APPENDIX B: SUMMARY DATA TABLES FOR ROUND 1 AND ROUND 2

Table B-1. Summary of chemistry results in Round 1 and Round 2 LDW surface sediment samples

Analyte	Unit	Detection Frequency	Detected Concentration			Reporting Limit[a]	
			Minimum	Maximum	Mean[b]	Minimum	Maximum
Metals and trace elements							
Antimony	mg/kg dw	16/163	0.3	6.8 J	2	0.2	0.6
Arsenic	mg/kg dw	163/163	2.4	1,100	33	na	na
Cadmium	mg/kg dw	82/163	0.3	3.8	0.9	0.2	1
Chromium	mg/kg dw	163/163	9.9	455	38	na	na
Cobalt	mg/kg dw	163/163	3.5	50	9	na	na
Copper	mg/kg dw	163/163	10.3	1,420	101	na	na
Lead	mg/kg dw	163/163	3	870	80	na	na
Mercury	mg/kg dw	123/163	0.05	2.46	0.2	0.04	0.1
Molybdenum	mg/kg dw	161/163	0.7 J	75	3	0.6	0.6
Nickel	mg/kg dw	163/163	6	387	30	na	na
Selenium	mg/kg dw	0/163	nd	nd	nd	6	40
Silver	mg/kg dw	45/163	0.5	3.9	1	0.3	2
Thallium	mg/kg dw	3/163	0.4	0.6	0.5	0.2	0.6
Vanadium	mg/kg dw	163/163	36.3	89.6	61	na	na
Zinc	mg/kg dw	163/163	30.8	2,830	190	na	na
Organometals							
Monobutyltin as ion	µg/kg dw	5/9	3.0 J	16 J	9.4	3.8	4.0
Dibutyltin as ion	µg/kg dw	20/37	3.6 J	560	50	5.4	5.8
Tributyltin as ion	µg/kg dw	31/37	5.4	3,000	140	3.7	3.9
PAHs							
2-Chloronaphthalene	µg/kg dw	0/163	nd	nd	nd	19	290
2-Methylnaphthalene	µg/kg dw	12/163	21	3,300	400	19	290
Acenaphthene	µg/kg dw	32/163	16 J	5,200	390	19	290
Acenaphthylene	µg/kg dw	23/163	15 J	240	70	19	290
Anthracene	µg/kg dw	102/163	18 J	10,000	250	19	290
Benzo(a)anthracene	µg/kg dw	153/164	7.3 J	4,000	300	6.4	200
Benzo(a)pyrene	µg/kg dw	155/164	6.5	2,100	280	6.4	19
Benzo(b)fluoranthene	µg/kg dw	156/164	6.6 J	2,700	380	6.4	19
Benzo(g,h,i)perylene	µg/kg dw	107/163	16 J	1,100	130	19	200
Benzo(k)fluoranthene	µg/kg dw	144/163	16 J	2,700	330	19	200
Benzofluoranthenes (total-calc'd)	µg/kg dw	155/163	6.6 J	5,200	680	nc	nc
Chrysene	µg/kg dw	152/163	21	5,700	470	19	20
Dibenzo(a,h)anthracene	µg/kg dw	26/163	12 J	350	79	19	300

Table B-1, cont.

Analyte	Unit	Detection Frequency	Detected Concentration			Reporting Limit[a]	
			Minimum	Maximum	Mean[b]	Minimum	Maximum
Dibenzofuran	µg/kg dw	19/163	10 J	4,000	440	19	290
Fluoranthene	µg/kg dw	155/163	20	17,000	890	19	20
Fluorene	µg/kg dw	41/163	21	6,800	380	19	290
Indeno(1,2,3-cd)pyrene	µg/kg dw	148/164	6.4	1,200	130	6.4	200
Naphthalene	µg/kg dw	18/163	13 J	5,300	400	19	290
Phenanthrene	µg/kg dw	148/163	20	22,000	540	19	200
Pyrene	µg/kg dw	154/163	21	12,000	690	19	20
Total HPAH (calc'd)	µg/kg dw	156/163	42	48,000 J	3,500	nc	nc
Total LPAH (calc'd)	µg/kg dw	149/163	20	44,000	950	nc	nc
Total PAH (calc'd)	µg/kg dw	157/163	42	92,000 J	4,400	nc	nc
Phthalates							
Bis(2-ethylhexyl)phthalate	µg/kg dw	116/163	20	4,200	310	19	840
Butyl benzyl phthalate	µg/kg dw	50/164	7.0	350	57	6.3	290
Diethyl phthalate	µg/kg dw	26/164	5.7 J	120	25	6.3	290
Dimethyl phthalate	µg/kg dw	20/164	6.6 J	120	27	6.3	290
Di-n-butyl phthalate	µg/kg dw	11/163	21	380	110	19	200
Di-n-octyl phthalate	µg/kg dw	3/163	36 J	1,000	360	19	290
Other SVOCs							
1,2,4-Trichlorobenzene	µg/kg dw	0/164	nd	nd	nd	3.3	290
1,2-Dichlorobenzene	µg/kg dw	1/164	7.3	7.3	7.3	6.3	290
1,3-Dichlorobenzene	µg/kg dw	0/163	nd	nd	nd	19	290
1,4-Dichlorobenzene	µg/kg dw	1/164	9.1	9.1	9.1	6.3	290
2,4,5-Trichlorophenol	µg/kg dw	0/163	nd	nd	nd	96	1,400
2,4,6-Trichlorophenol	µg/kg dw	0/163	nd	nd	nd	96	1,400
2,4-Dichlorophenol	µg/kg dw	0/163	nd	nd	nd	96	1,400
2,4-Dimethylphenol	µg/kg dw	0/164	nd	nd	nd	6.3	290
2,4-Dinitrophenol	µg/kg dw	0/163	nd	nd	nd	190	2,900
2,4-Dinitrotoluene	µg/kg dw	0/163	nd	nd	nd	96	1,400
2,6-Dinitrotoluene	µg/kg dw	0/163	nd	nd	nd	96	1,400
2-Chlorophenol	µg/kg dw	0/163	nd	nd	nd	19	290
2-Methylphenol	µg/kg dw	2/164	21	32	27	6.3	290
2-Nitroaniline	µg/kg dw	0/163	nd	nd	nd	96	1,400
2-Nitrophenol	µg/kg dw	0/163	nd	nd	nd	96	1,400
3,3'-Dichlorobenzidine	µg/kg dw	0/163	nd	nd	nd	96	1,400
3-Nitroaniline	µg/kg dw	0/163	nd	nd	nd	96	1,400
4,6-Dinitro-o-cresol	µg/kg dw	0/163	nd	nd	nd	190	2,900
4-Bromophenyl phenyl ether	µg/kg dw	1/163	31	31	31	19	290

Table B-1, cont.

Analyte	Unit	Detection Frequency	Detected Concentration			Reporting Limit[a]	
			Minimum	Maximum	Mean[b]	Minimum	Maximum
4-Chloro-3-methylphenol	µg/kg dw	0/163	nd	nd	nd	96	1,400
4-Chloroaniline	µg/kg dw	0/163	nd	nd	nd	96	1,400
4-Chlorophenyl phenyl ether	µg/kg dw	0/163	nd	nd	nd	19	290
4-Methylphenol	µg/kg dw	6/163	20	88	38	19	290
4-Nitroaniline	µg/kg dw	0/163	nd	nd	nd	96	1,400
4-Nitrophenol	µg/kg dw	0/163	nd	nd	nd	96	1,400
Aniline	µg/kg dw	0/163	nd	nd	nd	19	290
Benzoic acid	µg/kg dw	24/164	54 J	770	160	63	2,900
Benzyl alcohol	µg/kg dw	5/164	20	670	180	19	290
bis(2-chloroethoxy)methane	µg/kg dw	0/163	nd	nd	nd	19	290
bis(2-chloroethyl)ether	µg/kg dw	0/163	nd	nd	nd	19	290
bis(2-chloroisopropyl)ether	µg/kg dw	0/163	nd	nd	nd	19	290
Carbazole	µg/kg dw	57/163	20	4,200	180	19	290
Hexachlorobenzene	µg/kg dw	4/164	0.96 J	95 J	25	0.96	200
Hexachlorobutadiene	µg/kg dw	0/164	nd	nd	nd	0.96	200
Hexachlorocyclopentadiene	µg/kg dw	0/163	nd	nd	nd	96	1,400
Hexachloroethane	µg/kg dw	0/163	nd	nd	nd	19	290
Isophorone	µg/kg dw	1/163	26	26	26	19	290
Nitrobenzene	µg/kg dw	0/163	nd	nd	nd	19	290
N-Nitrosodimethylamine	µg/kg dw	0/164	nd	nd	nd	32	1,000
N-Nitroso-di-n-propylamine	µg/kg dw	0/164	nd	nd	nd	32	1,400
N-Nitrosodiphenylamine	µg/kg dw	15/164	6.5	24	8.7	6.3	290
Pentachlorophenol	µg/kg dw	2/164	76	410	240	32	1,400
Phenol	µg/kg dw	22/163	21	370	120	19	290
Polychlorinated biphenyls							
Aroclor-1016	µg/kg dw	0/163	nd	nd	nd	16	1,100
Aroclor-1221	µg/kg dw	0/163	nd	nd	nd	16	1,100
Aroclor-1232	µg/kg dw	0/163	nd	nd	nd	16	1,100
Aroclor-1242	µg/kg dw	28/163	20 J	2,700	180	19	2,100
Aroclor-1248	µg/kg dw	39/163	20 J	12,000	380	16	4,300
Aroclor-1254	µg/kg dw	133/163	17 J	110,000	1,100	19	61
Aroclor-1260	µg/kg dw	117/163	17 J	4,300	180	19	8,100
PCBs (total calc'd)	µg/kg dw	138/163	17 J	110,000	1,400	nc	nc
Pesticides							
2,4'-DDD	µg/kg dw	0/59	nd	nd	nd	1.9	34
2,4'-DDE	µg/kg dw	0/59	nd	nd	nd	1.9	34
2,4'-DDT	µg/kg dw	0/59	nd	nd	nd	1.9	460

Table B-1, cont.

Analyte	Unit	Detection Frequency	Detected Concentration			Reporting Limit[a]	
			Minimum	Maximum	Mean[b]	Minimum	Maximum
4,4'-DDD	µg/kg dw	0/59	nd	nd	nd	1.9	540
4,4'-DDE	µg/kg dw	0/59	nd	nd	nd	1.9	800
4,4'-DDT	µg/kg dw	0/59	nd	nd	nd	1.9	34
Total DDTs (calc'd)	µg/kg dw	0/59	nd	nd	nd	nc	nc
Aldrin	µg/kg dw	0/59	nd	nd	nd	0.96	17
Dieldrin	µg/kg dw	0/59	nd	nd	nd	1.9	34
Total aldrin/dieldrin (calc'd)	µg/kg dw	0/59	nd	nd	nd	nc	nc
alpha-BHC	µg/kg dw	0/59	nd	nd	nd	0.96	17
beta-BHC	µg/kg dw	0/59	nd	nd	nd	0.96	17
delta-BHC	µg/kg dw	0/59	nd	nd	nd	0.96	17
gamma-BHC	µg/kg dw	0/59	nd	nd	nd	0.96	17
alpha-Chlordane	µg/kg dw	1/59	36	36	36	0.96	17
gamma-Chlordane	µg/kg dw	1/59	59	59	59	0.96	17
alpha-Endosulfan	µg/kg dw	0/59	nd	nd	nd	0.96	17
beta-Endosulfan	µg/kg dw	0/59	nd	nd	nd	1.9	34
Endosulfan sulfate	µg/kg dw	0/59	nd	nd	nd	1.9	34
Endrin	µg/kg dw	0/59	nd	nd	nd	1.9	34
Endrin aldehyde	µg/kg dw	0/59	nd	nd	nd	1.9	250
Endrin ketone	µg/kg dw	0/59	nd	nd	nd	1.9	34
Heptachlor	µg/kg dw	0/59	nd	nd	nd	0.96	70
Heptachlor epoxide	µg/kg dw	0/59	nd	nd	nd	0.96	510
Methoxychlor	µg/kg dw	0/59	nd	nd	nd	9.6	170
Mirex	µg/kg dw	0/59	nd	nd	nd	1.9	34
Cis-Nonachlor	µg/kg dw	0/59	nd	nd	nd	1.9	330
Oxychlordane	µg/kg dw	0/59	nd	nd	nd	1.9	34
Toxaphene	µg/kg dw	0/59	nd	nd	nd	96	1,700
Trans-Nonachlor	µg/kg dw	0/59	nd	nd	nd	1.9	34
Total Chlordane (calc'd)	µg/kg dw	1/59	95	95	95	nc	nc
Sediment grain size							
Rocks (total calc'd)	% dw	145/163	0.1	61.7	6	0.1	0.1
Sand (total calc'd)	% dw	163/163	4.9	99.7	50	na	na
Silt (total calc'd)	% dw	162/163	0.1	71.2	30	0.1	0.1
Clay (total calc'd)	% dw	159/163	0.7	28.9	10	0.1	0.1
Fines (percent silt+clay)	% dw	162/163	0.1	95.1	50	0.1	0.1

Table B-1, cont.

Analyte	Unit	Detection Frequency	Detected Concentration			Reporting Limit[a]	
			Minimum	Maximum	Mean[b]	Minimum	Maximum
Conventional parameters							
Total organic carbon (TOC)	% dw	163/163	0.122	5.99	1.9	na	na
Total solids	% ww	163/163	33.50	90.83	57.41	na	na
Total solids (preserved)	% ww	163/163	30.60	92.00	53.03	na	na
Sulfides (total)	mg/kg dw	100/163	4.0 J	7,700	300	2.2	46
Ammonia (total as nitrogen)	mg-N/kg	159/163	0.18	39.1	8.4	0.10	0.12

[a] RL range for non-detect samples

[b] Reported mean concentrations are the average of the detected concentrations only; RLs were not included in calculation of the mean concentration

dw – dry weight

J – estimated concentration

na – not applicable

nc – not calculated

nd – not detected

ww – wet weight

Table B-2. Summary of chemistry results in Round 1 and Round 2 LDW surface sediment samples with TOC > 0.5% in comparison to SQS/SL and CSL/ML

Analyte	Unit	Detection Frequency[a]	Detected Concentration			Reporting Limit[b]		SQS/ SL	CSL/ ML
			Minimum	Maximum	Mean[c]	Minimum	Maximum		
Metals and Trace Elements									
Antimony	mg/kg dw	16/158	0.3	6.8 J	2	0.2	0.6	150	200
Arsenic	mg/kg dw	158/158	2.4	1,100	33	na	na	57	93
Cadmium	mg/kg dw	82/158	0.3	3.8	0.9	0.2	1	5.1	6.7
Chromium	mg/kg dw	158/158	9.9	455	38	na	na	260	270
Copper	mg/kg dw	158/158	11.5	1,420	104	na	na	390	390
Lead	mg/kg dw	158/158	4	870	80	na	na	450	530
Mercury	mg/kg dw	123/158	0.05	2.46	0.2	0.04	0.1	0.41	0.59
Nickel	mg/kg dw	158/158	6	387	30	na	na	140	370
Silver	mg/kg dw	45/158	0.5	3.9	1	0.3	2	6.1	6.1
Zinc	mg/kg dw	158/158	30.8	2,830	190	na	na	410	960
PAHs									
2-Methylnaphthalene	mg/kg OC	12/158	0.87	160	19	0.57	17	38	64
Acenaphthene	mg/kg OC	32/158	0.57	260	18	0.66	17	16	57
Acenaphthylene	mg/kg OC	23/158	1.1	7.8	3.2	0.60	17	66	66
Anthracene	mg/kg OC	102/158	0.86	380	11	0.75	17	220	1,200
Benzo(a)anthracene	mg/kg OC	153/159	0.46	160	14	0.29	11	110	270
Benzo(a)pyrene	mg/kg OC	154/159	0.25	100	14	0.29	1.3	99	210
Benzo(g,h,i)perylene	mg/kg OC	106/158	0.96 J	30	6.1	0.75	17	31	78
Total benzofluoranthenes (calc'd)	mg/kg OC	154/158	0.49 J	250	33	nc	nc	230	450
Chrysene	mg/kg OC	152/158	1.4	220	22	0.88	3.9	110	460
Dibenzo(a,h)anthracene	mg/kg OC	26/158	0.62 J	13	3.5	0.66	17	12	33
Dibenzofuran	mg/kg OC	19/158	0.42 J	170	20	0.57	17	15	58
Fluoranthene	mg/kg OC	155/158	0.92	850	42	3.0	3.9	160	1,200
Fluorene	mg/kg OC	41/158	0.93	260	17	0.66	17	23	79
Indeno(1,2,3-cd)pyrene	mg/kg OC	147/159	0.23	37	6.1	0.29	11	34	88
Naphthalene	mg/kg OC	18/158	1.3 J	260	20	0.57	17	99	170
Phenanthrene	mg/kg OC	148/158	1.3	830	25	0.88	11	100	480
Pyrene	mg/kg OC	154/158	1.1	500	33	2.1	3.9	1,000	1,400
Total HPAH (calc'd)	mg/kg OC	155/158	2.0	2,100	170	nc	nc	960	5,300
Total LPAH (calc'd)	mg/kg OC	149/158	1.3	1,700	44	nc	nc	370	780
Phthalates									
Bis(2-ethylhexyl)phthalate	mg/kg OC	116/158	1.4	100	15	1.5	31	47	78

Analyte	Unit	Detection Frequency[a]	Detected Concentration			Reporting Limit[b]		SQS/ SL	CSL/ ML
			Minimum	Maximum	Mean[c]	Minimum	Maximum		
Butyl benzyl phthalate	mg/kg OC	51/159	0.31	19	2.9	0.23	10	4.90	64
Diethyl phthalate	mg/kg OC	25/159	0.30	7.3	1.4	0.22	11	61	110
Dimethyl phthalate	mg/kg OC	20/159	0.19 J	15	1.9	0.21	11	53	53
Di-n-butyl phthalate	mg/kg OC	11/158	0.81	12	4.6	0.45	17	220	1,700
Di-n-octyl phthalate	mg/kg OC	3/158	0.88	33	12	0.57	17	58	4,500
Other SVOCs									
1,2,4-Trichlorobenzene	mg/kg OC	0/159	nd	nd	nd	0.19	11	0.81	1.8
1,2-Dichlorobenzene	mg/kg OC	1/159	0.35	0.35	0.35	0.19	11	2.3	2.3
1,3-Dichlorobenzene	µg/kg dw	0/158	nd	nd	nd	19	290	170	nv
1,4-Dichlorobenzene	mg/kg OC	1/159	0.45	0.45	0.45	0.19	11	3.1	9
2,4-Dimethylphenol	µg/kg dw	0/159	nd	nd	nd	6.3	290	29	29
2-Methylphenol	µg/kg dw	2/159	21	32	27	6.3	290	63	63
4-Methylphenol	µg/kg dw	6/158	20	88	38	19	290	670	670
Benzoic acid	µg/kg dw	25/159	54 J	770	160	63	2,900	650	650
Benzyl alcohol	µg/kg dw	5/159	20	670	180	19	290	57	73
Hexachlorobenzene	mg/kg OC	5/159	0.045 J	3.7 J	0.79	0.028	11	0.38	2.30
Hexachlorobutadiene	mg/kg OC	0/159	nd	nd	nd	0.028	11	3.90	6.20
Hexachloroethane	µg/kg dw	0/158	nd	nd	nd	19	290	1,400	14,000
N-Nitrosodiphenylamine	mg/kg OC	15/159	0.23	2.3	0.52	0.19	11	11	11
Pentachlorophenol	µg/kg dw	2/159	76	410	240	32	1,400	360	690
Phenol	µg/kg dw	22/158	21	370	120	19	290	420	1,200
Polychlorinated biphenyls									
Total PCBs (calc'd)	mg/kg OC	137/158	0.74 J	3,700	55	nc	nc	12	65

[a] The total numbers of samples are less than the total numbers reported in Table B-1 because the five samples with TOC < 0.5% are not reported in this table, but are instead reported separately in Table B-3

[b] RL range for non-detect samples

[c] Reported mean concentrations are the average of the detected concentrations only; RLs were not included in calculation of the mean concentration

dw – dry weight

J – estimated concentration

nc – not calculated

nd – not detected

nv – no value available for this chemical

OC – organic carbon

SL and ML – screening level and maximum level (USACE 2000)

SQS and CSL – sediment quality standard and cleanup screening level (WAC 173-204)

REFERENCE:

USACE, EPA, WDNR, Ecology. 2000. Dredged material evaluation and disposal procedures. A user's manual for the Puget Sound Dredged Disposal Analysis (PSDDA) Program. US Army Corps of Engineers, Seattle District, Seattle, WA; US Environmental Protection Agency, Region 10, Seattle, WA; Washington Department of Natural Resources; and Washington Department of Ecology.

Table B-3. Summary of chemistry results in Round 1 and Round 2 LDW surface sediment samples with TOC < 0.5% in comparison to SQS/SL/LAET and CSL/ML/2LAET

Analyte	Unit	Detection Frequency	Detected Concentration			Reporting Limit[a]		SQS/SL/ LAET[c]	CSL/ML/ 2LAET[c]
			Minimum	Maximum	Mean[b]	Minimum	Maximum		
Metals and trace elements									
Antimony	mg/kg dw	0/5	nd	nd	nd	0.2	0.3	150	200
Arsenic	mg/kg dw	5/5	2.7	4.7	3.7	na	na	57	93
Cadmium	mg/kg dw	0/5	nd	nd	nd	0.2	0.3	5.1	6.7
Chromium	mg/kg dw	5/5	11.7	19.2	15.0	na	na	260	270
Copper	mg/kg dw	5/5	10.3	25.0	15.3	na	na	390	390
Lead	mg/kg dw	5/5	3	9	5	na	na	450	530
Mercury	mg/kg dw	0/5	nd	nd	nd	0.04	0.07	0.41	0.59
Nickel	mg/kg dw	5/5	8	15	10	na	na	140	370
Silver	mg/kg dw	0/5	nd	nd	nd	0.3	0.4	6.1	6.1
Zinc	mg/kg dw	5/5	35.3	47.8	41.3	na	na	410	960
PAHs									
2-Methylnaphthalene	µg/kg dw	0/5	nd	nd	nd	19	20	670	670
Acenaphthene	µg/kg dw	0/5	nd	nd	nd	19	20	500	500
Acenaphthylene	µg/kg dw	0/5	nd	nd	nd	19	20	1,300	1,300
Anthracene	µg/kg dw	0/5	nd	nd	nd	19	20	960	960
Benzo(a)anthracene	µg/kg dw	1/6	11	11	11	6.4	19	1,300	1,600
Benzo(a)pyrene	µg/kg dw	2/6	9.0	29	19	6.4	19	1,600	1,600
Benzo(g,h,i)perylene	µg/kg dw	1/5	31	31	31	19	20	670	720
Total benzofluoranthenes (calc'd)	µg/kg dw	1/5	51	51	51	nc	nc	3,200	3,600
Chrysene	µg/kg dw	0/5	nd	nd	nd	19	20	1,400	2,800
Dibenzo(a,h)anthracene	µg/kg dw	0/5	nd	nd	nd	19	20	230	230
Dibenzofuran	µg/kg dw	0/5	nd	nd	nd	19	20	540	540
Fluoranthene	µg/kg dw	0/5	nd	nd	nd	19	20	1,700	2,500
Fluorene	µg/kg dw	0/5	nd	nd	nd	19	20	540	540
Indeno(1,2,3-cd)pyrene	µg/kg dw	2/6	6.4	35	21	6.4	19	600	690
Naphthalene	µg/kg dw	0/5	nd	nd	nd	19	20	2,100	2,100
Phenanthrene	µg/kg dw	0/5	nd	nd	nd	19	20	1,500	1,500

Analyte	Unit	Detection Frequency	Detected Concentration			Reporting Limit[a]		SQS/SL/ LAET[c]	CSL/ML/ 2LAET[c]
			Minimum	Maximum	Mean[b]	Minimum	Maximum		
Pyrene	µg/kg dw	0/5	nd	nd	nd	19	20	2,600	3,300
Total HPAH (calc'd)	µg/kg dw	1/5	146	146	150	nc	nc	12,000	17,000
Total LPAH (calc'd)	µg/kg dw	0/5	nd	nd	nd	nc	nc	5,200	5,200
Phthalates									
Bis(2-ethylhexyl)phthalate	µg/kg dw	0/5	nd	nd	nd	19	20	1,300	1,900
Butyl benzyl phthalate	µg/kg dw	0/6	nd	nd	nd	6.4	19	63	900
Diethyl phthalate	µg/kg dw	1/6	7.2	7.2	7.2	6.4	19	200	200
Dimethyl phthalate	µg/kg dw	0/6	nd	nd	nd	6.4	19	71	160
Di-n-butyl phthalate	µg/kg dw	0/5	nd	nd	nd	19	20	1,400	1,400
Di-n-octyl phthalate	µg/kg dw	0/5	nd	nd	nd	19	20	6,200	6,200
Other SVOCs									
1,2,4-Trichlorobenzene	µg/kg dw	0/6	nd	nd	nd	6.4	19	31	51
1,2-Dichlorobenzene	µg/kg dw	0/6	nd	nd	nd	6.4	19	35	50
1,3-Dichlorobenzene	µg/kg dw	0/5	nd	nd	nd	19	20	170	nv
1,4-Dichlorobenzene	µg/kg dw	0/6	nd	nd	nd	6.4	19	110	110
2,4-Dimethylphenol	µg/kg dw	0/6	nd	nd	nd	6.4	19	29	29
2-Methylphenol	µg/kg dw	0/6	nd	nd	nd	6.4	19	63	63
4-Methylphenol	µg/kg dw	0/5	nd	nd	nd	19	20	670	670
Benzoic acid	µg/kg dw	0/6	nd	nd	nd	64	190	650	650
Benzyl alcohol	µg/kg dw	0/6	nd	nd	nd	19	32	57	73
Hexachlorobenzene	µg/kg dw	0/6	nd	nd	nd	0.97	6.6	22	70
Hexachlorobutadiene	µg/kg dw	0/6	nd	nd	nd	0.97	6.6	11	120
Hexachloroethane	µg/kg dw	0/5	nd	nd	nd	19	20	1,400	14,000
N-Nitrosodiphenylamine	µg/kg dw	0/6	nd	nd	nd	6.4	19	28	40
Pentachlorophenol	µg/kg dw	0/6	nd	nd	nd	32	96	360	690
Phenol	µg/kg dw	0/5	nd	nd	nd	19	20	420	1,200
Polychlorinated biphenyls									
Total PCBs (calc'd)	µg/kg dw	1/5	24	24	24	nc	nc	130	1,000

Analyte	Unit	Detection Frequency	Detected Concentration			Reporting Limit[a]		SQS/SL/ LAET[c]	CSL/ML/ 2LAET[c]
			Minimum	Maximum	Mean[b]	Minimum	Maximum		
Pesticides									
Total DDTs (calc'd)	µg/kg dw	0/2	nd	nd	nd	nc	nc	6.9	69
Aldrin	µg/kg dw	0/2	nd	nd	nd	0.97	0.99	10	nv
Dieldrin	µg/kg dw	0/2	nd	nd	nd	1.9	2.0	10	nv
gamma-BHC	µg/kg dw	0/2	nd	nd	nd	0.97	0.99	10	nv
Total chlordane (calc'd)	µg/kg dw	0/2	nd	nd	nd	nc	nc	10	nv
Heptachlor	µg/kg dw	0/2	nd	nd	nd	0.97	0.99	10	nv

[a] RL range for nondetect samples

[b] Reported mean concentrations are the average of the detected concentrations only; RLs were not included in calculation of the mean concentration

[c] SQS and CSL are reported, when available on a dry weight basis. For chemicals with no SQS or CSL in dry weight, then LAET and 2LAET values are used. SL and ML values are used for chemicals with no SQS/CSL or LAET/2LAET values (i.e., antimony, nickel, 1,3-dichlorobenzene, hexachloroethane, and pesticides)

LAET and 2LAET – lowest apparent effects threshold and 2nd lowest apparent effects threshold (PTI 1988)

SL and ML – screening level and maximum level (USACE 2000)

SQS and CSL – sediment quality standard and cleanup screening level (WAC 173-204)

dw – dry weight

na – not applicable

nc – not calculated

nd – not detected

nv – no value; there is no CSL, ML, or 2LAET for this chemical

REFERENCES:

PTI. 1988. Sediment quality values refinement: Volume I. Update and evaluation of Puget Sound AET. Prepared for Puget Sound Estuary Program (PSEP), US Environmental Protection Agency, Region 10. PTI Environmental Services, Inc., Bellevue, WA.

USACE, EPA, WDNR, Ecology. 2000. Dredged material evaluation and disposal procedures. A user's manual for the Puget Sound Dredged Disposal Analysis (PSDDA) Program. US Army Corps of Engineers, Seattle District, Seattle, WA; US Environmental Protection Agency, Region 10, Seattle, WA; Washington Department of Natural Resources; and Washington Department of Ecology.

Table B-4. Numbers of Round 1 and Round 2 samples in each SQS/SL or CSL/ML category for detected concentrations and reporting limits

Analyte	Detected Concentrations			Reporting Limits when Undetected		
	≤ SQS/SL	> SQS/SL ≤ CSL/ML	> CSL/ML	≤ SQS/SL	> SQS/SL ≤ CSL/ML	> CSL/ML
Metals and trace elements						
Antimony	16			147		
Arsenic	153	3	7			
Cadmium	82			81		
Chromium	162		1			
Copper	159		4			
Lead	157		6			
Mercury	115	1	7	40		
Nickel	161	1	1			
Silver	45			118		
Zinc	151	9	3			
PAHs						
2-Methylnaphthalene	11		1	151		
Acenaphthene	29	1	2	130	1	
Acenaphthylene	23			140		
Anthracene	101	1		61		
Benzo(a)anthracene	151	2		11		
Benzo(a)pyrene	154	1		9		
Benzo(g,h,i)perylene	107			56		
Benzofluoranthenes (total calc'd)	155	1		8[a]		
Chrysene	147	5		11		
Dibenzo(a,h)anthracene	25	1		135	2	
Dibenzofuran	17		2	143	1	
Fluoranthene	148	7		8		
Fluorene	38	1	2	122		
Indeno(1,2,3-cd)pyrene	146	2		16		
Naphthalene	17		1	145		
Phenanthrene	142	4	2	15		
Pyrene	154			9		
Total HPAH (calc'd)	153	3		7[a]		
Total LPAH (calc'd)	147		2	14[a]		
Phthalates						
Bis(2-ethylhexyl)phthalate	108	5	3	47		
Butyl benzyl phthalate	43	7		106	8	
Diethyl phthalate	26			138		
Dimethyl phthalate	20			144		
Di-n-butyl phthalate	11			152		

	Detected Concentrations			Reporting Limits when Undetected		
Di-n-octyl phthalate	3			160		
Other SVOCs						
1,2,4-Trichlorobenzene				139	10	15
1,2-Dichlorobenzene	1			149		14
1,3-Dichlorobenzene				157	6	
1,4-Dichlorobenzene	1			150	11	2
2,4-Dimethylphenol				150		14
2-Methylphenol	2			149		13
4-Methylphenol	6			157		
Benzoic acid	23		1	127		13
Benzyl alcohol	3		2	144		15
Hexachlorobenzene	3		1	133	18	9
Hexachlorobutadiene				155	4	5
Hexachloroethane				163		
N-Nitrosodiphenylamine	15			149		
Pentachlorophenol	1	1		149	5	8
Phenol	22			141		
Polychlorinated biphenyls						
PCBs (total calc'd)	99	29	10	25 [a]		
Pesticides						
DDTs (total-calc'd)				42 [a]	16	1
Aldrin				58	1	
Dieldrin				56	3	
gamma-BHC				58	1	
Heptachlor				58	1	
Chlordanes (total calc'd)		1		54 [a]	4	

[a] The RLs for calculated totals were assigned a concentration equal to the highest RL of the individual components for a given sample

SQS and CSL – sediment quality standard and cleanup screening level (WAC 173-204)

SL and ML – screening level and maximum level (USACE 2000)

REFERENCE:

USACE, EPA, WDNR, Ecology. 2000. Dredged material evaluation and disposal procedures. A user's manual for the Puget Sound Dredged Disposal Analysis (PSDDA) Program. US Army Corps of Engineers, Seattle District, Seattle, WA; US Environmental Protection Agency, Region 10, Seattle, WA; Washington Department of Natural Resources; and Washington Department of Ecology.

Table B-5. Summary of SMS biological effects criteria exceedances for the three toxicity tests for Round 1 and Round 2

Sample ID	Individual Test Exceedances			Overall Exceedance
	Amphipod Test	Polychaete Test	Bivalve Larvae Test	
LDW-SS2-010	CSL	–	CSL	CSL
LDW-SS6-010	CSL	–	CSL	CSL
LDW-SS15-010	SQS	–	–	SQS
LDW-SS16-010	–	–	SQS	SQS
LDW-SS17-010	SQS	–	–	SQS
LDW-SS21-010	CSL	–	–	CSL
LDW-SS22-010	SQS	SQS	SQS	CSL[a]
LDW-SS24-010	–	SQS	CSL	CSL
LDW-SS26-010	–	–	–	–
LDW-SS29-010	–	–	–	–
LDW-SS31-010	CSL	–	SQS	CSL
LDW-SS32-010	SQS	–	–	SQS
LDW-SS37-010	CSL	–	SQS	CSL
LDW-SS39-010	SQS	SQS	–	CSL[a]
LDW-SS40-010	CSL	–	–	CSL
LDW-SS49-010	CSL	–	SQS	CSL
LDW-SS50-010	CSL	–	–	CSL
LDW-SS56-010	–	–	SQS	SQS
LDW-SS57-010	–	–	CSL	CSL
LDW-SS58-010	–	SQS	SQS	CSL[a]
LDW-SS60-010	–	–	–	–
LDW-SS63-010	–	–	–	–
LDW-SS68-010	–	–	–	–
LDW-SS69b-010	CSL	–	SQS	CSL
LDW-SS70-010	–	–	SQS	SQS
LDW-SS71-010	–	–	–	–
LDW-SS73-010	–	–	SQS	SQS
LDW-SS75-010	–	–	–	–
LDW-SS77-010	–	–	CSL	CSL
LDW-SS85-010	–	–	–	–
LDW-SS88-010	CSL	–	CSL	CSL
LDW-SS89-010	–	–	–	–
LDW-SS92-010	–	–	–	–
LDW-SS106-010	–	–	–	–
LDW-SS112-010	–	–	–	–
LDW-SS114-010	CSL	–	SQS	CSL
LDW-SS115-010	–	–	–	–

Sample ID	Individual Test Exceedances			Overall Exceedance
	Amphipod Test	Polychaete Test	Bivalve Larvae Test	
LDW-SS119-010	–	–	–	–
LDW-SS120-010	–	–	SQS	SQS
LDW-SS121-010	–	–	–	–
LDW-SS122-010	–	–	–	–
LDW-SS143-010	–	–	–	–
LDW-SS144-010	–	SQS	–	SQS
LDW-SS148-010	–	SQS	CSL	CSL
LDW-SS157-010	–	SQS	–	SQS
LDW-SS158-010	–	–	–	–
LDW-SSB2b-010	–	–	CSL	CSL
LDW-SSB6a-010	–	SQS	–	SQS

[a] An exceedance of the SQS in any two toxicity tests at one location is considered a CSL exceedance for that location

SQS – sediment quality standard

CSL – cleanup screening level