

# APPENDIX F

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## Recontamination Assessment Area Data Tables

Appendix F. Recontamination Assessment Area Data

Table F-1. Basin Oil – Soil Results

Sample Identification:	MW-1	MW-1	MW-1	Comp 1	Comp 2	CB41	CB42	EPA 07052001DL	Drexler
Sample Location:	MW-1 SE fenceline	MW-1 SE fenceline	MW-1 SE fenceline	Composite on south half of site Front Water Serv.	Composite on north half of site Basin Oil Co.	Settling basin, East end O/W separator	Drain in SW containment area	Location Excavated Since Sample Collected	Unknown location at 8617 17th Ave S
<b>Metals (mg/kg dw)</b>									
Aluminum	17,500	20,000	11,000	na	na	na	na	22,000 J	na
Antimony	na	na	na	na	na	na	na	0.55 UJ	na
Arsenic	na	na	na	5 U	5 U	20 U	20 U	5.7	na
Barium	326	114	34	84.7	48.9	na	na	63.4 J	na
Beryllium	na	na	na	na	na	na	na	0.18 J	na
Cadmium	1 U	1 U	1 U	0.3	0.1	na	na	1.8	0.4
Calcium	na	na	na	na	na	na	na	12,400 J	na
Chromium	1,860	26	10	119	13.6	na	na	32.1 J	17
Cobalt	na	na	na	na	na	na	na	15.3 J	na
Copper	433	36	13	na	na	134	173	119 J	na
Iron	na	na	na	na	na	na	na	38,700	na
Lead	83	61	5 U	29	8	428	98	209	29
Magnesium	na	na	na	na	na	na	na	9,270 J	na
Manganese	na	na	na	na	na	na	na	491	na
Mercury	na	na	na	0.05 U	0.05 U	0.11	0.08 U	0.0733 J	na
Nickel	218	20	3	na	na	na	na	43.3	na
Potassium	na	na	na	na	na	na	na	701 J	na
Selenium	na	na	na	8 U	8 U	na	na	0.3 U	na
Silver	na	na	na	0.7 U	0.7 U	na	na	0.19 J	na
Sodium	na	na	na	na	na	na	na	2,620 J	na
Thallium	na	na	na	na	na	na	na	0.48 U	na
Vanadium	na	na	na	na	na	na	na	40.3	na
Zinc	296	110	17	na	na	711	830	221	na
<b>PCBs (mg/kg dw)</b>									
Aroclor-1016	na	na	na	na	na	na	na	0.04 UJ	na
Aroclor-1221	na	na	na	na	na	na	na	0.04 UJ	na
Aroclor-1232	na	na	na	na	na	na	na	0.04 UJ	na
Aroclor-1242	na	na	na	na	na	na	na	0.04 UJ	na
Aroclor-1248	1.5	nd	na	na	na	na	na	0.04 UJ	na
Aroclor-1254	na	na	na	na	na	na	na	0.04 UJ	na
Aroclor-1260	1.2	24	na	0.11	1.1	na	na	0.25 J	0.02
Total PCBs	2.7	24	na	0.11	1.1	0.35	0.14	0.25 J	0.02
<b>Dioxins/Furans (2,3,7,8-TCDD TEQ ng/kg dw)</b>	na	na	na	na	na	15.2 J	na	na	15.2
<b>Pesticides (mg/kg dw)</b>									
DDT	0.063	1.7	na	na	na	na	na	na	na
DDD	0.0073 J	0.14	na	na	na	na	na	na	na
DDE	0.020 J	nd	na	na	na	na	na	na	na
Gamma chlordane	0.022 J	21 J	na	na	na	na	na	na	na
<b>PAHs (mg/kg dw)</b>									
2-Methylnaphthalene	nd	nd	nd	na	na	350	1.4 U	0.12 J	na
Acenaphthene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Acenaphthylene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Anthracene	nr	nr	nr	na	na	4.3 U	1.4 U	1.4 J	na
Benzo(a)anthracene	nd	nd	nd	na	na	4.3 U	1.4 U	0.12 J	na
Benzo(a)pyrene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Benzo(b)fluoranthene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 U	na
Benzo(g,h,i)perylene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Benzo(k)fluoranthene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Chrysene	nd	nd	nd	na	na	4.3 U	1.4 U	0.22 J	na
Dibenzo(a,h)anthracene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Dibenzofuran	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Fluoranthene	nd	0.098 J	nd	na	na	4.3 U	1.4 U	0.64 J	na
Fluorene	nr	nr	nr	na	na	14	1.4 U	1.4 J	na
Indeno(1,2,3-cd)pyrene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Naphthalene	nd	nd	nd	na	na	170	1.4 U	0.78 UJ	na
Phenanthrene	nd	nd	nd	na	na	24	1.4 U	4.4 J	na
Pyrene	0.84 J	0.11 J	0.095 J	na	na	4.3 U	1.4 U	0.56 J	na
<b>Phthalates (mg/kg dw)</b>									

Appendix F. Recontamination Assessment Area Data

Table F-1. Basin Oil – Soil Results

Sample Identification:	MW-1	MW-1	MW-1	Comp 1	Comp 2	CB41	CB42	EPA 07052001DL	Drexler
Sample Location:	MW-1 SE fenceline	MW-1 SE fenceline	MW-1 SE fenceline	Composite on south half of site Front Water Serv.	Composite on north half of site Basin Oil Co.	Settling basin, East end O/W separator	Drain in SW containment area	Location Excavated Since Sample Collected	Unknown location at 8617 17th Ave S
Bis(2-ethylhexyl) phthalate	nd	0.15 BJ	0.082 BJ	na	na	84	41	35 J	na
Butyl benzyl phthalate	nr	nr	nr	na	na	4.3 U	2.6	0.89 J	na
Diethyl phthalate	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Dimethyl phthalate	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Di-n-butyl phthalate	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Di-n-octyl phthalate	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 U	na
<b>Other SVOCs (mg/kg dw)</b>									
1,2,4-Trichlorobenzene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
1,2-Dichlorobenzene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
1,2-Diphenylhydrazine	nr	nr	nr	na	na	na	na	0.78 UJ	na
1,3-Dichlorobenzene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
1,4-Dichlorobenzene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 U	na
2,4,5-Trichlorophenol	nr	nr	nr	na	na	21 U	7.0 U	0.78 UJ	na
2,4,6-Trichlorophenol	nr	nr	nr	na	na	21 U	7.0 U	0.78 UJ	na
2,4-Dichlorophenol	nr	nr	nr	na	na	13 U	4.2 U	0.78 UJ	na
2,4-Dimethylphenol	nd	nd	nd	na	na	4.3 U	1.4 U	0.78 UJ	na
2,4-Dinitrophenol	nr	nr	nr	na	na	43 U	14 U	0.78 UJ	na
2,4-Dinitrotoluene	nr	nr	nr	na	na	21 U	7.0 U	0.78 UJ	na
2,6-Dinitrotoluene	nr	nr	nr	na	na	21 U	7.0 U	1.6 UJ	na
2-Chloronaphthalene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
2-Chlorophenol	nd	nd	nd	na	na	4.3 U	1.4 U	0.78 UJ	na
2-Methylphenol	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 U	na
2-Nitroaniline	nr	nr	nr	na	na	21 U	7.0 U	0.78 UJ	na
2-Nitrophenol	nr	nr	nr	na	na	21 U	7.0 U	0.78 UJ	na
3 & 4 Methylphenol	0.19 J	nd	nd	na	na	na	na	0.78 U	na
3,3'-Dichlorobenzidine	nr	nr	nr	na	na	21 U	7.0 U	0.78 UJ	na
3-Nitroaniline	nr	nr	nr	na	na	26 U	8.4 U	0.78 UJ	na
4,6-Dinitro-2-methylphenol	nr	nr	nr	na	na	43 U	14 U	0.78 UJ	na
4-Bromophenyl phenyl ether	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
4-Chloro-3-methylphenol	nr	nr	nr	na	na	8.6 U	2.8 U	0.78 UJ	na
4-Chloroaniline	nr	nr	nr	na	na	13 U	4.2 U	R	na
4-Chlorophenyl phenyl ether	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
4-Nitroaniline	nr	nr	nr	na	na	21 U	7.0 U	0.78 UJ	na
4-Nitrophenol	nr	nr	nr	na	na	21 U	7.0 U	R	na
Benzoic acid	nr	nr	nr	na	na	43 U	14 U	1.6 UJ	na
Benzyl alcohol	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Bis(2-chloroethoxy)methane	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Bis(2-chloroethyl)ether	nr	nr	nr	na	na	8.6 U	2.8 U	0.78 UJ	na
Bis(2-chloroisopropyl) ether	nr	nr	nr	na	na	na	na	0.78 UJ	na
Carbazole	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Hexachlorobenzene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Hexachlorobutadiene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
Hexachlorocyclopentadiene	nr	nr	nr	na	na	21 U	7.0 U	0.78 UJ	na
Hexachloroethane	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 U	na
Isophorone	nr	nr	nr	na	na	6.4 U	1.4 U	0.78 UJ	na
Nitrobenzene	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 UJ	na
N-Nitrosodi-n-propylamine	nr	nr	nr	na	na	8.6 U	2.8 U	0.78 UJ	na
Pentachlorophenol	nr	nr	nr	na	na	21 U	7.0 U	0.78 UJ	na
Phenol	nr	nr	nr	na	na	4.3 U	1.4 U	0.78 U	na
<b>VOCs (mg/kg dw)</b>									
1,1,1-Trichloroethane	nr	nr	nr	na	na	na	na	0.019 U	na
1,1,2,2-Tetrachloroethane	nr	nr	nr	na	na	na	na	0.019 UJ	na
1,1,2-Trichloroethane	nr	nr	nr	na	na	na	na	0.019 U	na
1,1-Dichloroethane	nr	nr	nr	na	na	na	na	0.019 U	na
1,1-Dichloroethene	nr	nr	nr	na	na	na	na	0.019 U	na
1,2-Dichloroethane	nr	nr	nr	na	na	na	na	0.019 U	na
1,2-Dichloropropane	nr	nr	nr	na	na	na	na	0.019 U	na
2-Butanone	nr	nr	nr	na	na	na	na	0.35 J	na
2-Hexanone	nr	nr	nr	na	na	na	na	0.062 J	na

Appendix F. Recontamination Assessment Area Data

Table F-1. Basin Oil – Soil Results

Sample Identification:	MW-1	MW-1	MW-1	Comp 1	Comp 2	CB41	CB42	EPA 07052001DL	Drexler
Sample Location:	MW-1 SE fenceline	MW-1 SE fenceline	MW-1 SE fenceline	Composite on south half of site Front Water Serv.	Composite on north half of site Basin Oil Co.	Settling basin, East end O/W separator	Drain in SW containment area	Location Excavated Since Sample Collected	Unknown location at 8617 17th Ave S
4-Methyl-2-pentanone	nr	nr	nr	na	na	na	na	0.16 J	na
Acetone	0.031	nr	nr	na	na	na	na	4.6	na
Benzene	nr	nr	nr	na	na	na	na	0.019 U	0.025 U
Bromodichloromethane	nr	nr	nr	na	na	na	na	0.019 U	na
Bromoform	nr	nr	nr	na	na	na	na	0.019 U	na
Bromomethane	nr	nr	nr	na	na	na	na	0.019 U	na
Carbon disulfide	nr	nr	nr	na	na	na	na	0.010 J	na
Carbon tetrachloride	nr	nr	nr	na	na	na	na	0.019 U	na
Chlorobenzene	nr	nr	nr	na	na	na	na	0.019 U	na
Chloroethane	nr	nr	nr	na	na	na	na	0.019 UJ	na
Chloroform	nr	nr	nr	na	na	na	na	0.019 U	na
Chloromethane	nr	nr	nr	na	na	na	na	0.019 U	na
cis-1,2-Dichloroethene	nr	nr	nr	na	na	na	na	0.019 U	na
cis-1,3-Dichloropropene	nr	nr	nr	na	na	na	na	0.019 U	na
Dibromochloromethane	nr	nr	nr	na	na	na	na	0.019 U	na
Dichlorodifluoromethane	nr	nr	nr	na	na	na	na	0.019 UJ	na
Ethylbenzene	nr	nr	nr	na	na	na	na	0.019 U	0.14
m,p-Xylene	nr	nr	nr	na	na	na	na	0.02 J	na
Methylene chloride	nd	nr	nr	na	na	na	na	0.077 J	na
Methyl-tert-Butyl Ether	na	na	na	na	na	na	na	na	0.025 U
o-Xylene	nr	nr	nr	na	na	na	na	0.019 U	na
Styrene	nr	nr	nr	na	na	na	na	0.019 U	na
Tetrachloroethene	nr	nr	nr	na	na	na	na	0.019 U	na
Toluene	nr	nr	nr	na	na	na	na	0.018 J	0.14
Total xylenes	nr	nr	nr	na	na	na	na	na	1.16
trans-1,2-Dichloroethene	nr	nr	nr	na	na	na	na	0.019 U	na
trans-1,3-Dichloropropene	nr	nr	nr	na	na	na	na	0.019 U	na
Trichloroethene	nr	nr	nr	na	na	na	na	0.019 U	na
Trichlorofluoromethane	nr	nr	nr	na	na	na	na	0.019 U	na
Vinyl chloride	nr	nr	nr	na	na	na	na	0.019 U	na
<b>Total Petroleum Hydrocarbons (mg/kg dw)</b>									
Diesel range hydrocarbons	na	na	na	na	na	<b>72,000</b>	<b>3,900</b>	na	na
Oil range hydrocarbons	na	na	na	na	na	<b>77,000</b>	<b>17,000</b>	na	na
Total petroleum hydrocarbons	na	na	na	87	67	<b>149,000</b>	<b>20,900</b>	na	na
<b>Halogens (mg/kg dw)</b>									
Total Organic Halogens	na	na	na	6	9	na	na	na	5 U

Notes:

**Bold** values indicate concentrations that exceeds screening criteria  
 bgs = below ground surface  
 ID = identification  
 B = compound found in method blank  
 J = estimated value  
 U = not detected (at the indicated reporting limit)

UJ = not detected (estimated reporting limit)  
 R - rejected result  
 na - not analyzed or data not available  
 nd - not detected at unknown reporting limit  
 nr - not reported  
 nv - no value available

<sup>a</sup> Parametrix (1991).

<sup>b</sup> CETI (1996)

<sup>c</sup> City of Seattle 2004

<sup>d</sup> Rodin 2007a

<sup>e</sup> Drexler 2007; Sample location not shown on Figure PAZ1

<sup>f</sup> Screening criteria were obtained from MTCA Method B, calculated using MTCA Equations 740-1 and 740-2, as applicable, using toxicity data obtained from EPA's Integrated Risk Information System November 21, 2007, or were obtained on Ecology's CLARC on-line database on December 19, 2007. The screening levels for PCBs, carcinogenic PAHs, and lead are Method A.

<sup>g</sup> Chromium screening levels are provided for trivalent/hexavalent forms. Four of the seven detected results exceed the screening level for trivalent chromium but not the screening level for hexavalent chromium.

<sup>h</sup> TPH screening levels are provided for weathered gasoline range/diesel range.

<sup>i</sup> Naphthalene criteria was used for comparison.

## Appendix F. Recontamination Assessment Area Data

Table F-2. Basin Oil Groundwater Results

Sample Identification Installation date	MW-1 Jul 1991 <sup>a</sup>	MW-1 Jun 1994 <sup>b</sup>	MW-1 Jul 1997 <sup>b</sup>	MW-1 Oct 1997 <sup>b</sup>	MW-1 Jan 1998 <sup>b</sup>	MW-1 Apr 1998 <sup>b</sup>	MW-1 Sep 2003 <sup>b</sup>
<b>Metals (mg/L)</b>							
Mercury	na	na	na	na	na	na	na
Aluminum	231	na	na	na	na	na	na
Arsenic	na	na	na	na	na	na	na
Barium	0.80	na	na	na	na	na	na
Cadmium	10 U	na	na	na	na	na	na
Chromium	0.28	na	na	na	na	na	na
Copper	0.42	na	na	na	na	na	na
Lead	0.18	na	na	na	na	na	na
Nickel	0.30	na	na	na	na	na	na
Selenium	na	na	na	na	na	na	na
Silver	na	na	na	na	na	na	na
Zinc	0.59	na	na	na	na	na	na
<b>PCBs (µg/L)</b>							
Aroclor-1016	na	na	na	na	na	na	0.049 U
Aroclor-1221	na	na	na	na	na	na	0.049 U
Aroclor-1232	na	na	na	na	na	na	0.049 U
Aroclor-1242	na	na	na	na	na	na	0.049 U
Aroclor-1248	na	na	na	na	na	na	0.049 U
Aroclor-1254	na	na	na	na	na	na	0.049 U
Aroclor-1260	1.8	1.2 J	0.1 U	0.1 U	0.2 U	0.2 U	0.049 U
<b>Pesticides (µg/L)</b>							
DDT	0.087 J	na	na	na	na	na	na
DDD	nd	na	na	na	na	na	na
Heptachlor epoxide	nd	na	na	na	na	na	na
<b>PAHs (µg/L)</b>							
2-Methylnaphthalene	nd	na	nd	nd	nd	nd	0.097 U
Acenaphthylene	na	na	nd	nd	nd	nd	0.097 U
Acenaphthene	na	na	nd	nd	nd	nd	0.097 U
Fluorene	na	na	nd	nd	nd	nd	0.097 U
Phenanthrene	na	na	nd	nd	nd	nd	0.097 U
Anthracene	na	na	nd	nd	nd	nd	0.097 U
Naphthalene	nd	na	nd	nd	nd	nd	0.097 U
Fluoranthene	na	na	nd	nd	nd	nd	0.097 U
Pyrene	na	0.53 U	nd	nd	nd	nd	0.097 U
Benzo[a]anthracene	na	na	nd	nd	nd	nd	0.0097 U
Chrysene	na	na	nd	nd	nd	nd	0.0097 U
Benzo[b]fluoranthene	na	na	nd	nd	nd	nd	0.0097 U
Benzo[k]fluoranthene	na	na	nd	nd	nd	nd	0.0097 U
Benzo[a]pyrene	na	na	nd	nd	nd	nd	0.0097 U
Indeno[1,2,3-cd]pyrene	na	na	nd	nd	nd	nd	0.0097 U
Dibenz(a,h)anthracene	na	na	nd	nd	nd	nd	0.0097 U
Benzo[g,h,i]perylene	na	na	nd	nd	nd	nd	0.0097 U
1-Methylnaphthalene	na	na	na	na	na	na	0.097 U
<b>Phthalates (µg/L)</b>							
Bis(2-ethylhexyl)phthalate	11	na	na	na	na	na	na
Diethyl phthalate	na	0.93 J	na	na	na	na	na
<b>VOCs (µg/L)</b>							
Benzene	na	na	na	na	na	na	1 U
Ethylbenzene	na	na	na	na	na	na	1 U
m,p-Xylene	na	na	na	na	na	na	1 U
o-Xylene	na	na	na	na	na	na	1 U
Toluene	na	na	na	na	na	na	1 U
<b>Total Petroleum Hydrocarbons (µg/L)</b>							
Gasoline Range Hydrocarbons	na	na	na	na	na	na	100 U
Diesel Range Hydrocarbons	na	na	250 U	250 U	250 U	250 U	0.26 U
Heavy Oil Range Hydrocarbons	na	na	500 U	500 U	500 U	500 U	0.41 U

J = estimated value

U = not detected at the reporting limit shown

na - not analyzed or data not available

nd - not detected at unknown reporting limit

<sup>a</sup> Parametrix (1991)

<sup>b</sup> Windward (2003) Tables E2, E4, E8

## Appendix F. Recontamination Assessment Area Data

Table F-3. Basin Oil Tank and Drum Results

Sample Identification:	07052002 EPA 2001	07052003 EPA 2001	07052006 EPA 2001	07052007 EPA 2001	07052005 EPA 2001	07052008 EPA 2001	07052004RE EPA 2001
Sample Location and Matrix:	Tank - 5 Liquid	Tank - 11 Liquid	Drum E-0012 Liquid	Drum E-0012 Sludge	Drum E-0014 Sludge	Drum E-0019 Liquid	Drum E-0022 Sludge
<b>Metals (mg/kg)<sup>a</sup></b>							
Aluminum	26.1 J	295	na	567	239	3 U	11,500
Antimony	1.9 J	4.5 J	na	9	8.2 J	0.18 U	0.14 U
Arsenic	0.27 U	0.35 J	na	48.6	36.3	0.34 U	2
Barium	8 J	72.3 J	na	114 J	31.7 J	0.58 J	81.5 J
Beryllium	0.038 U	0.041 U	na	0.07 U	0.1 U	0.048 U	0.34 J
Cadmium	0.29 J	0.62 J	na	0.59 J	0.57 J	0.071 U	3.9
Calcium	763 J	4,350	na	2,040	4220	60.4 J	4,980
Chromium	1 J	4.2 J	na	144 J	108 J	2.6 J	16.6 J
Cobalt	0.072 J	0.18 J	na	23.5 J	26.2	0.064 U	8.7
Copper	53.6	49.1	na	243	363	0.11 J	20.6
Iron	130	727 J	na	455,000 J	98,600 J	15.5 U	20,400 J
Lead	25.4	36.5	na	67.9	132	0.21 U	13.9
Magnesium	125 J	263 J	na	618 J	1,300	0.55 J	3,740
Manganese	3	17.3	na	2,570	644	0.014 UJ	364
Mercury	0.0137 UJ	0.0204 J	na	1.66	0.401 J	0.0137 UJ	0.00571 UJ
Nickel	0.93 J	2.9 J	na	102	133	0.077 U	17.2
Potassium	275 J	275 J	na	165 J	284 J	9.3 U	1,720 J
Selenium	0.23 U	0.25 U	na	2.1 U	0.75 J	0.29 U	0.28 J
Silver	0.095 J	0.034 J	na	1.6	0.081 UJ	0.037 UJ	0.15 J
Sodium	483 J	483	na	602 J	3,490	11.4 U	802 J
Thallium	0.36 U	0.4 U	na	0.67 U	0.99 U	0.46 U	0.37 U
Vanadium	0.47 U	4.2	na	7.7 J	4.7 J	0.53 J	55.5
Zinc	336	1,820 J	na	378 J	219 J	1.2 UJ	58.1 J
<b>PCBs (mg/kg)<sup>a</sup></b>							
Aroclor-1016	5.1 U	5.1 U	na	0.27 U	0.34 U	5.1 U	0.036 U
Aroclor-1221	5.1 U	5.1 U	na	0.27 U	0.34 U	5.1 U	0.036 U
Aroclor-1232	5.1 U	5.1 U	na	0.27 U	0.34 U	5.1 U	0.036 U
Aroclor-1242	5.1 U	5.1 U	na	0.27 U	0.34 U	5.1 U	0.036 U
Aroclor-1248	5.1 U	5.1 U	na	0.27 U	0.34 U	5.1 U	0.036 U
Aroclor-1254	5.1 U	5.1 U	na	0.27 U	0.34 U	5.1 U	0.036 U
Aroclor-1260	5.1 U	5.1 U	na	0.27 U	0.89	5.1 U	0.036 U
Total PCB	5.1 U	5.1 U	na	0.27 U	0.89	5.1 U	0.036 U
<b>PAHs (mg/kg)<sup>d</sup></b>							
2-Methylnaphthalene	1,400	260	1,600	250 J	450	3,800 J	0.69 UJ
Acenaphthene	39 J	130 U	1,900 J	16 J	13 U	390 J	0.69 UJ
Anthracene	17 J	130 U	40 J	6.0 J	15 J	100 J	0.69 UJ
Benzo(a)anthracene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U

## Appendix F. Recontamination Assessment Area Data

Table F-3. Basin Oil Tank and Drum Results

Sample Identification:	07052002 EPA 2001	07052003 EPA 2001	07052006 EPA 2001	07052007 EPA 2001	07052005 EPA 2001	07052008 EPA 2001	07052004RE EPA 2001
Sample Location and Matrix:	Tank - 5 Liquid	Tank - 11 Liquid	Drum E-0012 Liquid	Drum E-0012 Sludge	Drum E-0014 Sludge	Drum E-0019 Liquid	Drum E-0022 Sludge
Benzo(a)pyrene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Benzo[b]fluoranthene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Benzo(g,h,i)perylene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Benzo(k)fluoranthene	50 U	130 U	50 U	4.2 U	13 U	250 UJ	0.69 U
Chrysene	90	130 U	50 U	4.2 U	13 UJ	250 U	0.17 J
Dibenz(a,h)anthracene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Dibenzofuran	57	130 U	230 J	20 J	34 J	250 U	0.69 UJ
Fluoranthene	50 UJ	130 U	50 UJ	1.5 J	6.6 J	250 U	0.69 UJ
Fluorene	98	130 U	510 J	49 J	87 J	590 J	0.69 UJ
Indeno(1,2,3-cd)pyrene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Naphthalene	800	170	630 J	100 J	110 J	390 J	0.69 UJ
Phenanthrene	130 J	43 J	330 J	41 J	160 J	1,000 J	0.20 J
Pyrene	21 J	130 U	44 J	3.8 J	8.4 J	250 U	0.69 U
<b>Phthalates (mg/kg)<sup>a</sup></b>							
Bis(2-ethylhexyl) phthalate	50 U	140	38 J	3.4 J	26 J	250 U	8.1
Butyl benzyl phthalate	41 J	130 U	50 U	4.2 U	17 J	250 U	0.69 U
Diethyl phthalate	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
Dimethyl phthalate	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
Di-n-butyl phthalate	13 J	130 U	50 UJ	4.2 UJ	13 UJ	250 U	0.69 UJ
Di-n-octyl phthalate	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
<b>Other SVOCs (mg/kg)<sup>a</sup></b>							
1,2,4-Trichlorobenzene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
1,2-Dichlorobenzene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
1,2-Diphenylhydrazine	50 UJ	130 U	50 U	4.2 U	13 U	250 UJ	0.69 UJ
1,3-Dichlorobenzene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
1,4-Dichlorobenzene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
2,4,5-Trichlorophenol	50 U	130 U	50 U	4.2 U	13 U	250 UJ	0.69 UJ
2,4,6-Trichlorophenol	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
2,4-Dichlorophenol	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
2,4-Dimethylphenol	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
2,4-Dinitrophenol	100 U	130 U	100 U	8.6 U	13 U	500 U	1.4 UJ
2,4-Dinitrotoluene	50 U	250 U	50 U	4.2 U	13 U	250 U	0.69 UJ
2,6-Dinitrotoluene	50 U	130 U	50 U	4.2 U	13 U	250 UJ	0.69 UJ
2-Chloronaphthalene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
2-Chlorophenol	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
2-Methylphenol	50 U	130 U	14 J	8.2	400 J	250 U	0.69 U
2-Nitroaniline	50 U	130 U	50 U	4.2 U	13 U	250 UJ	0.69 UJ
2-Nitrophenol	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ

## Appendix F. Recontamination Assessment Area Data

Table F-3. Basin Oil Tank and Drum Results

Sample Identification:	07052002 EPA 2001	07052003 EPA 2001	07052006 EPA 2001	07052007 EPA 2001	07052005 EPA 2001	07052008 EPA 2001	07052004RE EPA 2001
Sample Location and Matrix:	Tank - 5 Liquid	Tank - 11 Liquid	Drum E-0012 Liquid	Drum E-0012 Sludge	Drum E-0014 Sludge	Drum E-0019 Liquid	Drum E-0022 Sludge
3 & 4 Methylphenol	50 U	130 U	50 U	3.1 J	9.6 J	250 U	0.69 U
3,3'-Dichlorobenzidine	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
3-Nitroaniline	50 U	130 U	50 U	4.2 U	27 U	250 U	0.69 UJ
4,6-Dinitro-2-methylphenol	50 UJ	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
4-Bromophenyl phenyl ether	50 UJ	130 U	50 U	4.2 U	13 U	250 UJ	0.69 UJ
4-Chloro-3-methylphenol	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
4-Chloroaniline	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
4-Chlorophenyl phenyl ether	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
4-Nitroaniline	50 U	130 U	50 U	4.2 U	13 U	250 UJ	0.69 UJ
4-Nitrophenol	50 U	130 U	50 U	4.2 U	13 U	250 UJ	0.69 UJ
Acenaphthylene	50 U	130 U	50 U	4.2 U	27 J	250 U	0.69 UJ
Benzoic acid	100 U	250 U	100 U	4.2 U	27 U	500 U	1.4 UJ
Benzyl alcohol	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Bis(2-chloroethoxy)methane	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
Bis(2-chloroethyl)ether	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Bis(2-chloroisopropyl) ether	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Carbazole	50 UJ	130 U	50 UJ	6.0 J	27 J	250 U	0.69 UJ
Hexachlorobenzene	50 UJ	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
Hexachlorobutadiene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
Hexachlorocyclopentadiene	50 U	130 U	50 U	4.2 U	13 U	R	0.69 UJ
Hexachloroethane	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Isophorone	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
Nitrobenzene	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
N-Nitrosodi-n-propylamine	50 U	130 U	50 U	4.2 U	13 U	250 U	0.69 U
Pentachlorophenol	50 UJ	130 U	50 U	4.2 U	13 U	250 U	0.69 UJ
Phenol	50 U	130 U	50 U	2.2 J	13 U	250 U	0.69 U
<b>VOCs (mg/kg)<sup>a</sup></b>							
1,1,1-Trichloroethane	140 U	250 U	na	na	na	130 U	0.016 U
1,1,2,2-Tetrachloroethane	140 U	250 U	na	na	na	130 U	0.016 U
1,1,2-Trichloroethane	140 U	250 U	na	na	na	130 U	0.016 U
1,1-Dichloroethane	140 U	250 U	na	na	na	130 U	0.016 U
1,1-Dichloroethene	140 U	250 U	na	na	na	130 U	0.016 U
1,2-Dichloroethane	140 U	250 U	na	na	na	130 U	0.016 U
1,2-Dichloropropane	140 U	250 U	na	na	na	130 U	0.016 U
2-Butanone	700 U	1,300 U	na	na	na	650 U	0.054 U
2-Hexanone	700 U	1,300 U	na	na	na	650 U	0.054 U
4-Methyl-2-pentanone	700 U	1,300 U	na	na	na	650 U	0.054 U
Acetone	700 U	1,300 U	na	na	na	650 U	0.13 J

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F-3. Basin Oil Tank Drum



## Appendix F. Recontamination Assessment Area Data

Table F-3. Basin Oil Tank and Drum Results

Sample Identification:	07052002 EPA 2001	07052003 EPA 2001	07052006 EPA 2001	07052007 EPA 2001	07052005 EPA 2001	07052008 EPA 2001	07052004RE EPA 2001
Sample Location and Matrix:	Tank - 5 Liquid	Tank - 11 Liquid	Drum E-0012 Liquid	Drum E-0012 Sludge	Drum E-0014 Sludge	Drum E-0019 Liquid	Drum E-0022 Sludge
Benzene	5,500	250 U	na	na	na	130 U	0.016 U
Bromodichloromethane	140 U	250 U	na	na	na	130 U	0.016 U
Bromoform	140 U	250 U	na	na	na	130 U	0.016 U
Bromomethane	140 U	250 U	na	na	na	130 U	0.016 U
Carbon disulfide	140 U	250 U	na	na	na	130 U	0.016 U
Carbon tetrachloride	140 U	250 U	na	na	na	130 U	0.016 U
Chlorobenzene	140 U	250 U	na	na	na	130 U	0.016 U
Chloroethane	140 U	250 U	na	na	na	130 U	0.016 U
Chloroform	140 U	250 U	na	na	na	130 U	0.016 U
Chloromethane	140 U	250 U	na	na	na	130 U	0.016 U
cis-1,2-Dichloroethene	140 U	250 U	na	na	na	130 U	0.016 U
cis-1,3-Dichloropropene	140 U	250 U	na	na	na	130 U	0.016 U
Dibromochloromethane	140 U	250 U	na	na	na	130 U	0.016 U
Dichlorodifluoromethane	140 UJ	250 UJ	na	na	na	130 UJ	0.016 UJ
Ethylbenzene	5,200	370	na	na	na	130 U	0.016 U
m,p-Xylene	21,000	1,500	na	na	na	400	0.0097 J
Methylene chloride	140 U	250 U	na	na	na	130 U	0.086 J
o-Xylene	7,800	570	na	na	na	650	0.016 U
Styrene	140 U	250 U	na	na	na	130 U	0.016 U
Tetrachloroethene	390	250 U	na	na	na	130 U	0.016 U
Toluene	28,000	1,600	na	na	na	130 U	0.014 J
trans-1,2-Dichloroethene	140 U	250 U	na	na	na	130 U	0.016 U
trans-1,3-Dichloropropene	140 U	250 U	na	na	na	130 U	0.016 U
Trichloroethene	140 U	250 U	na	na	na	130 U	0.016 U
Trichlorofluoromethane	140 U	250 U	na	na	na	130 U	0.016 U
Vinyl chloride	140 U	250 U	na	na	na	130 U	0.016 U

Source: Rodin J. 2007. Personal communication (email to B. Smith, Washington Department of Ecology, Northwest Regional Office, Hazardous Waste and Toxics Reduction Program, regarding Basin Oil data). US Environmental Protection Agency, Seattle, WA. June 7, 2007.

Notes:

ID = identification

J = estimated value

U = not detected (at the indicated reporting limit)

UJ = not detected (estimated reporting limit)

na = not analyzed

<sup>a</sup> Units were originally reported in mg/kg for metals and ug/kg for PCBs, SVOC, and VOCs, which is atypical for liquid media.

## Appendix F. Recontamination Assessment Area Data

**Table F-4. South Park Marina  
Soil Results Summary**

Group	Parameter	SB-1-9	SB-2-1	SB-2-9	SB-3-7	SB-3-13.5	SB-4-8	SB-5-8	SB-6-8	SB-7-9	SB-8-9	SB-9-10
Metals	Arsenic	1.5	1.5	2.2	1.0	1.7	4.2	8.7	1.9	1.4	2.1	2
	Cadmium	0.037	0.087	0.063	0.281	0.029	0.097	0.084	0.021	0.025	0.061	0.029
	Chromium	7.98	9	9.47	23.1	8.4	11.8	13.4	7.51	6.37	10.6	7.66
	Copper	9.74	8.9	56	10.8	7.58	19.9	21.7	7.19	7.38	13.9	10.6
	Lead	1.29 J	4.53	13.7 J	31.8 J	2.23 J	3.32 J	4.39 J	1.49 J	2.13 J	2.09 J	1.46 J
	Mercury	0.007	0.011	0.009	0.015	0.01	0.048	0.064	0.004	0.005	0.028	0.008
	Silver	0.06	0.052	0.066	0.07	0.055	0.108	0.145	0.055	0.049	0.091	0.064
	Zinc	19.1	20.3	29.3	33	15	26.3	28.9	15.4	14.8	22.6	17.6
PCBs	PCB-aroclor 1248	0.0099 U	0.0099 U	0.01 U	0.0099 U	0.0099 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.0099 U
	PCB-aroclor 1254	0.0099 U	0.0099 U	0.01 U	0.092	0.039	0.01 U	0.0099 U	0.023	0.0059 J	0.01 U	0.0099 U
	PCB-aroclor 1260	0.0099 U	0.0099 U	0.021	0.088	0.0099 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.0099 U
Pest	2,4'-DDD	0.00099 U	0.00099 U	0.0023 J	0.0019 U	0.00099 U	0.001 U	0.00099 U	0.001 U	0.001 U	0.001 U	0.00099 U
	2,4'-DDT	0.00099 U	0.00051	0.0012 J	0.00099 U	0.00099 U	0.001 U	0.00099 U	0.0011	0.0017	0.001 U	0.00099 U
	4,4'-DDD	0.00099 U	0.00099 U	0.0013	0.00035 J	0.00099 U	0.00022	0.00099 U	0.001 U	0.00026	0.001 U	0.00099 U
	4,4'-DDE	0.00099 U	0.00099 U	0.00045	0.0029 J	0.00099 U	0.001 U	0.00099 U	0.0016	0.0021	0.00049	0.00099 U
	4,4'-DDT	0.00099 U	0.00087 J	0.0018	0.01	0.00099 U	0.001 U	0.00099 U	0.0018	0.0033	0.001 U	0.00099 U
	Aldrin	0.00099 U	0.00099 U	0.001 U	0.0061	0.00099 U	0.001 U	0.00099 U	0.001 U	0.002	0.001 U	0.00099 U
	Dieldrin	0.00099 U	0.00099 U	0.00058 J	0.027	0.00099 U	0.001 U	0.00099 U	0.001 U	0.0017	0.001 U	0.00099 U
	Heptachlor	0.00099 U	0.00099 U	0.001 U	0.00099 U	0.00099 U	0.001 U	0.00056	0.001 U	0.001 U	0.001 U	0.00099 U
SVOCs	Acenaphthene	0.01 U	0.009 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Anthracene	0.01 U	0.009 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Benzo(a)anthracene	0.01 U	0.009 U	0.0052	0.01 U	0.0099 U	0.0063	0.0048	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Benzo(a)pyrene	0.01 U	0.009 U	0.006	0.01 U	0.0099 U	0.0075	0.0061	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Benzo(b)fluoranthene	0.01 U	0.009 U	0.01	0.01 U	0.0099 U	0.0079	0.0072	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Benzo(ghi)perylene	0.01 U	0.009 U	0.0064	0.01 U	0.0099 U	0.0065	0.0058	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Benzo(k)fluoranthene	0.01 U	0.009 U	0.0036	0.01 U	0.0099 U	0.0023	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Benzoic Acid	0.2 U	0.18 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19	0.2 U	0.2 U	0.2 U	0.2 U
	Benzyl Alcohol	0.02 U	0.018 U	0.0077	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.0041	0.02 U
	Bis(2-Ethylhexyl) Phthalate	0.0095 U	0.09 U	0.035 U	0.014 U	0.012 U	0.1 U	0.1 U	0.018 U	0.099 U	0.012 U	0.011 U
	Butylbenzylphthalate	0.01 U	0.009 U	0.0052	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Chrysene	0.01 U	0.009 U	0.0071	0.01 U	0.0099 U	0.0071	0.0064	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Dibenzo(a,h)anthracene	0.01 U	0.009 U	0.0022	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Dibenzofuran	0.01 U	0.009 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	1,2-Dichlorobenzene	0.01 U	0.009 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Dimethylphthalate	0.01 U	0.009 U	0.026	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U

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## Appendix F. Recontamination Assessment Area Data

**Table F-4. South Park Marina  
Soil Results Summary**

Group	Parameter	SB-1-9	SB-2-1	SB-2-9	SB-3-7	SB-3-13.5	SB-4-8	SB-5-8	SB-6-8	SB-7-9	SB-8-9	SB-9-10
	Di-N-Butylphthalate	0.011 U	0.018 U	0.017 U	0.016 U	0.019 U	0.019 U	0.02 U	0.011 U	0.0095 U	0.012 U	0.02 U
	Di-N-Octyl Phthalate	0.01 U	0.009 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Fluoranthene	0.01 U	0.009 U	0.0091	0.0046	0.003	0.013	0.011	0.0098 U	0.0099 U	0.0024	0.0021
	Fluorene	0.01 U	0.009 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Indeno(1,2,3-cd)pyrene	0.01 U	0.009 U	0.006	0.01 U	0.0099 U	0.0061	0.0066	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	2-Methylnaphthalene	0.01 U	0.009 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	2-Methylphenol	0.01 U	0.01 U	0.25 U	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	4-Methylphenol	0.01 U	0.009 U	0.01 U	0.01 U	0.0099 U	0.0022	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Naphthalene	0.01 U	0.009 U	0.01 U	0.0037	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	Pentachlorophenol	0.1 U	0.09 U	0.041	0.028	0.099 U	0.1 U	0.1 U	0.098 U	0.099 U	0.099 U	0.098 U
	Phenanthrene	0.01 U	0.009 U	0.0029	0.0081	0.0038	0.0062	0.0054	0.0025	0.0099 U	0.0031	0.0024
	Phenol	0.031 U	0.03 U	0.02 U	0.026 U	0.031 U	0.035 U	0.045 U	0.021 U	0.016 U	0.024 U	0.021 U
	Pyrene	0.01 U	0.009 U	0.0083	0.0051	0.0033	0.017	0.014	0.0098 U	0.0099 U	0.0025	0.0026
	cPAH	NC	NC	0.0088	NC	NC	0.0098	0.008	NC	NC	NC	NC
TPH	Gasoline Range Organics											
	Diesel Range Organics							23	3.7			
	Residual Range Organics							220 J	21			
VOCs	Acetone											
	Benzene											
	2-Butanone											
	n-Butylbenzene											
	Sec-Butylbenzene											
	Carbon Disulfide											
	Chlorobenzene											
	1,2-Dichlorobenzene											
	1,4-Dichlorobenzene											
	1,1-Dichloroethane											
	Cis-1,2-Dichloroethene											
	Trans-1,2-Dichloroethene											
	Ethylbenzene											
	Isopropylbenzene											
	p-Isopropyltoluene											
4-Methyl-2-Pentanone												
Methylene Chloride												
Naphthalene												

## Appendix F. Recontamination Assessment Area Data

**Table F-4. South Park Marina  
Soil Results Summary**

Group	Parameter	SB-1-9	SB-2-1	SB-2-9	SB-3-7	SB-3-13.5	SB-4-8	SB-5-8	SB-6-8	SB-7-9	SB-8-9	SB-9-10
	n-Propylbenzene											
	Styrene											
	Tert-Butylbenzene											
	Tetrachloroethene											
	Toluene											
	Trichloroethene											
	1,2,4-Trimethylbenzene											
	1,3,5-Trimethylbenzene											
	Vinyl Chloride											
	m,p-Xylene											
	o-Xylene											

For cPAHs, values applies to benzo(a)pyrene; total cPAHs must

Gray shaded cells are data that exceed MTCA Method A or Method B cleanup levels.

U = Parameter not detected at the stated reporting level

J = Estimated concentration

NC = not calculated

### NOTES:

Validated data

Table includes all parameters detected in soil during this study

All results in mg/kg

Blank cells indicate parameter not analyzed: For TPH, this was because HCID did not detect petroleum hydrocarbons. For VOCs, this was because field screening did not suggest presence of VOCs

**Source:** SAIC 2008

## Appendix F. Recontamination Assessment Area Data

**Table F-4. South Park Marina  
Soil Results Summary**

Group	Parameter	SB-10-14	SB-11-2.5	SB-12-1.5	SB-13-1	SB-13-3.5	SB-13-7	SB-14-3	SB-14-7.5	SB-15-3.5	SB-16-3.5
Metals	Arsenic	1.8	6.7	7.2	1.7	1.3	1.2	2.3	1.6	4.5	9.4
	Cadmium	0.141	31.4	14.6	0.118	0.135	0.577	0.501	0.159	4.97	23.5
	Chromium	8.6	465	212	6.08	6.04	21.5	24.2	22.1	192	415
	Copper	10.8	198	111	8.71	8.02	5.43	9.72	9.88	69.6	132
	Lead	16.3 J	3100 J	1000 J	2.05	1.18	33.9	198	18.2	1030	3180
	Mercury	0.007	29.5	3.96	0.013	0.006	0.021	0.327	0.274	5.81	25.2
	Silver	0.116	0.299	0.191	0.056	0.038	0.057	0.064	0.058	0.136	0.23
	Zinc	28.7	1480	649	42.1	30.6	122	118	26.4	515	1510
PCBs	PCB-aroclor 1248	0.0099 U	1 U	0.099 U	0.0099 U	0.01 U	1 U	0.1 U	0.099 U	1 U	1 U
	PCB-aroclor 1254	0.022	29	4.9	0.0099 U	0.01 U	13	5.5	7	12	36
	PCB-aroclor 1260	0.024	1.0 U	0.099 U	0.0084	0.01 U	1 U	5.1	4.9	1 U	1 U
Pest	2,4'-DDD	0.00099 U	0.61 U	0.093 U	0.00099 U	0.001 U	0.28 U	0.5 U	0.098 U	0.28 U	0.67 U
	2,4'-DDT	0.0019	3.4 J	0.37	0.00073 J	0.001 U	1.3	0.77	0.9	1.3	3.6 J
	4,4'-DDD	0.00099 U	0.8	0.051	0.00099 U	0.001 U	0.1 U	0.58	0.13	0.2	0.53
	4,4'-DDE	0.00099 U	0.26 U	0.02 U	0.00099 U	0.001 U	0.1 U	0.37 J	0.39 J	0.18 U	0.3 U
	4,4'-DDT	0.0036	3.2 U	0.6	0.0013 J	0.001 U	1.6 J	1.1 J	1.2 J	1.5 J	4 J
	Aldrin	0.00099 U	3.5	0.019 U	0.00099 U	0.001 U	0.1 U	0.24	9.4	0.76	1.9
	Dieldrin	0.0017 U	0.14 U	0.035 U	0.0021	0.001 U	0.12 U	0.92	0.071 U	0.1 U	0.1 U
	Heptachlor	0.00099 U	0.1 U	0.019 U	0.00099 U	0.001 U	0.1 U	0.01 U	0.0099 U	0.1 U	0.1 U
SVOCs	Acenaphthene	0.01 U	0.25	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	0.51	0.99 U	0.92 U
	Anthracene	0.01 U	0.33	0.065	0.0093 U	0.0098 U	0.19 U	0.48 U	1.2	0.99 U	0.92 U
	Benzo(a)anthracene	0.0022	0.24	0.074	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.22
	Benzo(a)pyrene	0.0044	0.25 U	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	Benzo(b)fluoranthene	0.0084	0.25 U	0.13	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	Benzo(ghi)perylene	0.0058	0.25 U	0.13	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	Benzo(k)fluoranthene	0.0019	0.25 U	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	Benzoic Acid	0.2 U	4.9 U	2.0 U	0.19 U	0.2 U	3.8 U	9.6 U	20 U	20 U	19 U
	Benzyl Alcohol	0.02 U	0.49 U	0.2 U	0.019 U	0.02 U	0.38 U	0.96 U	2 U	2 U	1.9 U
	Bis(2-Ethylhexyl) Phthalate	0.021 U	3.7 U	1.1 U	0.093 U	0.098 U	1.9 U	4.8 U	2	2.8	7
	Butylbenzylphthalate	0.01 U	2.2	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	Chrysene	0.0063	0.49	0.17	0.0093 U	0.0098 U	0.19 U	0.48 U	0.53	0.99 U	0.39
	Dibenzo(a,h)anthracene	0.01 U	0.25 U	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	Dibenzofuran	0.01 U	0.25 U	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	0.6	0.99 U	0.92 U
	1,2-Dichlorobenzene	0.01 U	0.11	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	Dimethylphthalate	0.0067	0.25 U	0.23	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U

Revised EE/CA, Appendix F

June 3, 2010

## Appendix F. Recontamination Assessment Area Data

**Table F-4. South Park Marina  
Soil Results Summary**

Group	Parameter	SB-10-14	SB-11-2.5	SB-12-1.5	SB-13-1	SB-13-3.5	SB-13-7	SB-14-3	SB-14-7.5	SB-15-3.5	SB-16-3.5
	Di-N-Butylphthalate	0.11 U	0.8 U	0.42 U	0.019 U	0.02 U	0.38 U	0.96 U	2 U	1.3	1.1
	Di-N-Octyl Phthalate	0.01 U	0.25 U	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	Fluoranthene	0.003	0.46	0.12	0.0093 U	0.0098 U	0.19 U	0.48 U	0.88	0.3	0.5
	Fluorene	0.01 U	0.25 U	0.064	0.0093 U	0.0098 U	0.19 U	0.48 U	1	0.39	0.67
	Indeno(1,2,3-cd)pyrene	0.0057	0.25 U	0.1	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	2-Methylnaphthalene	0.01 U	2	0.26	0.0093 U	0.0098 U	0.19 U	0.48 U	4.5	1.1	3
	2-Methylphenol	0.009 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0098 U
	4-Methylphenol	0.01 U	0.25 U	0.099 U	0.0093 U	0.0098 U	0.19 U	0.48 U	1 U	0.99 U	0.92 U
	Naphthalene	0.01 U	1.9	0.36	0.0093 U	0.0098 U	0.19 U	0.48 U	0.51	0.36	1.7
	Pentachlorophenol	0.079	2.3	2.8	0.093 U	0.098 U	1.9 U	4.8 U	10 U	9.9 U	9.2 U
	Phenanthrene	0.0024	1.3	0.16	0.0093 U	0.0098 U	0.19 U	0.48 U	2.4	0.98	1.4
	Phenol	0.014 U	0.74 U	0.083 U	0.03 U	0.032 U	0.57 U	1.5 U	3 U	3 U	2.8 U
	Pyrene	0.0043	0.82	0.17	0.0093 U	0.0098 U	0.19 U	0.48 U	0.99	0.5	0.81
	cPAH	0.0063	NC	NC	NC	0.029	0.032	NC	0.005	NC	0.026
TPH	Gasoline Range Organics						1.6 U		350 J	150 J	
	Diesel Range Organics		9600 J	1300 J	1.8 U		950 J	2100 J	3000 J	4100 J	12000 J
	Residual Range Organics		26000 J	3700 J	6.5 U		4700 J	8200 J	8900 J	10000 J	27000 J
VOCs	Acetone		0.93 U	0.048					0.014 U	0.044 J	0.58 UJ
	Benzene		0.072	0.0041 U					0.0063 U	0.0075 U	0.078
	2-Butanone		0.71	0.012					0.025 U	0.0061 J	0.62
	n-Butylbenzene		0.96	0.017 U					0.025 U	0.03 U	2.0
	Sec-Butylbenzene		0.54	0.017 U					0.025 U	0.03 U	1.2
	Carbon Disulfide		0.071 U	0.00012					0.0063 U	0.00067 J	0.068 U
	Chlorobenzene		0.071 U	0.0041 U					0.0063 U	0.0075 U	0.046
	1,2-Dichlorobenzene		0.24	0.0041 U					0.0063 U	0.0075 U	0.31
	1,4-Dichlorobenzene		0.038	0.0041 U					0.0063 U	0.0075 U	0.038
	1,1-Dichloroethane		0.071 U	0.00031					0.0063 U	0.0075 U	0.068 U
	Cis-1,2-Dichloroethene		8.9	0.0078					0.0063 U	0.00054 J	11
	Trans-1,2-Dichloroethene		0.21	0.0041 U					0.0063 U	0.0075 U	0.098
	Ethylbenzene		4.1	0.00023					0.0063 U	0.0078 J	9.3
	Isopropylbenzene		0.56	0.017 U					0.025 U	0.01 J	1.7
	p-Isopropyltoluene		1.2	0.017 U					0.025 U	0.039 J	2.6
	4-Methyl-2-Pentanone		1.4	0.0028					0.025 U	0.03 U	0.66 J
Methylene Chloride		0.034	0.00044 U					0.001 U	0.00097 UJ	0.27 U	
Naphthalene		2.5	0.017 U					0.025 U	0.012 J	2.4	

## Appendix F. Recontamination Assessment Area Data

**Table F-4. South Park Marina  
Soil Results Summary**

Group	Parameter	SB-10-14	SB-11-2.5	SB-12-1.5	SB-13-1	SB-13-3.5	SB-13-7	SB-14-3	SB-14-7.5	SB-15-3.5	SB-16-3.5
	n-Propylbenzene		0.67	0.017 U					0.025 U	0.03 U	1.8
	Styrene		0.037	0.0041 U					0.0063 U	0.0075 U	0.068 U
	Tert-Butylbenzene		0.042	0.017 U					0.025 U	0.03 U	0.087
	Tetrachloroethene		0.16	0.0015					0.002	0.00073 J	0.17
	Toluene		4.1	0.0017					0.00089 J	0.0023 J	7.2
	Trichloroethene		0.17	0.0005					0.0063 U	0.0075 U	0.15
	1,2,4-Trimethylbenzene		10	0.00023					0.025 U	0.03 U	17
	1,3,5-Trimethylbenzene		3.3	0.017 U					0.025 U	0.058 J	6.6
	Vinyl Chloride		0.09	0.0014					0.0063 U	0.0027 J	0.87
	m,p-Xylene		21	0.0013					0.0063 U	0.0046 J	44
	o-Xylene		14	0.00049					0.0063 U	0.0013 J	24

For cPAHs, values applies to benzo(a)pyrene; total cPAHs must

Gray shaded cells are data that exceed MTCA Method A or Method B cleanup levels.

U = Parameter not detected at the stated reporting level

J = Estimated concentration

NC = not calculated

### NOTES:

Validated data

Table includes all parameters detected in soil during this study

All results in mg/kg

Blank cells indicate parameter not analyzed: For TPH, this was because HCID did not detect petroleum hydrocarbons. For VOCs, this was because field screening did not suggest presence of VOCs

**Source:** SAIC 2008

## Appendix F. Recontamination Assessment Area Data

Table F-4. South Park Marina  
Soil Results Summary

Group	Parameter	Transect A Sediment	Transect A Bottom	Transect A Top	Transect B Sediment	Transect B Bottom	Transect B Top
Metals	Arsenic	13 J	4.9	4.9	18.5 J	2.5	10.8
	Cadmium	0.201	0.216	0.442	0.311	0.218	1.08
	Chromium	25.5	16.2	16.4	28.7	20.8	22.2
	Copper	42.5 J	249	74.6	66.9 J	146	1020
	Lead	50	55.9	39.7	37.7	25.2	121
	Mercury	0.303	0.208	0.07	0.154	0.023	0.187
	Silver	0.306	0.082	0.191	0.447	0.137	0.191
	Zinc	83.8 J	109	250	104 J	83.4	528
PCBs	PCB-aroclor 1248	0.087 U	0.0079 U	0.0073 U	0.033	0.0078 U	0.0079 U
	PCB-aroclor 1254	0.059 U	0.0079 U	0.0073 U	0.014 U	0.0078 U	0.0079 U
	PCB-aroclor 1260	1.7	0.17	0.073	0.65	0.13	0.32
Pest	2,4'-DDD	0.078 J	0.0085 J	0.0018	0.013	0.0037	0.0073 U
	2,4'-DDT	0.049 U	0.004 U	0.0063 J	0.0082 U	0.0021 U	0.027 J
	4,4'-DDD	0.0016	0.0038	0.0015 U	0.0012	0.00078 U	0.006
	4,4'-DDE	0.0034 U	0.0009 J	0.0015 U	0.0014 U	0.00078 U	0.00079 U
	4,4'-DDT	0.16 U	0.027 J	0.0053 U	0.051 U	0.017 J	0.095 J
	Aldrin	0.046 J	0.00079 U	0.0015 U	0.0014 U	0.00078 U	0.00079 U
	Dieldrin	0.0018 U	0.00079 U	0.0015 U	0.0015 U	0.00078 U	0.0021 U
	Heptachlor	0.0012 U	0.00079 U	0.0015 U	0.0014 U	0.00078 U	0.00079 U
SVOCs	Acenaphthene	0.004	0.0042 U	0.19 U	0.007	0.0098 U	0.048 U
	Anthracene	0.031	0.011 U	0.19 U	0.034	0.003 U	0.035 U
	Benzo(a)anthracene	0.084	0.058	0.19 U	0.097	0.012 U	0.19 U
	Benzo(a)pyrene	0.093	0.076	0.19 U	0.1	0.016 U	0.25 U
	Benzo(b)fluoranthene	0.16	0.14	0.19 U	0.17	0.026 U	0.51
	Benzo(ghi)perylene	0.063	0.092	0.19 U	0.081	0.02 U	0.29
	Benzo(k)fluoranthene	0.054 J	0.05	0.19 U	0.061 J	0.009 U	0.16
	Benzoic Acid	0.24 U	0.17	3.8 U	0.28 U	0.2 U	0.72
	Benzyl Alcohol	0.03 U	0.048	0.38 U	0.087	0.011	0.94
	Bis(2-Ethylhexyl) Phthalate	0.12	0.33	0.31 U	0.2	0.076 U	2.3
	Butylbenzylphthalate	0.036	0.14	0.26	0.049	0.018	0.41
	Chrysene	0.16	0.12	0.19 U	0.19	0.024 U	0.42 U
	Dibenzo(a,h)anthracene	0.015	0.015	0.19 U	0.02	0.0042	0.064
	Dibenzofuran	0.0049	0.0037	0.19 U	0.0044	0.0098 U	0.0083
	1,2-Dichlorobenzene	0.012 U	0.0095 U	0.19 U	0.014 U	0.0098 U	0.048 U
	Dimethylphthalate	0.048	0.62	0.74	0.16	0.08	3.7



## Appendix F. Recontamination Assessment Area Data

**Table F-4. South Park Marina  
Soil Results Summary**

Group	Parameter	Transect A Sediment	Transect A Bottom	Transect A Top	Transect B Sediment	Transect B Bottom	Transect B Top
	Di-N-Butylphthalate	0.021	0.17	0.38 U	0.039	0.028 U	0.43 U
	Di-N-Octyl Phthalate	0.012 U	0.0095 U	0.19 U	0.014 U	0.0067	0.048 U
	Fluoranthene	0.18	0.17	0.19 U	0.23	0.03 U	0.36 U
	Fluorene	0.0068	0.0046	0.19 U	0.011	0.0098 U	0.012
	Indeno(1,2,3-cd)pyrene	0.07	0.098	0.19 U	0.094	0.017 U	0.33
	2-Methylnaphthalene	0.0092	0.0044 U	0.19 U	0.0047	0.0098 U	0.014 U
	2-Methylphenol	0.0023	0.0095 U	0.19 U	0.014 U	0.0098 U	0.048 U
	4-Methylphenol	0.007	0.0084	0.19 U	0.0071	0.0098 U	0.048 U
	Naphthalene	0.011	0.0058 U	0.19 U	0.006	0.0098 U	0.017 U
	Pentachlorophenol	0.12 U	0.095 U	1.9 U	0.14 U	0.098 U	0.48 U
	Phenanthrene	0.063	0.077 U	0.19 U	0.12	0.011 U	0.13 U
	Phenol	0.018	0.055 U	0.56 U	0.016	0.028 U	0.25 U
	Pyrene	0.15	0.17 U	0.19 U	0.2	0.03 U	0.38 U
	cPAH	NC	0.118	NC	NC	0.0017	0.126
TPH	Gasoline Range Organics	20 U			20 U		5.1 U
	Diesel Range Organics	87 J	26	1300 J	98 J		160 J
	Residual Range Organics	490 J	240 J	360 J	570 J		620 J
VOCs	Acetone						
	Benzene						
	2-Butanone						
	n-Butylbenzene						
	Sec-Butylbenzene						
	Carbon Disulfide						
	Chlorobenzene						
	1,2-Dichlorobenzene						
	1,4-Dichlorobenzene						
	1,1-Dichloroethane						
	Cis-1,2-Dichloroethene						
	Trans-1,2-Dichloroethene						
	Ethylbenzene						
	Isopropylbenzene						
	p-Isopropyltoluene						
	4-Methyl-2-Pentanone						
Methylene Chloride							
Naphthalene							

## Appendix F. Recontamination Assessment Area Data

**Table F-4. South Park Marina  
Soil Results Summary**

Group	Parameter	Transect A Sediment	Transect A Bottom	Transect A Top	Transect B Sediment	Transect B Bottom	Transect B Top
	n-Propylbenzene						
	Styrene						
	Tert-Butylbenzene						
	Tetrachloroethene						
	Toluene						
	Trichloroethene						
	1,2,4-Trimethylbenzene						
	1,3,5-Trimethylbenzene						
	Vinyl Chloride						
	m,p-Xylene						
	o-Xylene						

For cPAHs, values applies to benzo(a)pyrene; total cPAHs must

Gray shaded cells are data that exceed MTCA Method A or Method B cleanup levels.

U = Parameter not detected at the stated reporting level

J = Estimated concentration

NC = not calculated

### NOTES:

Validated data

Table includes all parameters detected in soil during this study

All results in mg/kg

Blank cells indicate parameter not analyzed: For TPH, this was because HCID did not detect petroleum hydrocarbons. For VOCs, this was because field screening did not suggest presence of VOCs

**Source:** SAIC 2008

## Appendix F. Recontamination Assessment Area Data

Table F-4. South Park Marina Soil Results Summary

Group	Parameter	MW-1			MW-2				MW-3			
		Round 1	Round 2	Round 3	Round 1	Round 2	Round 3	Round 3 (FD)	Round 1	Round 1 (FD)	Round 2	Round 3
Metals	Arsenic	4.68	2.91		8.07	1.56			3.13	2.79	1.59	
	Cadmium	0.022	nd		0.091	nd			0.04	0.033	nd	
	Chromium	2.03	27.3		40.4	15.7			1.52	1.31	19.4	
	Copper	2.83	6.63		9.7	5.81			5.23	5.81	9.83	
	Lead	0.07	0.128		0.046	0.189			0.191	0.192	0.519	
	Mercury	0.2 U	0.2 U	0.00169	0.2 U	0.2 U	0.00141	0.00115	0.2 U	0.2 U	0.2 U	0.0156
	Silver	0.02 U	nd		0.005	nd			0.01 U	0.02 U	nd	
Zinc	4.7	2.93		4.9	3.5			4.5	5.2	3.84		
Pest	DDT	0.011 U	nd		0.011 U	0.00082			0.001	0.0013	0.0014	
	Aldrin	0.011 U	nd		0.011 U	nd			0.0012	0.0015	0.0012	
	Dieldrin	0.011 U	nd		0.0015	0.00071			0.021 J	0.063 J	0.041	
SVOCs	Pyrene	0.21 U	nd		0.21 U	nd			0.21 U	0.021	nd	
VOCs	Chloromethane	0.5 U	0.82		0.5 U	0.36			0.46	0.4	0.9	
	Tetrachloroethene	0.5 U	nd		0.5 U	0.2			0.16	0.18	0.18	
	Toluene	0.5 U	nd		0.11	nd			0.12	0.18	nd	
	1,1,1-Trichloroethane	0.5 U	nd		0.5 U	nd			0.5 U	0.13	nd	

Gray shaded cells are data that exceed MTCA Method A or Method B cleanup levels.

U = Parameter not detected at the stated reporting level

J = Estimated concentration

For MTCA Method B, the lower of the two values for carcinogenic and non-carcinogenic risk was used

Round 1 samples collected 10/8/07 & 10/9/07

Round 2 samples collected 3/12/08

Round 3 samples collected 6/31/2008

### NOTES:

Validated data

Table includes all parameters detected in groundwater during this study

All results in ug/L

Source: SAIC 2008

Revised EE/CA, Appendix F

June 3, 2010

Lower Duwamish Waterway Superfund Site:

T-117 Early Action Area

F-5. Groundwater summary

1 of 1