and S. Hilts	To discusses the establishment of background levles of the trace metals arsenic, cadmium, copper, mercury, lead, and zinc in topsoil surrounding the Teck-Cominco zinc-lead smelter in Trail, B.C.	Soil	Metals (arsenic, cadmium, copper, mercury, lead, and zinc)	Data collection date not provided, but assumed after 1996.	Yes

Table 3-1. Summary of Existing Data Sources

Year	Study Name	Study Authors	Purpose	Media	Analytes	Comments	UCR Data collected during or after 1996
2007	Trace metal concentrations in surface water of Lake Roosevelt. Supplemental Report, January 1998 - March 2000.	Scofield, B. and D. Pavlik-Kunkel	To further understand trace metal concentrations in surface water and supplemental annual fisheries/limnologial reports for Lake Roosevelt.	Surface water	Metals (arsenic, cadmium, copper, lead, mercury, and zinc)	This study was conducted by the Spokane Tribe of Indians Department of Natural Resources. Samples were collected as part of a series of 38 synoptic surveys conducted at 2 to 3 week intervals over the period January 1998 through March 2000.	Yes
2007	Measuring Mercury Trends in Freshwater Fish in Washington State. 2006 data.	Furl	To monitor mercury levels in edible tissue from freshwater fish at six sites per year for five years (30 sampling events total) to characterize temporal and spatial trends in fish tissue mercury levels.	Fish tissue fillets	Mercury	Data collected by Ecology from 2005-2007 was compared to data collected in 2001-2002.	Yes
2007	Measuring Mercury Trends in Freshwater Fish in Washington State. 2005 data.	Furl et al.					
2008	Measuring Mercury Trends in Freshwater Fish in Washington State. 2007 data.	Furl and Meredith					
2007b	Phase I fish tissue sampling data evaluation Upper Columbia River Site CERCLA RI/FS.	USEPA	Not provided, but assumed to support the evaluation of human health and ecological risk.	Whole and fillet fish (tissues and lesion observations)	Metals, total mercury, PCB, Aroclors, and PCDDs, and PCDFs	USEPA collected samples in 2005.	Yes
2008	Biological and chemical characterization of metal bioavailability in sediment from Lake Roosevelt, Columbia River, Washington, USA.	Besser, J.M., W.G. Brumbaugh, C.D. Ivey, C.G. Ingersoll, and P.W. Moran	To better understand sediment metals bioavailability and mobility within the UCR system.	Sediments, pore water, and oligochaetes tissue	Metals (As, Cu, Pb, Cd, Zn) Toxicity tests, bioaccumulation evaluations on the oligochaete	Sampling was conducted in September of 2004.	Yes
2008	Summary of Kootenai River white sturgeon studies. information sheet. U.S. Fish and Wildlife Service, Upper Columbia Fish and Wildlife Office, Spokane, WA, USA, and U.S. Geological Survey (2007/2008).	USFWS and USGS	To evaluate the acute toxicity of selected chemicals to white sturgeon and as compared to a standard "sensitive" test species, rainbow trout.	fish Tissue	Copper, chlorine, and three herbicides. Acute, water-borne toxicity for two different life stages (30 and 160 days post swim-up) of white sturgeon	Detailed information on study was not provided.	No

Notes:
BC = British Columbia
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
DDE = dichloro-diphenyl-dichloroethene
DDT = dichlorodiphenyltrichloroethane
DFO = Department of Fisheries and Oceans
DO = dissolved oxygen
EcoRA = ecological risk assessment
ERA = ecological risk assessment
LC 50: Lethal Concentration (50th percentile)
NURE-HSSR = National Uranium Resource Evaluation - Hydrogeochemical and Stream Sediment Reconnaissance
OP = orthoposphate
PBDE = polybrominated diphenyl ether
PCB = polychlorinated biphenyls
PCDD = polychlorinated dibenzodioxins
PCDF = polychlorinated dibenzofurans
PDBE = synonym for PBDE
RI/FS = remedial investigation/feasibility study
SVOC = semi-volatile organic compounds
TCDD = tetrachlorodibenzo-*p* -dioxin
TCDF = tetrachlorodibenzo-furan
TKN = total Kjeldahl nitrogen
TP = total phosphorus
TSP = total suspended particulates
TSS = total suspended solids
UCR = Upper Columbia River
USEPA = U.S. Environmental Protection Agency
USFWS = U.S. Fish and Wildlife Service
USGS = U.S. Geological Survey
VOC = volatile organic compounds
WDOH = Washington State Department of Health

Table 3-2. Surface Sediment Samples by Reach, Class, and Channel Location

	Class I		Class II		Class III	
Reach	Number in Deep[a] Sediments	Number in Shallow[b] Sediments	Number in Deep[a] Sediments	Number in Shallow[b] Sediments	Number in Deep[a] Sediments	Number in Shallow[b] Sediments
1	10	34		2	1	2
2	10	13		3	2	12
3	11			30		18
4a			2	39	12	14
4b			13	49	10	10
5			3	37	5	8
6				32	9	7

Table 3-3. Additional Groundwater Data Evaluated for Context (see Appendices)

Analyte (Units)	Bradbury Beach	Camp Na-Bor-Lee	Cloverleaf	Detillion	Evans Campground	Fort Spokane	Fort Spokane #1	Fort Spokane #2	Fort Spokane A	Fort Spokane B	Fort Spokane Spring	Gifford	Haag Cove	Hawk Creek
1,1,1,2-Tetrachloroethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,1,1-Trichlorethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,1,2,2-Tetrachloroethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,1,2-Trichloroethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,1-Dichloroethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,1-Dichloroethylene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,1-Dichloropropene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,2,3-Trichlorobenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,2,3-Trichloropropane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,2,4-Trichlorobenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,2,4-Trimethylbenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,2-Dichlorobenzene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
1,2-Dichloroethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,2-Dichloropropane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,3,5-Trimethylbenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,3-Dichloropropane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
1,3-Dichloropropene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
1,4-Dichlorobenzene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
2,2-Dichloropropane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
2,4,5-TP (Silvex) (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	N/S	0 , 1	N/S	N/S
2,4-D (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	N/S	0 , 1	N/S	N/S
3,5-Dichlorobenzoic Acid (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
3-Hydroxycarbofuran (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
4,4-DDD (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
4,4-DDE (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
4,4-DDT (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Acenaphthene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Acenaphthylene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Acifluorfen (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Alachlor (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Aldicarb (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Aldicarb Sulfone (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Aldicarb Sulfoxide (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Aldrin (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Alkalinity (mg/L as $CaCO_3$)	N/S	2 , 0	1 , 0	1 , 0	N/S	N/S	1 , 0	1 , 0	N/S	N/S	N/S	1 , 0	N/S	1 , 0
Aluminum (mg/L)	N/S	1 , 1	0 , 1	0 , 1	1 , 0	N/S	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	0 , 1	0 , 1
Anthracene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Antimony (mg/L)	N/S	0 , 2	0 , 2	0 , 1	0 , 3	N/S	0 , 2	0 , 2	N/S	N/S	0 , 1	0 , 2	0 , 1	0 , 2
Arochlor 1016 (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1221 (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1232 (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1242 (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1248 (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1254 (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

Table 3-3. Additional Data Evaluated for Context (see Appendices)

Analyte (Units)	Bradbury Beach	Camp Na-Bor-Lee	Cloverleaf	Detillion	Evans Campground	Fort Spokane	Fort Spokane #1	Fort Spokane #2	Fort Spokane A	Fort Spokane B	Fort Spokane Spring	Gifford	Haag Cove	Hawk Creek
Arochlor 1260 (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arsenic (mg/L)	0 , 1	0 , 3	0 , 5	2 , 3	1 , 5	0 , 1	2 , 1	1 , 2	1 , 1	1 , 1	0 , 1	1 , 5	0 , 4	1 , 3
Asbestos (MFL)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Atrazine (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Barium (mg/L)	0 , 1	0 , 3	0 , 5	0 , 5	0 , 6	0 , 1	0 , 3	0 , 3	0 , 2	0 , 2	0 , 1	0 , 6	0 , 4	0 , 4
Bentazon (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Benzo(a)anthracene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzo(a)pyrene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzo(b)fluroanthene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzo(g,h,i)perylene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzo(k)fluoroanthene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzyl Butyl Phthalate (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Beryllium (mg/L)	N/S	0 , 2	0 , 2	0 , 1	0 , 4	N/S	0 , 2	0 , 2	N/S	N/S	0 , 1	0 , 1	0 , 2	0 , 2
Bromacil (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Bromobenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Bromochloromethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Bromodichloromethane (µg/L)	N/S	1 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Bromoform (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Bromomethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Butachlor (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Cadmium (mg/L)	0 , 1	0 , 3	0 , 5	0 , 5	1 , 5	0 , 1	0 , 3	0 , 3	0 , 2	0 , 2	0 , 1	0 , 6	0 , 4	0 , 4
Calcium (mg/L)	N/S	2 , 0	3 , 0	2 , 0	3 , 0	N/S	3 , 0	3 , 0	N/S	N/S	1 , 0	3 , 0	2 , 0	3 , 0
Carbaryl (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Carbofuran (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Carbon TetraChloride (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Chlordane (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Chloride (mg/L)	N/S	2 , 1	2 , 1	1 , 1	3 , 1	N/S	2 , 1	2 , 1	N/S	N/S	0 , 1	2 , 1	1 , 1	2 , 1
Chlorobenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Chlorodibromomethane (µg/L)	N/S	1 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Chloroethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Chloroform (µg/L)	N/S	1 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Chloromethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Chromium (mg/L)	0 , 1	1 , 2	0 , 5	0 , 5	0 , 6	0 , 1	0 , 3	0 , 3	0 , 2	0 , 2	0 , 1	0 , 6	0 , 4	0 , 4
Chrysene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
cis-1,2-Dichloroethylene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
cis-1,3-Dichloropropene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Coliform Total (MPN/100 mL)	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Color (CU)	1 , 0	2 , 1	2 , 3	3 , 2	2 , 4	0 , 1	0 , 3	1 , 2	0 , 2	0 , 2	0 , 1	1 , 5	2 , 2	3 , 1
Conductivity (µmhos/cm)	1 , 0	2 , 0	4 , 0	4 , 0	6 , 0	1 , 0	2 , 0	2 , 0	2 , 0	2 , 0	1 , 0	5 , 0	4 , 0	3 , 0
Copper (mg/L)	N/S	1 , 3	0 , 3	0 , 2	0 , 3	N/S	0 , 3	0 , 3	N/S	N/S	0 , 1	0 , 3	0 , 2	0 , 3
Corrosivity (Ratio)	N/S	2 , 0	1 , 0	1 , 0	N/S	N/S	N/S	1 , 0	N/S	N/S	N/S	1 , 0	N/S	1 , 0
Cyanazine (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Cyanide (mg/L)	N/S	0 , 2	0 , 2	0 , 1	0 , 2	N/S	0 , 2	0 , 2	N/S	N/S	0 , 1	0 , 2	0 , 2	0 , 2

Table 3-3. Additional Data Evaluated for Context (see Appendices)

Analyte (Units)	Bradbury Beach	Camp Na-Bor-Lee	Cloverleaf	Detillion	Evans Campground	Fort Spokane	Fort Spokane #1	Fort Spokane #2	Fort Spokane A	Fort Spokane B	Fort Spokane Spring	Gifford	Haag Cove	Hawk Creek
Dalapon (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
DBCP (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
DCPA acid metabolites (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Di(ethylhexyl)adipate (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Di(ethylhexyl)phthalate (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Diaznon (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dibenzo(a,h)anthracene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dibromomethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Dicamba (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dichlorodifluoromethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Dichloromethane (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dichlorprop (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dieldrin (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Diethyl Phthalate (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dimethyl Phthalate (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Di-N-Butyl Phthalate (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dinoseb (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
EDB (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Endrin (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	N/S	0 , 1	N/S	N/S
EPTC (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Ethylbenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Fluorene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Fluoride (mg/L)	0 , 1	2 , 1	3 , 2	5 , 0	6 , 0	1 , 0	3 , 0	3 , 0	2 , 0	2 , 0	1 , 0	4 , 1	2 , 2	2 , 2
Fluoroanthene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Fluorotrichloromethane (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Gross Alpha (pCi/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Gross Beta (pCi/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Hardness (mg/L as $CaCO_3$)	1 , 0	3 , 0	5 , 0	5 , 0	6 , 0	1 , 0	3 , 0	3 , 0	2 , 0	2 , 0	1 , 0	6 , 0	4 , 0	4 , 0
Heptachlor (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Heptachlor epoxide (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Hexachlorbenzene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Hexachlorobutadiene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Hexachlorocyclo-pentadiene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Indeno(1,2,3-cd)pyrene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Iron (mg/L)	1 , 0	1 , 2	2 , 3	2 , 3	3 , 3	1 , 0	0 , 3	0 , 3	0 , 2	0 , 2	0 , 1	2 , 4	3 , 1	1 , 3
Isopropylbenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Lead (mg/L)	1 , 0	1 , 3	2 , 3	0 , 5	1 , 5	1 , 0	0 , 3	0 , 3	0 , 2	0 , 2	0 , 1	3 , 3	3 , 1	0 , 4
Lindane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	N/S	0 , 1	N/S	N/S
m/p-Xylene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Magnesium (mg/L)	N/S	2 , 0	2 , 0	1 , 0	3 , 0	N/S	2 , 0	2 , 0	N/S	N/S	1 , 0	2 , 0	2 , 0	2 , 0
Malathion (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Manganese (mg/L)	1 , 0	1 , 2	2 , 3	3 , 2	2 , 4	0 , 1	0 , 3	0 , 3	0 , 2	0 , 2	0 , 1	2 , 4	3 , 1	2 , 2
m-Dichlorobenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1

Table 3-3. Additional Data Evaluated for Context (see Appendices)

Analyte (Units)	Bradbury Beach	Camp Na-Bor-Lee	Cloverleaf	Detillion	Evans Campground	Fort Spokane	Fort Spokane #1	Fort Spokane #2	Fort Spokane A	Fort Spokane B	Fort Spokane Spring	Gifford	Haag Cove	Hawk Creek
Mercury (mg/L)	1 , 0	0 , 2	1 , 3	2 , 2	1 , 5	1 , 0	0 , 2	0 , 2	1 , 1	2 , 0	0 , 1	2 , 3	2 , 2	1 , 2
Mercury (Cold Vapor) (mg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	N/S	0 , 1	N/S	0 , 1
Methomyl (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Methoxychlor (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	N/S	0 , 1	N/S	N/S
Methylene Chloride (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Metolachlor (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Metribuzin (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Napthalene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
N-Butylbenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Nickel (mg/L)	N/S	1 , 1	0 , 2	0 , 1	0 , 3	N/S	0 , 2	0 , 2	N/S	N/S	0 , 1	0 , 2	0 , 2	0 , 2
Nitrate (mg/L)	0 , 2	5 , 4	7 , 8	7 , 6	6 , 9	2 , 0	9 , 1	13 , 0	2 , 0	2 , 0	3 , 1	14 , 5	14 , 3	12 , 1
Nitrite - N (mg/L)	N/S	0 , 2	0 , 2	0 , 1	0 , 3	N/S	0 , 2	0 , 2	N/S	N/S	0 , 1	0 , 2	0 , 2	0 , 2
n-Propylbenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
o-Chlorotoluene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
o-Dichlorobenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Odor	N/S	1 , 1	N/S	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	0 , 1
Oxanyl (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
o-Xylene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Parathion (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
PCB (as Total Arochlors) (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
p-Chlorotoluene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
p-Dichlorobenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Pentachlorophenol (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
pH (Standard Units)	N/S	3 , 0	2 , 0	2 , 0	1 , 0	N/S	1 , 0	2 , 0	N/S	N/S	1 , 0	2 , 0	1 , 0	2 , 0
Phenanthrene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Picloram (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
p-Isopropyltoluene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Potassium (mg/L)	N/S	1 , 0	1 , 0	1 , 0	N/S	N/S	1 , 0	1 , 0	N/S	N/S	N/S	1 , 0	N/S	1 , 0
Prometon (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Propachlor (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Pyrene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Residue Dissolved (mg/L)	N/S	1 , 0	1 , 0	1 , 0	N/S	N/S	1 , 0	1 , 0	N/S	N/S	N/S	1 , 0	N/S	1 , 0
sec-Butylbenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Selenium (mg/L)	0 , 1	0 , 3	0 , 5	0 , 5	1 , 5	0 , 1	0 , 3	0 , 3	0 , 2	0 , 2	0 , 1	0 , 6	0 , 4	0 , 4
Silver (mg/L)	0 , 1	0 , 3	0 , 5	0 , 5	0 , 6	0 , 1	0 , 2	0 , 3	0 , 2	0 , 2	0 , 1	0 , 6	0 , 4	0 , 4
Simazine (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Sodium (mg/L)	1 , 0	3 , 0	2 , 2	2 , 2	5 , 1	1 , 0	2 , 0	3 , 0	0 , 1	1 , 0	1 , 0	4 , 1	2 , 1	3 , 1
Specific Conductance (µmhos)	N/S	1 , 0	1 , 0	1 , 0	N/S	N/S	1 , 0	1 , 0	N/S	N/S	N/S	1 , 0	N/S	1 , 0
Styrene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Sulfate (mg/L)	N/S	3 , 0	2 , 1	2 , 0	5 , 0	N/S	3 , 0	3 , 0	N/S	N/S	1 , 0	3 , 0	1 , 1	2 , 1
t-1,2-Dichloroethylene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Terbacil (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
tert-Butylbenzene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Tetrachloroethylene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1

Table 3-3. Additional Data Evaluated for Context (see Appendices)

Analyte (Units)	Bradbury Beach	Camp Na-Bor-Lee	Cloverleaf	Detillion	Evans Campground	Fort Spokane	Fort Spokane #1	Fort Spokane #2	Fort Spokane A	Fort Spokane B	Fort Spokane Spring	Gifford	Haag Cove	Hawk Creek
Thallium (mg/L)	N/S	0 , 2	0 , 2	0 , 1	0 , 3	N/S	0 , 2	0 , 2	N/S	N/S	0 , 1	0 , 2	0 , 1	0 , 2
Toluene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Total Dissolved Solids (mg/L)	N/S	1 , 0	1 , 0	N/S	2 , 0	N/S	1 , 0	1 , 0	N/S	N/S	N/S	1 , 0	1 , 0	1 , 0
Total Nitrate/Nitrite (mg/L)	N/S	0 , 1	0 , 1	1 , 0	0 , 1	N/S	0 , 1	1 , 0	N/S	N/S	0 , 1	1 , 0	0 , 1	0 , 1
Total Xylenes (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Toxaphene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	N/S	0 , 1	N/S	N/S
trans-1,2-Dichloroethylene (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
trans-1,3-Dichloropropene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Trichloroethylene (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Trichlorofluoromethane (µg/L)	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Trifluralin (µg/L)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Turbidity (NTU)	1 , 0	1 , 1	4 , 0	3 , 1	6 , 0	1 , 0	1 , 1	1 , 1	2 , 0	2 , 0	1 , 0	4 , 1	4 , 0	3 , 0
Vinyl Chloride (µg/L)	N/S	0 , 2	0 , 1	0 , 1	N/S	N/S	0 , 1	N/S	N/S	N/S	0 , 1	0 , 1	N/S	0 , 1
Zinc (mg/L)	N/S	1 , 2	1 , 2	0 , 2	1 , 2	N/S	0 , 3	0 , 3	N/S	N/S	0 , 1	0 , 3	2 , 0	2 , 1

Table 3-3. Additional Data Evaluated for Context (see Appendices)

Analyte (Units)	Hunters	Hunters (New Well)	Hunters (Old Well)	Kamloops	Keller Ferry Campground	Keller Ferry Marina	Kettle River	Marcus Island	National Park Service Well	North Gorge	Porcupine Bay	San Poil	Snag Cove	Spring Canyon
1,1,1,2-Tetrachloroethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,1,1-Trichlorethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,1,2,2-Tetrachloroethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,1,2-Trichloroethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,1-Dichloroethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,1-Dichloroethylene (µg/L)	N/S	N/S	0 , 2	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,1-Dichloropropene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,2,3-Trichlorobenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,2,3-Trichloropropane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,2,4-Trichlorobenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,2,4-Trimethylbenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,2-Dichlorobenzene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
1,2-Dichloroethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,2-Dichloropropane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,3,5-Trimethylbenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,3-Dichloropropane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
1,3-Dichloropropene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
1,4-Dichlorobenzene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
2,2-Dichloropropane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
2,4,5-TP (Silvex) (µg/L)	N/S	0 , 2	0 , 1	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	0 , 1
2,4-D (µg/L)	N/S	0 , 2	0 , 1	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	0 , 1
3,5-Dichlorobenzoic Acid (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
3-Hydroxycarbofuran (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
4,4-DDD (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
4,4-DDE (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
4,4-DDT (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Acenaphthene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Acenaphthylene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Acifluorfen (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Alachlor (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Aldicarb (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Aldicarb Sulfone (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Aldicarb Sulfoxide (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Aldrin (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Alkalinity (mg/L as $CaCO_3$)	N/S	N/S	1 , 0	N/S	1 , 0	1 , 0	1 , 0	N/S	N/S	1 , 0	1 , 0	N/S	N/S	1 , 0
Aluminum (mg/L)	N/S	1 , 0	0 , 1	0 , 1	0 , 1	0 , 1	0 , 1	0 , 1	N/S	1 , 0	0 , 1	N/S	0 , 1	1 , 0
Anthracene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Antimony (mg/L)	N/S	0 , 2	0 , 5	0 , 3	0 , 2	0 , 2	0 , 2	0 , 2	N/S	0 , 2	0 , 2	N/S	0 , 1	0 , 3
Arochlor 1016 (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1221 (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1232 (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1242 (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1248 (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arochlor 1254 (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

Table 3-3. Additional Data Evaluated for Context (see Appendices)

Analyte (Units)	Hunters	Hunters (New Well)	Hunters (Old Well)	Kamloops	Keller Ferry Campground	Keller Ferry Marina	Kettle River	Marcus Island	National Park Service Well	North Gorge	Porcupine Bay	San Poil	Snag Cove	Spring Canyon
Arochlor 1260 (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arsenic (mg/L)	N/S	2 , 1	1 , 8	0 , 3	2 , 3	1 , 2	0 , 5	0 , 4	1 , 0	1 , 6	0 , 4	0 , 1	0 , 3	1 , 5
Asbestos (MFL)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S
Atrazine (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Barium (mg/L)	N/S	1 , 1	3 , 7	0 , 3	1 , 4	0 , 3	1 , 4	0 , 4	N/S	1 , 6	0 , 4	0 , 1	0 , 3	0 , 6
Bentazon (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Benzo(a)anthracene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzo(a)pyrene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzo(b)fluroanthene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzo(g,h,i)perylene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzo(k)fluoroanthene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Benzyl Butyl Phthalate (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Beryllium (mg/L)	N/S	0 , 2	0 , 6	0 , 2	0 , 2	0 , 2	0 , 2	0 , 2	N/S	0 , 2	0 , 2	N/S	0 , 1	0 , 3
Bromacil (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Bromobenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Bromochloromethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Bromodichloromethane (µg/L)	N/S	0 , 1	1 , 0	N/S	N/S	N/S	N/S	N/S	N/S	N/S	1 , 0	N/S	N/S	N/S
Bromoform (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Bromomethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Butachlor (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Cadmium (mg/L)	N/S	0 , 3	1 , 8	0 , 3	0 , 5	0 , 3	0 , 5	1 , 3	N/S	0 , 7	0 , 4	0 , 1	0 , 3	2 , 4
Calcium (mg/L)	N/S	2 , 0	5 , 0	2 , 0	3 , 0	3 , 0	3 , 0	2 , 0	N/S	3 , 0	3 , 0	N/S	2 , 0	4 , 0
Carbaryl (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Carbofuran (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Carbon TetraChloride (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Chlordane (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Chloride (mg/L)	N/S	1 , 1	4 , 2	1 , 1	2 , 1	2 , 1	2 , 1	1 , 1	N/S	2 , 1	2 , 1	N/S	1 , 1	5 , 1
Chlorobenzene (µg/L)	N/S	N/S	0 , 1	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Chlorodibromomethane (µg/L)	N/S	0 , 1	1 , 0	N/S	N/S	N/S	N/S	N/S	N/S	N/S	1 , 0	N/S	N/S	N/S
Chloroethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Chloroform (µg/L)	N/S	0 , 1	1 , 0	N/S	N/S	N/S	N/S	N/S	N/S	N/S	1 , 0	N/S	N/S	N/S
Chloromethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Chromium (mg/L)	N/S	0 , 3	1 , 8	0 , 3	0 , 5	0 , 3	0 , 5	0 , 4	N/S	0 , 7	0 , 4	0 , 1	0 , 3	0 , 6
Chrysene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
cis-1,2-Dichloroethylene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
cis-1,3-Dichloropropene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Coliform Total (MPN/100 mL)	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Color (CU)	N/S	2 , 0	4 , 5	1 , 2	0 , 4	1 , 2	2 , 2	2 , 2	N/S	2 , 4	2 , 2	0 , 1	3 , 2	1 , 5
Conductivity (µmhos/cm)	N/S	2 , 0	8 , 0	3 , 0	4 , 0	2 , 0	3 , 0	4 , 0	N/S	5 , 0	3 , 0	1 , 0	4 , 0	5 , 0
Copper (mg/L)	N/S	0 , 1	1 , 5	0 , 2	0 , 4	0 , 3	0 , 3	0 , 2	N/S	0 , 3	0 , 3	N/S	0 , 2	0 , 4
Corrosivity (Ratio)	N/S	N/S	1 , 0	N/S	1 , 0	1 , 0	1 , 0	N/S	N/S	1 , 0	1 , 0	N/S	N/S	1 , 0
Cyanazine (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

Table 3-3. Additional Data Evaluated for Context (see Appendices)

Analyte (Units)	Hunters	Hunters (New Well)	Hunters (Old Well)	Kamloops	Keller Ferry Campground	Keller Ferry Marina	Kettle River	Marcus Island	National Park Service Well	North Gorge	Porcupine Bay	San Poil	Snag Cove	Spring Canyon
Cyanide (mg/L)	N/S	0 , 2	0 , 5	0 , 2	0 , 2	0 , 2	0 , 2	0 , 2	N/S	0 , 2	0 , 3	N/S	0 , 2	0 , 3
Dalapon (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
DBCP (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
DCPA acid metabolites (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Di(ethylhexyl)adipate (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Di(ethylhexyl)phthalate (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Diaznon (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dibenzo(a,h)anthracene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dibromomethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Dicamba (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dichlorodifluoromethane (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Dichloromethane (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dichlorprop (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dieldrin (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Diethyl Phthalate (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dimethyl Phthalate (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Di-N-Butyl Phthalate (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Dinoseb (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
EDB (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Endrin (µg/L)	N/S	0 , 1	0 , 1	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	0 , 1
EPTC (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Ethylbenzene (µg/L)	N/S	0 , 1	1 , 0	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Fluorene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Fluoride (mg/L)	N/S	0 , 2	8 , 2	3 , 0	4 , 1	3 , 0	4 , 1	1 , 3	N/S	7 , 0	4 , 0	1 , 0	1 , 3	6 , 0
Fluoroanthene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Fluorotrichloromethane (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Gross Alpha (pCi/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Gross Beta (pCi/L)	N/S	1 , 0	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Hardness (mg/L as $CaCO_3$)	N/S	2 , 0	9 , 0	3 , 0	5 , 0	3 , 0	4 , 0	4 , 0	N/S	6 , 0	4 , 0	1 , 0	4 , 0	6 , 0
Heptachlor (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Heptachlor epoxide (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Hexachlorbenzene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Hexachlorobutadiene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Hexachlorocyclo-pentadiene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Indeno(1,2,3-cd)pyrene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Iron (mg/L)	N/S	2 , 0	6 , 3	2 , 1	1 , 4	1 , 2	2 , 2	3 , 1	N/S	3 , 3	0 , 4	0 , 1	3 , 1	0 , 6
Isopropylbenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Lead (mg/L)	N/S	0 , 1	1 , 8	0 , 3	1 , 4	0 , 4	2 , 3	0 , 4	N/S	0 , 7	0 , 4	0 , 1	2 , 2	2 , 4
Lindane (µg/L)	N/S	0 , 1	0 , 1	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	0 , 1
m/p-Xylene (µg/L)	N/S	0 , 1	1 , 0	N/S	N/S	N/S	N/S	N/S	N/S	N/S	1 , 0	N/S	N/S	N/S
Magnesium (mg/L)	N/S	2 , 0	4 , 0	2 , 0	2 , 0	2 , 0	2 , 0	2 , 0	N/S	2 , 0	2 , 0	N/S	2 , 0	3 , 0
Malathion (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Manganese (mg/L)	N/S	2 , 0	1 , 8	2 , 1	1 , 4	1 , 2	1 , 3	2 , 2	N/S	3 , 3	0 , 4	0 , 1	2 , 2	0 , 6

Table 3-3. Additional Data Evaluated for Context (see Appendices)

Analyte (Units)	Hunters	Hunters (New Well)	Hunters (Old Well)	Kamloops	Keller Ferry Campground	Keller Ferry Marina	Kettle River	Marcus Island	National Park Service Well	North Gorge	Porcupine Bay	San Poil	Snag Cove	Spring Canyon
m-Dichlorobenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Mercury (mg/L)	N/S	0 , 3	2 , 6	1 , 2	1 , 3	0 , 2	1 , 3	1 , 3	N/S	2 , 4	0 , 3	1 , 0	2 , 1	1 , 4
Mercury (Cold Vapor) (mg/L)	N/S	N/S	0 , 1	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	0 , 1
Methomyl (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Methoxychlor (µg/L)	N/S	0 , 1	0 , 1	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	0 , 1
Methylene Chloride (µg/L)	N/S	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Metolachlor (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Metribuzin (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Napthalene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
N-Butylbenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Nickel (mg/L)	N/S	0 , 2	0 , 5	0 , 2	0 , 2	0 , 2	0 , 2	0 , 2	N/S	0 , 2	0 , 2	N/S	0 , 1	0 , 3
Nitrate (mg/L)	0 , 1	1 , 3	12 , 9	8 , 3	15 , 1	11 , 1	12 , 2	5 , 9	N/S	13 , 1	6 , 12	1 , 0	12 , 2	17 , 0
Nitrite - N (mg/L)	N/S	0 , 2	0 , 5	0 , 2	0 , 2	0 , 2	0 , 2	0 , 2	N/S	0 , 2	0 , 2	N/S	0 , 2	0 , 3
n-Propylbenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
o-Chlorotoluene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
o-Dichlorobenzene (µg/L)	N/S	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Odor	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 8	0 , 1
Oxanyl (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
o-Xylene (µg/L)	N/S	0 , 1	1 , 0	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Parathion (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
PCB (as Total Arochlors) (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
p-Chlorotoluene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
p-Dichlorobenzene (µg/L)	N/S	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Pentachlorophenol (µg/L)	N/S	0 , 2	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
pH (Standard Units)	N/S	1 , 0	2 , 0	1 , 0	2 , 0	2 , 0	2 , 0	1 , 0	N/S	2 , 0	2 , 0	N/S	1 , 0	2 , 0
Phenanthrene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Picloram (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
p-Isopropyltoluene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Potassium (mg/L)	N/S	N/S	1 , 0	N/S	1 , 0	1 , 0	1 , 0	N/S	N/S	1 , 0	1 , 0	N/S	N/S	1 , 0
Prometon (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Propachlor (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Pyrene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Residue Dissolved (mg/L)	N/S	N/S	1 , 0	N/S	1 , 0	1 , 0	1 , 0	N/S	N/S	1 , 0	1 , 0	N/S	N/S	1 , 0
sec-Butylbenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Selenium (mg/L)	N/S	0 , 2	1 , 9	0 , 3	0 , 5	0 , 3	0 , 5	0 , 4	N/S	0 , 7	0 , 4	0 , 1	0 , 3	1 , 5
Silver (mg/L)	N/S	0 , 2	1 , 8	0 , 3	0 , 5	0 , 3	0 , 5	0 , 4	N/S	1 , 6	0 , 4	0 , 1	0 , 4	2 , 4
Simazine (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Sodium (mg/L)	N/S	2 , 0	6 , 1	1 , 2	3 , 1	3 , 0	4 , 1	1 , 2	N/S	6 , 0	3 , 0	0 , 1	1 , 3	6 , 0
Specific Conductance (µmhos)	N/S	N/S	1 , 0	N/S	1 , 0	1 , 0	1 , 0	N/S	N/S	1 , 0	1 , 0	N/S	N/S	1 , 0
Styrene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Sulfate (mg/L)	N/S	2 , 0	5 , 1	1 , 1	2 , 1	2 , 1	2 , 1	1 , 1	N/S	3 , 0	3 , 0	N/S	2 , 0	6 , 0
t-1,2-Dichloroethylene (µg/L)	N/S	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Terbacil (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

Table 3-3. Additional Data Evaluated for Context (see Appendices)

Analyte (Units)	Hunters	Hunters (New Well)	Hunters (Old Well)	Kamloops	Keller Ferry Campground	Keller Ferry Marina	Kettle River	Marcus Island	National Park Service Well	North Gorge	Porcupine Bay	San Poil	Snag Cove	Spring Canyon
tert-Butylbenzene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Tetrachloroethylene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Thallium (mg/L)	N/S	0 , 2	0 , 5	0 , 2	0 , 2	0 , 2	0 , 3	0 , 2	N/S	0 , 2	0 , 2	N/S	0 , 1	0 , 3
Toluene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Total Dissolved Solids (mg/L)	N/S	1 , 0	4 , 0	1 , 0	1 , 0	1 , 0	1 , 0	1 , 0	N/S	1 , 0	1 , 0	N/S	1 , 0	2 , 0
Total Nitrate/Nitrite (mg/L)	N/S	0 , 2	2 , 1	0 , 1	0 , 1	0 , 1	1 , 0	0 , 1	N/S	0 , 1	0 , 1	N/S	0 , 1	1 , 0
Total Xylenes (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Toxaphene (µg/L)	N/S	0 , 1	0 , 1	N/S	0 , 1	0 , 1	0 , 1	N/S	N/S	0 , 1	0 , 1	N/S	N/S	0 , 1
trans-1,2-Dichloroethylene (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
trans-1,3-Dichloropropene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Trichloroethylene (µg/L)	N/S	0 , 1	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Trichlorofluoromethane (µg/L)	N/S	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Trifluralin (µg/L)	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Turbidity (NTU)	N/S	2 , 0	8 , 0	3 , 0	3 , 1	2 , 0	3 , 1	4 , 0	N/S	6 , 0	2 , 1	1 , 0	4 , 0	3 , 2
Vinyl Chloride (µg/L)	N/S	N/S	0 , 1	N/S	N/S	N/S	N/S	N/S	N/S	N/S	0 , 1	N/S	N/S	N/S
Zinc (mg/L)	N/S	1 , 1	2 , 4	2 , 0	1 , 2	0 , 3	1 , 2	2 , 0	N/S	0 , 3	1 , 2	N/S	2 , 0	1 , 3

N/S = Not sampled

Table 3-4. Statistics of Detected Values for each Standardized Groundwater Sampling Site

	Bradbury Beach			Camp Na-Bor-Lee			Cloverleaf			Detillion			Evans Campground			Fort Spokane		
Analyte (Units)	Average	Min. – Max.	Count	Average	Min. – Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count
Alkalinity (mg/L as $CaCO_3$)				207.5	165 - 250	2	110.00	N/A	1	40.0	N/A	1						
Aluminum (mg/L)				0.06	N/A	1							0.13	N/A	1			
Arsenic (mg/L)										0.01	0.005 – 0.02	2	0.02	N/A	1			
Barium (mg/L)																		
Bromodichloromethane (µg/L)				0.50	N/A	1												
Cadmium (mg/L)													0.004	N/A	1			
Calcium (mg/L)				82.2	67.6 - 96.8	2	38.6	23.0 - 55.6	3	23.9	11.9 - 35.9	2	102	92.8 - 118	3			
Chloride (mg/L)				3.25	2.5 - 4	2	2.9	0.7 - 5	2	6.0	N/A	1	8.45	2.1 - 20	3			
Chlorodibromomethane (µg/L)				0.70	N/A	1												
Chloroform (µg/L)				0.60	N/A	1												
Chromium (mg/L)				0.05	N/A	1												
Color (CU)	5.0	N/A	1	28.1	1.2 - 55	2	1.7	0.4 - 3	2	12.3	1.8 -30	3	5.0	5.0	2			
Conductivity (µmhos/cm)	340	N/A	1	610	590 - 630	2	236.5	190 - 280	4	191	115 - 270	4	718	600 - 860	6	370	N/A	1
Copper (mg/L)				0.03	N/A	1												
Corrosivity (Ratio)				4.05	0.33 - 7.76	2	0.10	N/A	1	0.23	N/A	1						
Ethylbenzene (µg/L)																		
Fluoride (mg/L)				0.69	0.60 - 0.78	2	0.27	0.20 - 0.30	3	0.27	0.20 - 0.38	5	0.37	0.2 - 0.5	6	0.4	N/A	1
Gross Beta (pCi/L)																		
Hardness (mg/L as $CaCO_3$)	141	N/A	1	237	162 - 370	3	106	74 - 160	5	81.6	41.8 - 130	5	374.5	324 – 460	6	180	N/A	1
Iron (mg/L)	3.4	N/A	1	4.92	N/A	1	1.5	0.1 - 2.93	2	1.26	0.23 – 2.28	2	1.56	0.2 – 3.28	3	0.05	N/A	1
Lead (mg/L)	0.06	N/A	1	0.22	N/A	1	0.02	0.002 – 0.03	2				0.02	N/A	1	0.01	N/A	1
m/p-Xylene (µg/L)																		
Magnesium (mg/L)				35.2	31.4 - 38.9	2	5.0	3.93 - 6.06	2	10.0	N/A	1	20.8	9.6 - 29	3			
Manganese (mg/L)	0.03	N/A	1	0.12	N/A	1	0.02	0.01 - 0.04	2	0.02	0.01 - 0.03	3	0.08	0.05 – 0.11	2			
Mercury (mg/L)	0.001	N/A	1				0.001	N/A	1	0.00075	0.0005 - 0.001	2	0.001	N/A	1	0.0005	N/A	1
Nickel (mg/L)				0.67	N/A	1												
Nitrate (mg/L)				0.98	0.20 – 2.8	5	1.84	0.11 – 5.29	7	2.22	0.02 - 7.88	7	1.17	0.20 – 3.8	6	3.7	2.4 – 5.0	2
o-Xylene (µg/L)																		
pH (Standard Units)				7.34	6.5 - 8.0	3	6.9	6.0 - 7.8	2	7.4	6.7 - 8.1	2	7.4	N/A	1			
Potassium (mg/L)				0.82	N/A	1	0.25	N/A	1	0.76	N/A	1						
Residue Dissolved (mg/L)				322	N/A	1	164	N/A	1	104	N/A	1						
Selenium (mg/L)													0.004	N/A	1			
Silver (mg/L)																		
Sodium (mg/L)	13.0	N/A	1	15.8	8.7 - 21.12	3	2.14	2.00 - 2.28	2	6.59	2.58 - 10.6	2	14.2	8.6 - 33	5	25.0	N/A	1
Specific Conductance (µmhos)				336	N/A	1	175	N/A	1	179	N/A	1						
Sulfate (mg/L)				59.6	35 - 93	3	6.72	6.4 – 7.0	2	8.1	3.26 - 13	2	125	56 - 270	5			
Total Dissolved Solids (mg/L)				492	N/A	1	117	N/A	1				433	431 - 435	2			
Total Nitrate/Nitrite (mg/L)										2.0	N/A	1						
Turbidity (NTU)	4.0	N/A	1	200	N/A	1	0.89	0.10 - 2.2	4	3.4	0.2 – 9.2	3	1.28	0.20 – 2.8	6	0.4	N/A	1
Zinc (mg/L)				3.5	N/A	1	0.90	N/A	1				0.51	N/A	1			

Table 3-4. Statistics of Detected Values

	Fort Spokane #1			Fort Spokane #2			Fort Spokane A			Fort Spokane B			Fort Spokane Spring		
Analyte (Units)	Average	Min. – Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count
Alkalinity (mg/L as $CaCO_3$)	25	N/A	1	130	N/A	1									
Aluminum (mg/L)															
Arsenic (mg/L)	0.01	0.009 - 0.012	2	0.004	N/A	1	0.02	N/A	1	0.02	N/A	1			
Barium (mg/L)															
Bromodichloromethane (µg/L)															
Cadmium (mg/L)															
Calcium (mg/L)	30.8	27.7 - 35.3	3	36.9	31.6 - 45.2	3							63.2	N/A	1
Chloride (mg/L)	5.4	1.3 - 9.5	2	3.1	1.7 - 4.5	2									
Chlorodibromomethane (µg/L)															
Chloroform (µg/L)															
Chromium (mg/L)															
Color (CU)				0.70	N/A	1									
Conductivity (µmhos/cm)	309.5	299 - 320	2	348.5	317 - 380	2	312	260 – 363	2	230	160 – 300	2	620	N/A	1
Copper (mg/L)															
Corrosivity (Ratio)				0.09	N/A	1									
Ethylbenzene (µg/L)															
Fluoride (mg/L)	0.71	0.3 - 1.51	3	0.44	0.30 - 0.60	3	0.35	0.2 – 0.5	2	0.35	0.3 – 0.4	2	0.48	N/A	1
Gross Beta (pCi/L)															
Hardness (mg/L as $CaCO_3$)	139	110 - 170	3	157.1	133 – 190	3	140	100 – 180	2	94.5	52 – 137	2	370	N/A	1
Iron (mg/L)															
Lead (mg/L)															
m/p-Xylene (µg/L)															
Magnesium (mg/L)	18.0	16.3 - 19.6	2	17.1	15.6 - 18.6	2							50.6	N/A	1
Manganese (mg/L)															
Mercury (mg/L)							0.001	N/A	1	0.001	0.001	2			
Nickel (mg/L)															
Nitrate (mg/L)	2.77	0.75 - 7.02	9	3.28	1.43 - 7.81	13	2.65	1.1 – 4.2	2	1.2	0.3 – 2.0	2	5.27	2.0 – 9.34	3
o-Xylene (µg/L)															
pH (Standard Units)	8.0	N/A	1	7.4	6.7 - 8.0	2							7.9	N/A	1
Potassium (mg/L)	8.4	N/A	1	1.26	N/A	1									
Residue Dissolved (mg/L)	268	N/A	1	212	N/A	1									
Selenium (mg/L)															
Silver (mg/L)															
Sodium (mg/L)	12.1	12.1 - 12.1	2	20.3	17.6 - 23.8	3				12	N/A	1	17.4	N/A	1
Specific Conductance (µmhos)	346	N/A	1	237	N/A	1									
Sulfate (mg/L)	12.8	9.4 - 16.9	3	12.7	7.02 - 18.0	3							55	N/A	1
Total Dissolved Solids (mg/L)	147	N/A	1	175	N/A	1									
Total Nitrate/Nitrite (mg/L)				3.0	N/A	1									
Turbidity (NTU)	0.20	N/A	1	0.20	N/A	1	0.2	0.2	2	0.25	0.2 – 0.3	2	0.57	N/A	1
Zinc (mg/L)															

Table 3-4. Statistics of Detected Values

	Gifford			Haag Cove			Hawk Creek			Hunters (New Well)			Hunters (Old Well)		
Analyte (Units)	Average	Min. – Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count
Alkalinity (mg/L as $CaCO_3$)	205	N/A	1				135	N/A	1				90	N/A	1
Aluminum (mg/L)										0.10	N/A	1			
Arsenic (mg/L)	0.02	N/A	1				0.002	N/A	1	0.01	0.006 - 0.01	2	0.01	N/A	1
Barium (mg/L)										0.09	N/A	1	0.10	0.03 - 0.25	3
Bromodichloromethane (µg/L)													1.2	N/A	1
Cadmium (mg/L)													0.002	N/A	1
Calcium (mg/L)	62.7	30.9 -78.8	3	32.2	23.4 - 40.9	2	48.5	39.4 - 59.6	3	112	106 - 118	2	20.1	15 – 33	5
Chloride (mg/L)	3.15	0.8 - 5.5	2	1.8	N/A	1	3.4	1.8 - 5	2	1.4	N/A	1	2.5	0.8 - 6.5	4
Chlorodibromomethane (µg/L)													0.70	N/A	1
Chloroform (µg/L)													3.1	N/A	1
Chromium (mg/L)													0.01	N/A	1
Color (CU)	0.80	N/A	1	4.5	1.0 – 8.0	2	4.57	1.7 – 7.0	3	46	30 - 62	2	3.9	0.40 – 5.0	4
Conductivity (µmhos/cm)	475	260 - 622	5	285	230 - 350	4	326	282 - 385	3	700	659 - 740	2	251	43.0 - 390	8
Copper (mg/L)													0.02	N/A	1
Corrosivity (Ratio)	0.23	N/A	1				0.09	N/A	1				0.13	N/A	1
Ethylbenzene (µg/L)													0.70	N/A	1
Fluoride (mg/L)	0.30	0.20 - 0.50	4	0.30	0.30	2	0.38	0.35 - 0.4	2				0.64	0.4 - 0.8	8
Gross Beta (pCi/L)										4.0	N/A	1			
Hardness (mg/L as $CaCO_3$)	242	110 - 336	6	126	89.0 - 160	4	163	135 - 206	4	418	385 - 450	2	129	12.0 - 220	9
Iron (mg/L)	2.04	0.4 – 3.67	2	0.82	0.38 – 1.12	3	0.24	N/A	1	0.86	0.79 - 0.93	2	0.1	0.02 - 0.23	6
Lead (mg/L)	0.01	0.002 – 0.026	3	0.015	0.004 – 0.03	3							0.01	N/A	1
m/p-Xylene (µg/L)													3.1	N/A	1
Magnesium (mg/L)	25.4	24.9 - 25.9	2	7.8	7.3 - 8.3	2	11.5	10.5 - 12.5	2	33.2	29.4 - 37	2	24.4	17.0 - 34.6	4
Manganese (mg/L)	0.18	0.02 – 0.33	2	0.03	0.01 - 0.07	3	0.01	0.01	2	0.37	0.30 - 0.43	2	0.01	N/A	1
Mercury (mg/L)	0.00075	0.0005 - 0.001	2	0.001	0.001 – 0.0011	2	0.001	N/A	1				0.00075	0.0005 – 0.001	2
Nickel (mg/L)															
Nitrate (mg/L)	1.56	0.17 – 7.85	14	1.66	0.70 – 4.63	14	1.38	0.08 - 5.48	12	2.7	N/A	1	0.82	0.2 – 3.7	12
o-Xylene (µg/L)													1.5	N/A	1
pH (Standard Units)	7.25	6.5 – 8.0	2	7.5	N/A	1	7.35	6.6 - 8.1	2	7.8	N/A	1	7.4	6.8 - 7.9	2
Potassium (mg/L)	0.47	N/A	1				0.36	N/A	1				0.49	N/A	1
Residue Dissolved (mg/L)	414	N/A	1				204	N/A	1				134	N/A	1
Selenium (mg/L)													0.01	N/A	1
Silver (mg/L)													0.01	N/A	1
Sodium (mg/L)	8.25	5.0 – 11.5	4	5.85	5.59 - 6.10	2	9.1	8.3 - 10.5	3	20.1	19.6 - 20.7	2	6.7	3.4 - 10.4	6
Specific Conductance (µmhos)	433	N/A	1				230	N/A	1				155	N/A	1
Sulfate (mg/L)	37.5	20 - 46.2	3	11.6	N/A	1	8.6	7.5 - 9.7	2	119	76.0 – 162	2	21.9	5.14 - 42.7	5
Total Dissolved Solids (mg/L)	352	N/A	1	164	N/A	1	199	N/A	1	480	N/A	1	118	26.0 - 239	4
Total Nitrate/Nitrite (mg/L)	2.5	N/A	1										0.40	0.40 - 0.40	2
Turbidity (NTU)	0.28	0.1 – 0.4	4	2.5	0.3 – 5.0	4	0.60	0.19 – 1.0	3	10.2	7.4 - 13	2	1.25	0.1 - 2.6	8
Zinc (mg/L)				2.17	1.5 - 2.83	2	0.74	0.5 - 0.973	2	0.29	N/A	1	0.01	0.01 - 0.01	2

Table 3-4. Statistics of Detected Values

Analyte (Units)	Kamloops			Keller Ferry Campground			Keller Ferry Marina			Kettle River			Marcus Island		
	Average	Min. – Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count
Alkalinity (mg/L as $CaCO_3$)				85	N/A	1	95	N/A	1	150	N/A	1			
Aluminum (mg/L)															
Arsenic (mg/L)				0.03	0.027 – 0.031	2	0.002	N/A	1						
Barium (mg/L)				0.27	N/A	1				0.024	N/A	1			
Bromodichloromethane (µg/L)															
Cadmium (mg/L)													0.003	N/A	1
Calcium (mg/L)	34.6	24.4 - 44.7	2	41.3	25.8 - 64.3	3	32.9	29.2 - 39.4	3	56.6	42.8 - 69.7	3	32.5	18.9 – 46.0	2
Chloride (mg/L)	0.60	N/A	1	3.5	2.0 – 5.0	2	3.5	1.9 – 5.0	2	3.2	0.8 - 5.5	2	0.90	N/A	1
Chlorodibromomethane (µg/L)															
Chloroform (µg/L)															
Chromium (mg/L)															
Color (CU)	5.0	N/A	1				0.10	N/A	1	2.1	1.1 – 3.0	2	8.0	3.0 – 13.0	2
Conductivity (µmhos/cm)	293	237 - 353	3	340	320 - 370	4	253	220 - 286	2	389	380 - 401	3	309.5	160 - 430	4
Copper (mg/L)															
Corrosivity (Ratio)				0.17	N/A	1	0.12	N/A	1	0.13	N/A	1			
Ethylbenzene (µg/L)															
Fluoride (mg/L)	0.31	0.23 - 0.40	3	0.48	0.30 - 0.73	4	0.65	0.3 - 1.1	3	0.36	0.25 - 0.49	4	0.30	N/A	1
Gross Beta (pCi/L)															
Hardness (mg/L as $CaCO_3$)	132	109 - 170	3	160	130 - 190	5	114	107 - 120	3	204	159 - 237	4	143	74.0 - 220	4
Iron (mg/L)	0.43	0.39 – 0.47	2	0.27	N/A	1	0.11	N/A	1	0.40	0.12 – 0.67	2	0.47	0.17 – 0.96	3
Lead (mg/L)				0.013	N/A	1				0.01	0.003 – 0.01	2			
m/p-Xylene (µg/L)															
Magnesium (mg/L)	13.0	11.7 - 14.3	2	15.1	8.0 - 22.1	2	7.9	6.1 - 9.6	2	15.6	12.6 - 18.6	2	6.4	6.1 - 6.6	2
Manganese (mg/L)	0.03	0.01 – 0.043	2	0.012	N/A	1	0.01	N/A	1	0.01	N/A	1	0.03	0.01 – 0.06	2
Mercury (mg/L)	0.001	N/A	1	0.001	N/A	1				0.001	N/A	1	0.001	N/A	1
Nickel (mg/L)															
Nitrate (mg/L)	1.47	0.30 - 6.97	8	2.7	0.81 – 9.6	15	2.6	0.75 – 6.0	11	1.5	0.18 - 6.5	12	1.66	0.22 - 5.45	5
o-Xylene (µg/L)															
pH (Standard Units)	8.0	N/A	1	7.3	6.8 - 7.8	2	7.4	7.1 - 7.7	2	7.0	6.5 - 7.5	2	7.6	N/A	1
Potassium (mg/L)				2.2	N/A	1	3.01	N/A	1	1.1	N/A	1			
Residue Dissolved (mg/L)				182	N/A	1	182	N/A	1	96	N/A	1			
Selenium (mg/L)															
Silver (mg/L)															
Sodium (mg/L)	3.25	N/A	1	11.4	11.0 – 11.9	3	9.9	5.6 - 12.9	3	5.9	4.7 - 9.1	4	2.5	N/A	1
Specific Conductance (µmhos)				201	N/A	1	208	N/A	1	242	N/A	1			
Sulfate (mg/L)	6.8	N/A	1	15.88	9.3 - 22.5	2	10.4	6.2 - 14.6	2	16.6	13.4 - 19.9	2	11.5	N/A	1
Total Dissolved Solids (mg/L)	138	N/A	1	220	N/A	1	200	N/A	1	193	N/A	1	176	N/A	1
Total Nitrate/Nitrite (mg/L)										5.2	N/A	1			
Turbidity (NTU)	2.9	2.6 - 3.3	3	0.53	0.2 – 1.1	3	0.75	0.1 - 1.4	2	4.4	0.9 - 8.7	3	2.7	0.2 – 4.8	4
Zinc (mg/L)	0.39	0.27 - 0.50	2	0.24	N/A	1				0.70	N/A	1	1.9	0.3 - 3.4	2

Table 3-4. Statistics of Detected Values

	National Park Service Well			North Gorge			Porcupine Bay			San Poil			Snag Cove			Spring Canyon		
Analyte (Units)	Average	Min. – Max.	Count	Average	Min. – Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count	Average	Min. - Max.	Count
Alkalinity (mg/L as $CaCO_3$)				170	N/A	1	115	N/A	1							145	N/A	1
Aluminum (mg/L)				0.05	N/A	1										0.07	N/A	1
Arsenic (mg/L)	0.02	N/A	1	0.01	N/A	1										0.003	N/A	1
Barium (mg/L)				0.05	N/A	1												
Bromodichloromethane (µg/L)							0.90	N/A	1									
Cadmium (mg/L)																0.003	0.002 - 0.003	2
Calcium (mg/L)				73.1	67.0 - 81.8	3	47.3	25.3 - 64.3	3				53.2	49.3 – 57.0	2	88.4	80.8 - 102	4
Chloride (mg/L)				4.1	1.7 - 6.5	2	3.2	0.8 - 5.5	2				0.90	N/A	1	27.6	4.0 - 116	5
Chlorodibromomethane (µg/L)							0.80	N/A	1									
Chloroform (µg/L)							0.80	N/A	1									
Chromium (mg/L)																		
Color (CU)				0.9	0.8 – 1.0	2	2.6	0.2 – 5.0	2				4.4	0.1 – 8.0	3	0.10	N/A	1
Conductivity (µmhos/cm)				517	470 - 585	5	276	198 - 400	3	225	N/A	1	361	280 - 473	4	908	60.0 - 2320	5
Copper (mg/L)																		
Corrosivity (Ratio)				0.23	N/A	1	0.09	N/A	1							0.61	N/A	1
Ethylbenzene (µg/L)																		
Fluoride (mg/L)				0.40	0.26 - 0.9	7	0.79	0.24 - 1.21	4	0.9	N/A	1	0.30	N/A	1	1.1	0.8 - 1.4	6
Gross Beta (pCi/L)																		
Hardness (mg/L as $CaCO_3$)				230	155 - 280	6	141	84.4 - 240	4	116	N/A	1	180	160 - 200	4	505	220 - 970	6
Iron (mg/L)				0.29	0.17 – 0.50	3							0.74	0.15 – 1.1	3			
Lead (mg/L)													0.02	0.002 – 0.03	2	0.02	0.002 - 0.036	2
m/p-Xylene (µg/L)							1.20	N/A	1									
Magnesium (mg/L)				17.0	14.8 - 19.1	2	12.0	5.1 - 18.9	2				12.2	10.2 - 14.1	2	51.0	28.9 - 68.8	3
Manganese (mg/L)				0.02	0.01 - 0.025	3							0.08	0.01 – 0.14	2			
Mercury (mg/L)				0.00075	0.0005-0.001	2				0.001	N/A	1	0.001	0.005 – 0.0012		0.001	N/A	1
Nickel (mg/L)																		
Nitrate (mg/L)				1.23	0.14 – 4.8	13	1.0	0.13 – 2.76	6	0.6	N/A	1	1.3	0.37 – 6.0	12	2.3	0.78 – 8.9	17
o-Xylene (µg/L)																		
pH (Standard Units)				7.0	6.2 - 7.7	2	7.2	6.5 - 7.9	2				8.0	N/A	1	7.2	6.5 - 7.8	2
Potassium (mg/L)				2.9	N/A	1	0.47	N/A	1							8.5	N/A	1
Residue Dissolved (mg/L)				316	N/A	1	146	N/A	1							754	N/A	1
Selenium (mg/L)																0.005	N/A	1
Silver (mg/L)				0.03	N/A	1										0.02	0.01 - 0.03	2
Sodium (mg/L)				13.5	11.2 - 15.9	6	5.27	5.2 - 5.3	3				2.9	N/A	1	90.7	10.0 - 388	6
Specific Conductance (µmhos)				349	N/A	1	152	N/A	1							789	N/A	1
Sulfate (mg/L)				39.5	33.4 – 45.0	3	11.6	4.5 - 23	3				39.3	27.0 - 51.5	2	328	81.5 - 490	6
Total Dissolved Solids (mg/L)				295	N/A	1	136	N/A	1				236	N/A	1	792	680 - 904	2
Total Nitrate/Nitrite (mg/L)																1.60	N/A	1
Turbidity (NTU)				1.46	0.1 - 5.1	6	1.1	0.2 – 2.0	2	0.4	N/A	1	3.03	0.2 - 8.5	4	0.19	0.1 – 0.3	3
Zinc (mg/L)							0.21	N/A	1				0.81	0.72 - 0.9	2	0.58	N/A	1

N/A = Not applicable

Table 4-1. Anticipated Technical Memoranda and Data Summary Reports (Phases II and III)

Number	Subject	Document Type
1	Toxicity benchmarks	Tech memo
2	COPC refinement	Tech memo
3	Selection of COPCs for benthic tissue analysis	Tech memo
4	Sediment toxicity test results	Data summary report
5	Surface water analysis	Data summary report
6	Benthic macroinvertebrate tissue analysis	Data summary report
7	Fish tissue analysis	Data summary report
8	ELS amphibian risks	Tech memo
9	Aquatic-dependent wildlife risks	Tech memo
10	Soil screening	Tech memo

Table 4-2. Summary of Aquatic Receptors and Related Assessment Endpoints for the BERA

Receptor Class	Assessment Endpoint
Benthic Macroinvertebrates	Survival, growth and reproduction of benthic macroinvertebrate species
Aquatic Macrophytes	Survival, growth, and reproduction of aquatic macrophytes
Plankton	Survival, growth, and reproduction of plankton
Fish	Survival, growth, and reproduction of fish in the following feeding guilds: • Benthic omnivore • Benthic invertivore • Littoral omnivore • Littoral piscivore • Pelagic omnivore • Pelagic piscivore
Amphibian early life stages	Survival, growth, and reproduction of amphibian early life stages

Table 4-3. Summary of Terrestrial Receptors and Related Assessment Endpoints for the BERA

Receptor Class	Assessment Endpoint
Amphibians (adults)	Survival, growth, and reproduction of adult amphibians
Reptiles	Survival, growth, and reproduction of reptiles
Birds	Survival, growth, and reproduction of birds in the following feeding guilds: • Omnivore • Herbivore • Invertivore • Carnivore • Piscivore
Mammals	Survival, growth, and reproduction of mammals in the following feeding guilds: • Omnivore • Herbivore • Invertivore • Carnivore • Piscivore
Terrestrial Invertebrates	Survival, growth, and reproduction of terrestrial invertebrates, both soil and foliar
Terrestrial Plants	Survival, growth, and reproduction of terrestrial plants in the following groups: • Woody plants • Forbs • Grasses

Table 4-4. Fish Species Representing Fish Receptor Groups in the UCR

Receptor Group	Family	Common Name	Latin Name	Rationale	Other Species Represented	Habitat
Benthic Invertivores/detritivores						
	Cottidae	Sculpin spp.	Multiple spp.	Some species present in fast-flowing waters with coarser substrates (e.g., shorthead and torrent sculpin), others found in shallower, finer substrates and quieter waters (e.g., slimy sculpin). Several species are primarily invertivorous.	Juvenile salmonids	Lacustrine/Riverine
Benthic Invertivores/detritivores						
	Catastomidae	Longnose sucker	*Catostomus catostomus*	Associated with gravel or rocky bottoms, backwaters and edges of rivers, broad diet includes a range of planktonic and benthic invertebrates and plant material that overlaps with diet of other fish species in this guild	Unknown[a]	Riverine
	Catastomidae	Largescale sucker	*Catostomus macrocheilus*	Present throughout lacustrine portion of site in recent sampling (Lee et al. 2006); some recreational value as occasionally fished; large home range; broad diet includes a range of planktonic and benthic invertebrates and plant material that overlaps with diet of other fish species in this guild.	Bridgelip sucker, carp, chiselmouth, white sturgeon, yellow bullhead, peamouth	Lacustrine
Littoral Insectivores						
	Cyprinidae	Speckled dace	*Rhinichthys osculus*	Found in shallower waters, rocky substrates; diet encompasses plant materials, zooplankton and insects and overlaps with other fish in this group	Unknown[a]	Riverine
	Cyprinidae	Northern pikeminnow (immature)	*Ptychocheilus oregonensis*	Live in vegetated lake habitats, eat a wide variety of prey; mature individuals (6+ yr) are primarily piscivorous and inhabit deeper waters.	Tench, black crappie, yellow perch, redside shiner, speckled dace, longnose dace, pumpkinseed	Lacustrine
Littoral Piscivore						
	Centrarchidae	Smallmouth bass	*Micropterus dolomiuei*	High abundance throughout most of lacustrine portion of site in recent sampling, particularly near tributary confluences including Sanpoil and Spokane (Lee et al. 2006); not found above Marcus flats (J.McLellan pers.comm.); frequently harvested in recreational fishing; diet includes fish, zooplankton, and insects.	Brown bullhead, burbot (near shore), brown trout	Lacustrine
Pelagic Insectivores						
	Salmonidae	Mountain whitefish	*Prosopium williamsoni*	Found in fast-flowing streams and pools, benthic and pelagic feeding habits overlap with other omnivores in this group.	Brown trout, Chinook salmon, cutthroat trout, brook trout	Riverine
Pelagic Omnivores						
	Salmonidae	Rainbow trout (hatchery)	*Oncorhynchus mykiss*	Present and moderately abundant throughout the site (Lee et al. 2006), of high recreational fishery importance, omnivorous benthic and pelagic feeding habits overlap with other fish in this group.	Lake whitefish, kokanee	Lacustrine
Pelagic Piscivores						
	Percidae	Walleye	*Sander vitreum*	Abundant fish throughout site, found in both riverine and lentic deep habitats, primarily piscivorous, of high recreational fishery importance.	Burbot (pelagic)	Lacustrine/Riverine

Notes:
Information in this table compiled from Black et al. (2003); Lee et al. (2003), Fields et al. (2004), Scofield et al. (2004), Pavlik-Kunkel et al. (2005), Lee et al. (2006), and Wydowski and Whitney (2003).
[a] Descriptive information on fish occupying the riverine portion of the Site is not available, so the species represented for this receptor group were not specified.

Table 4-5. Representative Terrestrial Receptor Species for the BERA

		Representative Receptor	
Receptor Class	Guild	Aquatic-Dependent	Terrestrial
Vegetation	Grass	N/A	Bluebunch wheatgrass
	Forb	Columbia crazyweed	Arrowleaf balsamroot
	Shrub	N/A	Creeping Oregon grape
	Woody	Willow	Douglas-fir
Soil Invertebrates	Detritivore	N/A	Earthworm
Flying Insects	Herbivore	N/A	Butterfly
Amphibians	Omnivore	Green frog (adult)	Northern leopard frog
	Invertivore	N/A	Pacific treefrog
Reptiles	Invertivore	N/A	Northern alligator lizard
	Omnivore	Painted turtle (adult)	N/A
	Carnivore	N/A	Garter snake
Birds	Herbivore	Mallard	Grouse
	Invertivore (aerial)	Swallow	Swallow
	Invertivore (benthic/soil)	Sandpiper	Robin
	Omnivore	Mallard	Black-capped chickadee
	Omnivore	Kingfisher	N/A
	Piscivore	Great blue heron	N/A
	Carnivore	N/A	American kestrel
Mammals	Herbivore	Muskrat	Deer mouse
	Invertivore (aerial)	Bat	Bat
	Invertivore (benthic/soil)	Water Shrew	Shrew
	Omnivore	Raccoon	Raccoon
	Piscivore	Mink	N/A
	Carnivore	N/A	Red fox

Note:
N/A – No applicable species for specified feeding guild in the indicated habitat

Table 5-1. Measures of Exposure and Effects for Aquatic Receptors

Receptor Class	Lines of Evidence	Measure of Exposure	Measure of Effect [a,b]
Benthic Macroinvertebrates	Sediment chemistry relative to benchmarks	COPC concentration in sediment (mg/kg dw) and porewater (µg/L) in individual sediment samples	Magnitude of exceedance of no-effect and lowest-effect levels. The measure of effect is dependent on the tested endpoints in the reference toxicity studyADD FOOTNOTE SEE COMMENTS. Measure of effect will be related to survival, growth, or reproduction of tested organisms.
	Sediment chemistry relative to SQGs	COPC concentration in sediment (mg/kg dw) and porewater (µg/L) in individual sediment samples	Magnitude of exceedance of effect level (e.g., PEC)
	Sediment toxicity testing, biomass (*H. azteca*, *C. dilutus*)	COPC concentration in sediment (mg/kg dw) and porewater (µg/L) in individual sediment samples	Significant reduction in biomass relative to reference[b] conditions AND biomass < 80% of reference
	Sediment toxicity testing, survival (*H. azteca*, *C. dilutus*)	COPC concentration in sediment (mg/kg dw) and porewater (µg/L) in individual sediment samples	Significant reduction in survival relative to reference conditions AND survival < 80% of reference
	Sediment toxicity testing, reproduction (*H. azteca*, *C. dilutus*)	COPC concentration in sediment (mg/kg dw) and porewater (µg/L) in individual sediment samples	Significant reduction in reproduction relative to reference conditions AND reproduction < 80% of reference
	Critical Body Burden	COPC concentration in sediment (mg/kg dw) and porewater (µg/L) in individual sediment samples	Concentration of COPCs in benthic invertebrate tissues (including mussels) collected from the Site. Some elements of a comprehensive sediment toxicity study require additional technical discussion, including the necessity of freshwater mussel sediment toxicity tests (*Lampsilis siliquoidea*) or laboratory measures of uptake of COPCs by oligochaetes (*Lumbriculus* sp.).
	Statistical analysis of relationships between quantitative performance variables from site-specific bioassays and sediment chemistry, sediment physicochemistry, or other factors.	One or more COPC concentration(s) in sediment (mg/kg dw) and porewater (µg/L), and/or physicochemical variable, in individual, synoptic sediment samples	Biomass or survival in toxicity tests with measured sediments
Aquatic Macrophytes	Comparison of water chemistry to AWQC	COPC concentration in water (mg/L) in individual water samples	No effect on 95 percent of species at concentrations below the AWQC
	Comparison of water chemistry to available benchmarks for macrophytes	COPC concentration in water (mg/L) in individual water samples	Magnitude of exceedance of no-effect and lowest-effect levels. The measure of effect is dependent on the tested endpoints in the reference toxicity study. Measure of effect will be related to survival, growth, or reproduction of tested organisms.
	Comparison of sediment chemistry to available benchmarks for macrophytes	COPC concentration in sediment (mg/kg dw) and porewater (µg/L) in individual sediment samples	Magnitude of exceedance of no-effect and lowest-effect levels. The measure of effect is dependent on the tested endpoints in the reference toxicity study. Measure of effect will be related to survival, growth, or reproduction of tested organisms.

Table 5-1. Measures of Exposure and Effects for Aquatic Receptors

Receptor Class	Lines of Evidence	Measure of Exposure	Measure of Effect [a,b]
Plankton	Comparison of water chemistry to AWQC	COPC concentration in water (mg/L) in individual water samples	No effect on 95 percent of species at concentrations below the AWQC
	Comparison of water chemistry to available benchmarks for plankton	COPC concentration in water (mg/L) in individual water samples	Magnitude of exceedance of no-effect and lowest-effect levels. The measure of effect is dependent on the tested endpoints in the reference toxicity study. Measure of effect will be related to survival, growth, or reproduction of tested organisms.
Fish	Comparison of water chemistry to AWQC	COPC concentration in water (mg/L) in individual water samples	No effect on 95 percent of species at concentrations below the AWQC
	Concentrations of COPCs in prey (plankton, fish tissue) and in sediment mathematically combined into estimates of the concentrations of COPCs in fish diets/ingested media, and comparison of the estimated concentrations to benchmarks.	The CT and RME of COPC concentrations in ingested media (mg/kg dw)	Magnitude of exceedance of no-effect and lowest-effect levels. The measure of effect is dependent on the tested endpoints in the reference toxicity study. Measure of effect will be related to survival, growth, or reproduction of tested organisms.
	Concentrations of organic COPCs, selenium, and mercury in whole fish relative to critical body burden	The CT and RME of COPC concentrations in whole fish (mg/kg ww or lipid weight)	Magnitude of exceedance of no-effect and lowest-effect levels. The measure of effect is dependent on the tested endpoints in the reference toxicity study. Measure of effect will be related to survival, growth, or reproduction of tested organisms.
	Columbia White Sturgeon	Water-only exposure and sediment exposure laboratory studies	Growth and survival

Table 5-1. Measures of Exposure and Effects for Aquatic Receptors

Receptor Class	Lines of Evidence	Measure of Exposure	Measure of Effect [a,b]
Amphibian Early Life Stages	Comparison of water chemistry to AWQC	COPC concentration in water (mg/L) in individual water samples	No effect on 95 percent of species at concentrations below the AWQC
	Comparison of water chemistry to available benchmarks for amphibian early life stages	COPC concentration in water (mg/L) in individual water samples	Magnitude of exceedance of no-effect and lowest-effect levels. The measure of effect is dependent on the tested endpoints in the reference toxicity study. Measure of effect will be related to survival, growth, or reproduction of tested organisms.
	Comparison of sediment chemistry to available benchmarks for amphibian early life stages	COPC concentration in sediment (mg/kg dw) in individual sediment samples	Magnitude of exceedance of no-effect and lowest-effect levels. The measure of effect is dependent on the tested endpoints in the reference toxicity study. Measure of effect will be related to survival, growth, or reproduction of tested organisms.
	Comparison of porewater chemistry to available benchmarks for amphibian early life stages	COPC concentration in water (mg/L) in individual porewater samples	Magnitude of exceedance of no-effect and lowest-effect levels. The measure of effect is dependent on the tested endpoints in the reference toxicity study. Measure of effect will be related to survival, growth, or reproduction of tested organisms.
Aquatic-dependent birds and mammals	Comparision of dietary concentrations of COPCs to toxicity reference values	COPC concentrations in fish (mg/kg ww), benthic invertebrates (mg/kg ww), water (µg/L), and sediment (mg/kg)	Magnitude of exceedence of calculated dietary concentrations. Dietary concentrationswill be related to toxicity thresholds based on chronic exposures and effects on survival, growth or reproduction.

Notes:

[a] Measure of effect will be related to survival, growth, or reproduction of tested organisms.

[b] Reference conditions will be defined using a reference envelope approach.

CT = central tendancy

RME = reasonable maximum exposure

Table 5-2. Measures of Exposure and Effects for Terrestrial Receptors

Receptor Class	Lines of Evidence	Measure of Exposure	Measure of Effect [a]
Invertebrates (soil and foliar)	Soil chemistry relative to soil benchmarks	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of soil benchmark or no-effect and lowest-effect toxicity levels.
Plants	Soil chemistry relative to soil benchmarks	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of soil benchmark or no-effect and lowest-effect toxicity levels.
Birds	Soil chemistry relative to soil benchmarks	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of soil benchmark.
	Soil chemistry relative to benchmarks for indicator species in each feeding guild	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
	Dietary dose of COPCs calculated or measured for indicator species in each feeding guild	COPC concentrations in dietary items specific to each feeding guild	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
	Water concentrations of COPCs compared to (or contributing to) dietary toxicity thresholds for each feeding guild	COPC concentration in surface water (mg/L)	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
Mammals	Soil chemistry relative to soil benchmarks	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of soil benchmark.
	Soil chemistry relative to benchmarks for indicator species in each feeding guild	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
	Dietary dose of COPCs calculated or measured for indicator species in each feeding guild	COPC concentrations in dietary items specific to each feeding guild	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
	Water concentrations of COPCs compared to (or contributing to) dietary toxicity thresholds for each feeding guild	COPC concentration in surface water (mg/L)	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
Amphibians (adult stages)	Soil chemistry relative to soil benchmarks	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of soil benchmark.
	Soil chemistry relative to benchmarks for indicator species in each feeding guild	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
	Dietary dose of COPCs calculated or measured for indicator species in each feeding guild	COPC concentrations in dietary items specific to each feeding guild	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
	Water concentrations of COPCs compared to (or contributing to) dietary toxicity thresholds for each feeding guild	COPC concentration in surface water (mg/L)	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
Reptiles	Soil chemistry relative to soil benchmarks	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of soil benchmark.
	Soil chemistry relative to benchmarks for indicator species in each feeding guild	COPC concentration in soil (mg/kg dw) in individual soil samples	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
	Dietary dose of COPCs calculated or measured for indicator species in each feeding guild	COPC concentrations in dietary items specific to each feeding guild	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.
	Water concentrations of COPCs compared to (or contributing to) dietary toxicity thresholds for each feeding guild	COPC concentration in surface water (mg/L)	Magnitude of exceedance of no-effect and lowest-effect toxicity levels.

Notes:

[a] Measure of effect will be related to survival, growth, or reproduction of tested organisms.

Table 5-3. Summary of Data Availability

Receptor	Data Needs	Data Availability: Historical	Field Sample	Lit	Lab
Benthic macroinvertebrates	sediment chemistry	x	x		
	porewater chemistry				
	benthos tissue chemistry				
	plankton chemistry			x	
	benthos benchmarks			x	
	sediment toxicity				x
	sediment quality guidelines			x	
Aquatic macrophytes	water chemistry		x		
	water quality criteria			x	
	macrophyte benchmarks			x	
Plankton	water chemistry				
	water quality criteria			x	
Fish	water chemistry		x		
	sediment chemistry	x			
	plankton chemistry				
	fish chemistry	x	x	x	
	water quality criteria			x	
Amphibian (early life stage)	water chemistry		x		
	porewater chemistry				
	amphian ELS bioassays				
	water quality criteria			x	
	amphibian early life stage benchmarks			x	
Invertebrates (soil and foliar)	soil chemistry				
	soil bioassays				
	soil benchmarks			x	
Plants	soil chemistry		x		
	soil bioassays				
	soil benchmarks			x	
Birds	soil chemistry				
	soil benchmarks			x	
	dietary dose of COPCs			x	
	water chemistry		x		
Mammals	soil chemistry				
	soil benchmarks			x	
	dietary dose of COPCs			x	
	water chemistry		x		
Amphibians (adult stages)	soil chemistry				
	soil benchmarks			x	
	dietary dose of COPCs			x	
	water chemistry		x		
Reptiles	soil chemistry				
	soil benchmarks			x	
	dietary dose of COPCs			x	
	water chemistry		x		

Table 5-4. Data Needs and Descriptions

Data	Receptors	Description
Exposure metrics		
Sediment chemistry	Benthic macroinvertebrates	sediment chemistry co-located with benthic macroinvertebrate samples
	Aquatic macrophytes	sediment chemistry in areas of macrophyte beds
	Fish	surface-area weighted sediment chemistry
	Amphibians (early life stages)	sediment chemistry in shallow areas
	Aquatic dependent wildlife	sediment chemistry in shallow areas
Sediment toxicity tests	Benthic macroinvertebrates	biomass and survival testing with H. azteca and C. tentans
Porewater chemistry	Amphibians (early life history)	porewater chemistry in shallow sediment
	Benthic invertebrates	site-wide porewater chemistry
	Bottom feeding fish and juvenile fish	site-wide porewater chemistry
Water chemistry	Aquatic macrophytes	water chemisry in areas of macrophyte beds
	Plankton	site-wide water chemistry
	Fish	site-wide water chemistry
	Amphibians (early life history)	water chemistry in shallow areas
	Mammals	water chemistry in nearshore areas
	Birds	site-wide water chemistry
	Amphibians (adult stages)	site-wide water chemistry
	Reptiles	water chemistry in shallow areas
Plankton chemistry	Fish	site-wide plankton chemistry
Benthic invertebrate chemistry	Fish	hard- and soft-bottom substrate invertebrates
	Aquatic dependent wildlife	hard-and soft-bottom substrate invertebrates
Fish chemistry	Fish	fish chemistry in receptor-specific prey species
	Aquatic dependent wildlife	fish chemistry in size-specific prey species
Soil chemistry	Invertebrates	soil chemistry at depth
	Plants	soil chemistry at depth
	Birds	surface soil chemistry
	Mammals	surface soil chemistry
	Amphibians (adult stages)	surface soil chemistry
	Reptiles	surface soil chemistry
Effects metrics		
Benchmarks	Fish	toxicological no-effect and lowest-effect benchmarks
	Benthic invertebrates	toxicological no-effect and lowest-effect benchmarks
	Aquatic macrophytes	toxicological no-effect and lowest-effect benchmarks
	Plankton	toxicological no-effect and lowest-effect benchmarks
	Invertebrates	toxicological no-effect and lowest-effect benchmarks
	Plants	toxicological no-effect and lowest-effect benchmarks
	Birds	toxicological no-effect and lowest-effect benchmarks
		ORNL toxicological benchmarks
	Mammals	toxicological no-effect and lowest-effect benchmarks
		ORNL toxicological benchmarks
	Amphibians (adult life stage)	toxicological no-effect and lowest-effect benchmarks
	Reptiles	toxicological no-effect and lowest-effect benchmarks
SQGs	Benthic invertebrates	toxicological effect levels (e.g., PEC)
AWQC	Aquatic macrophytes	EPA water quality criteria for the protection of aquatic life
	Plankton	EPA water quality criteria for the protection of aquatic life
	Fish	EPA water quality criteria for the protection of aquatic life
	Amphibian (early life stage)	EPA water quality criteria for the protection of aquatic life

Table 5-5. Weighted average[a] of stomach contents (as percent by dry mass) of fish collected by the LRFEP, 1999-2005

Species	Black Crappie	Bridgelip Sucker	Bown Bullhead	Brook Trout	Brown Trout	Burbot	Chinook Salmon	Cottidae	Kokanee	Lake Whitefish	Largemouth Bass	Largescale Sucker	Longnose Sucker	Mountain Whitefish	Northern Pikeminnow	Peamouth	Rainbow Trout[b]	Redside Shiner	Smallmouth Bass	Tench	Walleye	Yellow Bullhead	Yellow Perch
Fish																							
Osteichthyes	17.78	0.00	87.01	55.35	81.93	73.69	64.36	53.80	0.00	1.16	87.66	0.00	0.00	0.07	45.08	0.00	7.52	0.00	72.82	0.00	96.15	0.00	38.87
Crayfish																							
Astacidae	0.00	0.00	0.00	0.00	6.24	18.09	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	4.33	0.00	3.35	0.00	11.81	0.00	0.02	21.51	10.14
Amphibians																							
Anura	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.18	0.00	0.00
Zooplankton (Daphnia and other cladocerans)																							
Zooplankton	52.75	0.00	0.00	21.80	3.41	0.00	0.00	5.54	95.39	44.63	0.00	10.32	0.21	6.35	12.07	56.08	28.01	0.00	3.30	0.00	0.34	12.90	25.44
Dipterans (true flies)																							
Chironomids	17.21	0.03	0.00	6.86	1.95	0.24	20.79	0.00	1.59	4.25	0.00	3.16	8.57	45.61	0.90	0.00	2.04	0.00	0.31	2.28	1.81	0.00	1.43
Non-Chironomid Diptera	5.57	0.00	0.00	0.09	0.34	0.00	0.00	0.00	0.00	0.35	0.00	0.61	0.12	9.67	0.00	0.00	0.53	0.00	0.05	0.00	0.04	0.00	0.00
Molluscs																							
Gastropoda	0.00	0.00	0.00	4.91	0.04	0.68	0.00	18.13	0.00	0.05	0.00	2.05	0.01	18.05	2.81	10.15	20.72	0.00	0.00	0.00	0.00	0.00	0.18
Pelecypoda	0.00	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Non-dipteran insects																							
Coleoptera	0.00	0.01	0.00	0.04	0.50	0.00	0.00	0.00	0.00	7.40	0.00	0.28	0.02	1.07	0.00	0.00	0.28	0.00	0.09	0.00	0.00	0.00	0.00
Megaloptera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hemiptera	1.47	0.05	0.00	5.42	0.01	0.00	0.00	0.00	0.00	0.06	3.30	0.26	0.01	0.00	2.23	0.00	1.47	0.00	0.25	0.00	0.00	0.00	0.84
Lepidoptera	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00	4.70	0.00	0.10	0.01	1.49	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	1.04
Odonata	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.49	0.00	0.02	0.00	2.08
Trichoptera	0.03	0.17	0.00	0.21	0.02	0.82	0.00	0.00	0.00	1.13	0.00	0.33	3.08	7.67	4.12	0.00	0.76	0.00	0.09	0.00	0.04	0.00	0.18
Plecoptera	0.00	0.00	0.00	0.12	0.00	1.18	0.00	0.00	0.00	0.00	0.00	0.02	0.24	0.00	0.13	0.00	0.02	0.00	0.03	0.00	0.01	65.60	0.98
Ephemeroptera	0.00	0.09	0.00	0.08	0.01	0.00	0.00	0.00	0.00	8.75	0.00	0.00	0.00	1.10	0.00	0.00	0.24	0.00	0.01	0.00	0.00	0.00	0.04
Homoptera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Neuroptera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Benthic Macroinvertebrates																							
Arachnoidea	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.01	0.00	0.00	0.00	0.00
Amphipoda	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.17	0.00	0.00	0.00	0.01
Annelida	0.00	0.15	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	5.12	0.08	0.05	0.00	2.46	0.00	0.85	0.00	1.15	0.00	0.04	0.00	0.70
Nematoda	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Platyhelminthes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.77
Isopoda	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.24	0.00	0.00	0.00	0.00	0.00	5.83	0.00	0.00	0.85	50.00	0.08	0.00	0.07	0.00	0.00
Lithobiomorpha	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Terrestrial Invertebrates																							
Terrestrial	0.00	0.05	0.00	0.18	1.05	0.05	0.00	0.00	0.00	0.13	2.59	0.03	0.01	0.44	0.06	0.00	8.99	0.00	0.46	0.00	0.12	0.00	0.00
Unidentified Arthropods																							
Arthropoda	4.81	0.00	7.91	1.59	1.39	0.01	0.00	0.00	0.19	0.92	0.00	3.73	1.17	0.11	9.61	0.00	2.33	50.00	0.36	0.00	0.01	0.00	0.18
Miscellaneous																							
Other	0.16	98.03	5.80	1.67	2.80	4.32	14.85	0.00	2.75	25.55	1.33	78.62	86.51	2.53	16.19	33.77	21.41	0.00	6.48	97.72	1.14	0.00	9.08
Total % of Diet	100	100	101	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total N per Species	**30**	**9**	**1**	**44**	**33**	**46**	**1**	**10**	**328**	**35**	**9**	**457**	**34**	**31**	**33**	**3**	**1159**	**2**	**432**	**1**	**778**	**1**	**110**

Notes:

[a] To compute weighted averages of stomach contents, the average of each species average dietary contents per year was calculated, with each species averages weighted by number of individual fish of that species collected

Table 5-6. Exposure Factors for Aquatic-Dependent Wildlife

			Area Use Factor(a)	Bioavailable Fraction (ABS)	Body Weight		Food Ingestion Rate [a]		Water Ingestion Rate [a]	Sediment/Soil Ingestion Rate [b]				Aquatic Prey Items (% of overall diet) [c]				Terrestrial Prey Items (% of overall diet) [c]				
Group	Receptor	Feeding Guild	(unitless)	(unitless)	(kg)	Reference	(kg/d-dry)	(kg/d-wet)	(L/d)	(% of FIR)	Reference	(kg/d-dry)	(kg/d-wet)	Fish	Amphibians	Aquatic Invertebrates (including mussels)	Aquatic Plants (macrophytes)	Birds	Mammals	Reptiles	Terrestrial Plants	Terrestrial Invertebrates
Birds	Great Blue Heron	Piscivore	TBD	1.0	2.39	Average of adult males and females, Hartman (1961) as cited in USEPA (1993)	0.1475	0.5295	0.1058	8.4%	Generic model for waterfowl from Beyer et al. 2008	0.0124	0.0445	95%	0%	5%	0%	0%	0%	0%	0%	0%
Birds	Osprey	Piscivore	TBD	1.0	1.486	Average of adult males and females, Brown & Amadon (1968) as cited in USEPA (1993)	0.1076	0.3864	0.0769	2.0%	Assumed comparable to or less than Mallard based from Beyer et al. (1994) as cited in USEPA (1993)	0.0022	0.0077	100%	0%	0%	0%	0%	0%	0%	0%	0%
Birds	Bald Eagle	Piscivore/Carnivore	TBD	1.0	4.684	Average of adult males and females, Dunning (1984) as Cited in USEPA (1993)	0.2304	0.8272	0.1660	2.0%	Assumed comparable to or less than Mallard based from Beyer et al. (1994) as cited in USEPA (1993)	0.0046	0.0165	27%	0%	0%	0%	50%	23%	0%	0%	0%
Birds	Belted Kingfisher	Omnivore	TBD	1.0	0.148	Average of adult males and females, Dunning (1984) as Cited in USEPA (1993)	0.0233	0.0837	0.0164	2.0%	Assumed comparable to or less than Mallard based from Beyer et al. (1994) as cited in USEPA (1993)	0.0005	0.0017	59%	0%	41%	0%	0%	0%	0%	0%	0%
Birds	Canada Goose	Riparian Herbivore	TBD	1.0	2.62	Average of adult males and females, Grieb (1970) as cited in USEPA (1993)	0.1401	0.4679	0.1125	8.2%	Canada goose based on Beyer et al. (1994) as cited in USEPA (1993)	0.0115	0.0384	0%	0%	0%	100%	0%	0%	0%	0%	0%
Birds	Tundra Swan	Riparian Herbivore	TBD	1.0	6.65	Average of adult males and females, Dunning (1984) as Cited in USEPA (1993)	0.2651	0.8889	0.2100	8.4%	Beyer et al. 2008	0.0223	0.0747	0%	0%	0%	99%	0%	0%	0%	0%	1%
Birds	Mallard	Riparian Omnivore	TBD	1.0	1.134	Average of adult males and females, Nelson & Martin (1953) as cited in USEPA (1993)	0.0551	0.1723	0.0642	2.0%	Mallard based on Beyer et al. (1994) as cited in USEPA (1993)	0.0011	0.0034	0%	0%	50%	50%	0%	0%	0%	0%	0%
Birds	Lesser Scaup	Riparian Omnivore	TBD	1.0	0.82	Average of adult males and females, Nelson & Martin (1953) as cited in USEPA (1993)	0.0450	0.1406	0.0517	4.7%	Beyer et al. 2008	0.0021	0.0066	44%	0%	28%	28%	0%	0%	0%	0%	0%
Birds	Spotted Sandpiper	Riparian Invertivore	TBD	1.0	0.0425	Average of adult males and females, Maxson & Oring (1980) as cited in USEPA (1993)	0.0093	0.0342	0.0071	18.0%	Based on Western Sandpiper from Beyer et al. (1994) as cited in USEPA (1993)	0.0017	0.006	0%	0%	100%	0%	0%	0%	0%	0%	0%
Birds	Swallow	Riparian Insectivore	TBD	1.0	0.0201	Average of adult males and females, Dunning (1984) as Cited in USEPA (1993)	0.0045	0.0135	0.0043	2.0%	Assumed comparable to or less than Mallard based from Beyer et al. (1994) as cited in USEPA (1993)	0.0001	0.0003	0%	0%	50%	0%	0%	0%	0%	0%	50%
Mammals	Mink	Piscivore	TBD	1.0	0.852	Average of adult males and females (summer & fall), Mitchell (1961) as cited in USEPA (1993)	0.0425	0.1433	0.0857	5.0%	Assumed similar to other mammals based on Beyer et al. (1994) as cited in USEPA (1993)	0.0021	0.0072	73%	2%	7%	0%	4%	4%	2%	9%	0%
Mammals	River Otter	Piscivore	TBD	1.0	8.55	Average of adult males and females, Melquist & Hornocker (1983) as cited in USEPA (1993)	0.2910	1.0127	0.6830	5.0%	Assumed similar to other mammals based on Beyer et al. (1994) as cited in USEPA (1993)	0.0146	0.0506	80%	0%	10%	0%	3%	3%	0%	0%	5%
Mammals	Little Brown Bat	Riparian/Terrestrial Insectivore	TBD	1.0	0.0075	Gould (1955) as cited in Sample and Suter 1994	0.0014	0.0045	0.0012	2.0%	Assumed lowest mammalian rate from Beyer et al. (1994) as cited in USEPA (1993)	0.00003	0.0001	0%	0%	50%	0%	0%	0%	0%	0%	50%
Mammals	Muskrat	Riparian/Terrestrial Omnivore	TBD	1.0	0.873	Average of adult males and females, Reeves & Williams (1956) as cited in USEPA (1993)	0.0604	0.1832	0.0876	5.0%	Assumed similar to other mammals based on Beyer et al. (1994) as cited in USEPA (1993)	0.0030	0.0092	0%	0%	0%	100%	0%	0%	0%	0%	0%

Table 5-6. Exposure Factors for Aquatic-Dependent Wildlife

			Area Use Factor(a)	Bioavailable Fraction (ABS)	Body Weight		Food Ingestion Rate [a]		Water Ingestion Rate [a]	Sediment/Soil Ingestion Rate [b]				Aquatic Prey Items (% of overall diet) [c]				Terrestrial Prey Items (% of overall diet) [c]				
Group	Receptor	Feeding Guild	(unitless)	(unitless)	(kg)	Reference	(kg/d-dry)	(kg/d-wet)	(L/d)	(% of FIR)	Reference	(kg/d-dry)	(kg/d-wet)	Fish	Amphibians	Aquatic Invertebrates (including mussels)	Aquatic Plants (macrophytes)	Birds	Mammals	Reptiles	Terrestrial Plants	Terrestrial Invertebrates
Mammals	Raccoon	Riparian/Terrestrial Omnivore	TBD	1.0	6.9	Average of adult males and females, Sanderson (1984) as cited in USEPA (1993)	0.1731	0.5392	0.5631	9.4%	Based on Beyer et al. (1994) as cited in USEPA (1993)	0.0163	0.0507	2%	0%	19%	0%	7%	7%	0%	38%	27%

Notes:

(a) AUF will be calculated as the ratio of foragning range size : location size

[a] Food and water ingestion rates calculated from regression equations (Nagy 2001; Calder and Braun 1983) presented in Table E-4

[b] Sediment ingestion rates calculated as a percentage of the food ingestion rate (FIR x % sediment ingestion).

[c] Diets assumed from information presented in USEPA (1993) and Sample and Suter (1994).

kg - Kilograms
kg/d-dry - Kilograms per day dry weight
kg/d-wet - Kilograms per day wet weight
L/d - Liters per day
% of FIR - Percent of food ingestion rate
n/a - Not available

Table 5-7. Food and Water Ingestion Rate Estimation Formulas

Receptor Group (Nagy 2001)	SLERA Receptors	Food Ingestion Rates [a]	Water Ingestion Rates [b]
All Birds	Canada Goose, Tundra Swan	FIR (g/d-dry) = 0.638*(BW[g])$^{0.685}$ FIR (g/day-wet) = 2.065*(BW[g])$^{0.689}$	WIR (L/day) = 0.059*(BW[kg])$^{0.67}$ (used for all avian receptors)
Charadriiformes (shore birds)	Spotted Sandpiper	FIR (g/d-dry) = 0.522*(BW[g])$^{0.769}$ FIR (g/day-wet) = 1.914*(BW[g])$^{0.769}$	Not available
Carniverous Birds	Bald Eagle, Belted Kingfisher, Great Blue Heron, Osprey	FIR (g/d-dry) = 0.849*(BW[g])$^{0.663}$ FIR (g/day-wet) = 3.048*(BW[g])$^{0.663}$	Not available
Omnivorous Birds	Mallard, Lesser Scaup	FIR (g/d-dry) = 0.670*(BW[g])$^{0.627}$ FIR (g/day-wet) = 2.094*(BW[g])$^{0.627}$	Not available
Insectivorous Birds	Swallow	FIR (g/d-dry) = 0.540*(BW[g])$^{0.705}$ FIR (g/day-wet) = 1.633*(BW[g])$^{0.705}$	Not available
All Mammals		FIR (g/day-dry) = 0.323*(BW[g])$^{0.744}$ FIR (g/day-wet) = 0.794*(BW[g])$^{0.773}$	WIR (L/day) = 0.099*(BW[kg])$^{0.90}$ (used for all mammalian receptors)
Carnivorous Mammals	Mink, River Otter	FIR (g/day-dry) = 0.153*(BW[g])$^{0.834}$ FIR (g/day-wet) = 0.469*(BW[g])$^{0.848}$	Not available
Herbivorous Mammals	Muskrat	FIR (g/day-dry) = 0.859*(BW[g])$^{0.628}$ FIR (g/day-wet) = 2.606*(BW[g])$^{0.628}$	Not available
Omnivorous Mammals	Raccoon	FIR (g/day-dry) = 0.432*(BW[g])$^{0.678}$ FIR (g/day-wet) = 1.346*(BW[g])$^{0.678}$	Not available
Chiroptera (Bats)	Little Brown Bat	FIR (g/day-dry) = 0.365*(BW[g])$^{0.671}$ FIR (g/day-wet) = 1.219*(BW[g])$^{0.652}$	Not available

Notes:

[a] Food ingestion rates (FIRs) estimated from equations reported by Nagy (2001).
[b] Water ingestion rates (WIRs) estimated from equations reported by Calder and Braun (1983) as reported in USEPA (1993).
BW = Body weight (kilograms [kg])
FIR = Food ingestion rate (kg/day)
WIR = Water ingestion rate (Liters [L] /day)
g - grams
kg - kilograms

Table 5-8. Series 850—Ecological Effects Test Guidelines
April 1996

OPPTS Number	Name	Existing Numbers			EPA Pub. no.
		OTS	OPP	OECD	712–C–
850.1000	Special considerationd for conducting aquatic laboratory studies	none	none	none	96–113
	Group A—Aquatic Fauna Test Guidelines.				
850.1010	Aquatic invetebrate acute toxicity, test, freshhwater daphnids	797.1300	72–2	none	96–114
850.1020	Gammarid acute toxicity test	795.120	none	none	96–130
850.1025	Oyster acute toxicity test (shell deposition)	797.1800	72–3	none	96–115
850.1035	Mysid acute toxicity test	797.1930	72–3	none	96–136
850.1045	Penaeid acute toxicity test	797.1970	72–3	none	96–137
850.1055	Bivalve acute toxicity test (embryo larval)	none	72–3	none	96–100
850.1075	Fish acute toxicity test, freshwater and marine	797.1400	72–1, 3	203	96–118
850.1085	Fish acute toxicity mitigated by humic acid	797.1460	none	none	96–117
850.1300	Daphnid chronic toxicity test	797.1330	72–4	202	96–120
850.1350	Mysid chronic toxicity test	797.1950	72–4	none	96–166
850.1400	Fish early-life stage toxicity test	797.1000	72–4	210	96–121
850.1500	Fish life cycle toxicity	none	72–5	none	96–122
850.1710	Oyster BCF	797.1830	72–6	none	96–127
850.1730	Fish BCF	797.1520	72–6, 165–4	305	96–129
850.1735	Whole sediment acute toxicity invertebrates, freshwater	none	none	none	96–354
850.1740	Whole sediment acute toxicity invertebrates, marine	none	none	none	96–355
850.1790	Chironomid sediment toxicity test	795.135	none	none	96–313
850.1800	Tadpole/sediment subchronic toxicity test	797.1995	none	none	96–132
850.1850	Aquatic food chain transfer	none	72–6	none	96–133
850.1900	Generic freshwater microcosm test, laboratory	797.3050, .3100	none	none	96–134
850.1925	Site-specific aquatic microcosm test, laboratory	797.3100	none	none	96–173
850.1950	Field testing for aquatic organisms	none	72–7, 165–5	none	96–135
	Group B—Terrestrial Wildlife Test Guidelines.				
850.2100	Avian acute oral toxicity test	797.2175	71–1	none	96–139
850.2200	Avian dietary toxicity test	797.2050	71–2	205	96–140
850.2300	Avian reproduction test	797.2130, .2150	71–4	206	96–141
850.2400	Wild mammal acute toxicity	none	71–3	none	96–142
850.2450	Terrestrial (soil-core) microcosm test	797.3775	none	none	96–143
850.2500	Field testing for terrestrial wildlife	none	71–5	none	96–144
	Group C—Beneficial Insects and Invertebrates Test Guidelines.				
850.3020	Honey bee acute contact toxicity	none	141–1	none	96–147
850.3030	Honey bee toxicity of residues on foliage	none	141–2	none	96–148
850.3040	Field testing for pollinators	none	141–5	none	96–150
	Group D—Nontarget Plants Test Guidelines.				
850.4000	Background—Nontarget plant testing	none	120–1	none	96–151
850.4025	Target area phytotoxicity	none	121–1	none	96–152
850.4100	Terrestrial plant toxicity, Tier I (seedling emergence)	none	122–1	none	96–153
850.4150	Terrestrial plant toxicity, Tier I (vegetative vigor)	none	122–1	none	96–163
850.4200	Seed germination/root elongation toxicity test	797.2750	122–1	none	96–154
850.4225	Seedling emergence, Tier II	797.2750	123–1	none	96–363
850.4230	Early seedling growth toxicity test	797.2800	123–1	none	96–347
850.4250	Vegetative vigor, Tier II	797.2750	123–1	none	96–364
850.4300	Terrestrial plants field study, Tier III	none	124–1	none	96–155
850.4400	Aquatic plant toxicity test using *Lemna* spp. Tiers I and II	797.1160	122–2, 123–2	none	96–156
850.4450	Aquatic plants field study, Tier III	none	124–2	none	96–157
850.4600	*Rhizobium*-legume toxicity	797.2900	none	none	96–158
850.4800	Plant uptake and translocation test	797.2850	none	none	96–159
	Group E—Toxicity to Microorganisms Test Guidelines.				
850.5100	Soil microbial community toxicity test	797.3700	none	none	96–161
850.5400	Algal toxicity, Tiers I and II	797.1050	122–2, 123–2	none	96–164
	Group F—Chemical-Specific Test Guidelines.				
850.6200	Earthworm subchronic toxicity test	795.150	none	207	96–167
850.6800	Modified activated sludge, respiration inhibition test for sparingly soluble chemicals	795.170	none	209	96–168
	Group G—Field Test Data Reporting Guidelines.				
850.7100	Data reporting for environmental chemistry methods	none	none	none	96–348

Source: http://www.epa.gov/ocspp/pubs/frs/publications/
OPPTS_Harmonized/850_Ecological_Effects_Test_Guidelines/Master/850master.pdf

Table 6-1. List of Studies Described in the BERA

	Description	Studies	Section
Phase I	Initial screen		
Phase II	Studies that have or will be done and can be planned	Surface Water Quality	6.1
		Fish Tissue Chemical Concentrations	6.2
		Sediment Toxicity	6.3.3
		Sediment and Porewater Chemistry	6.3.4
		Beach Sediments	6.4
		Soil Chemistry	6.5
		White Sturgeon (water toxicity)	6.6.1
		White Sturgeon (sediment toxicity)	6.6.2
Phase III	Studies that will be done but design depends on Phase II results	Benthic Macroinvertebrate Tissue Chemistry	7.2.1
		Benthic Macroinvertebrate Abundance or Biomass	7.2.2
		Plankton Tissue Concentrations	7.3
Phase IV	May be done, but depends on results of previous studies	Other Aquatic Bioassays	7.4
		White Sturgeon (dietary-lab)	7.5
		Bioavailability from Fish	7.6.1
		Dietary Toxicity to Fish	7.6.2
		Emergent Insect Tissue Chemistry	7.6.3
		Soil Bioavailability	7.7.1
		Soil Background	7.7.2
		Terrestrial Resources Study	7.8.1
		Plant Tissue Chemistry (field)	7.8.2
		Plant Bioassay	7.8.3
		Terrestrial Invertebrate Tissue Chemistry	7.8.4
		Terrestrial Invertebrate Toxicity Studies	7.8.5