HARTCROWSER

Earth and Environmental Technologies

Results of Sampling and Analysis
Sediment Monitoring Plan
Duwamish Shipyard, Inc.
Seattle, Washington

Prepared for
Duwamish Shipyard, Inc.

November 17, 1993
J-3763-03

Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

The following notes apply to the various sheets of this table.

Notes:

[ ]	Exceeds CSL.
—	Not applicable.
*	Normalized in mg/kg (ppm).
(a)	LPAH criterion represents the sum of Acenapthene, Acenaphthylene, Anthracene, Fluorene, Phenanthrene, and Naphthalene.
(b)	HPAH criterion represents the sum of Benzo(b)Fluoranthene, Benzo(k)Fluoranthene, Benzo(a)Anthracene, Benzo(a)Pyrene, Chrysene, Dibenzo(a,h)Anthracene, Fluoranthene, Indeno(1,2,3-c,d)Pyrene, and Pyrene.
(c)	To allow for comparison with Ecology Sediment Management Standards (SMS) 173-204 WAC, chemical concentration data is expressed as mg/kg dry weight to mg/kg total organic carbon (TOC), calculated by dividing the dry weight concentration by the decimal percent TOC in the individual sample.
(d)	Analytes not detected above the detection limit (U) which exceed the CSL after normalization to TOC have not been identified as exceeding the CSL.
U	Indicates analyte was not detected above the detection limit.
J	Indicates an estimated value.
UJ	The analyte was not present above the level of the associated numerical value. The associated numerical value may not accurately or precisely represent the concentration necessary to detect the analyte in this sample.

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Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-1	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
Grain Size in Percent				
Percent Sand >62μm	29	—	—	—
Percent Silt 4-62μm	55	—	—	—
Percent Clay <4μm	16	—	—	—
Bioassay Results				
- Acute Ten-Day Amphipod Mortality				
Is response to sediment sample signigicantly different from control sediment?	Yes	—	—	—
- Acute Larval Mortality/Abnormality				
Is response to sediment sample signigicantly different from control sediment?	No	—	—	—
- Chronic Twenty-Day Juvenile Polychaete				
Is response to sediment sample signigicantly different from control sediment?	No	—	—	—
Conventionals in percent				
Total Organic Carbon	1.90	—	—	—
Total Solids	47.61	—	—	—
Total Metals in mg/kg-DW (ppm)				
Antimony	3.1 J	—	—	—
Arsenic	41	—	57	93
Beryllium	0.4	—	—	—
Cadmium	0.7	—	5.1	6.7
Chromium	44	—	260	270
Copper	361 J	—	390	390
Lead	109 J	—	450	530
Mercury	0.27	—	0.41	0.59
Nickel	31	—	—	—
Selenium	0.2 U	—	—	—
Silver	0.6 U	—	6.1	6.1
Thallium	1 U	—	—	—
Zinc	335 J	—	410	960
Low Molecular Weight PAHs in mg/kg (ppm) (c)				
2-Methylnaphthalene	0.079	4.2	38	64
Acenaphthene	0.270	14.2	16	57
Acenaphthylene	0.049 J	2.6 J	66	66
Anthracene	0.830	43.7	220	1,200
Fluorene	0.420	22.1	23	79
Phenanthrene	1.900	100.0	100	480
Naphthalene	0.069 J	3.6 J	99	170
Total LPAH (a)	3.538 J	186.2 J	370	780

Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-1	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
High Molecular Weight PAHs in mg/kg (ppm) (c)				
Benzo(b)Fluoranthene	1.000	52.6	—	—
Benzo(k)Fluoranthene	1.100	57.9	—	—
Benzo(a)Anthracene	1.100	57.9	110	270
Benzo(a)Pyrene	0.780	41.1	99	210
Chrysene	1.600	84.2	110	460
Dibenzo(a,h)Anthracene	0.170	8.9	12	33
Fluoranthene	3.000	157.9	160	1,200
Indeno(1,2,3-c,d)Pyrene	0.610	32.1	34	88
Pyrene	2.100	110.5	1,000	1,400
Benzo(g,h,i)perylene	0.45	23.7	31	78
Total HPAH (b)	11.460	603.2	960	5,300
Chlorinated Hydrocarbons in mg/kg (ppm) (c)				
1,3-Dichlorobenzene	0.077 U	4.1 U	—	—
1,4-Dichlorobenzene	0.077 U	4.1 U	3.1	9
1,2-Dichlorobenzene	0.077 U	4.1 U	2.3	2.3
1,2,4-Trichlorobenzene	0.077 U	4.1 U	0.81	1.8
Hexachlorobenzene	0.077 U	4.1 U	0.38	2.3
Hexachloroethane	0.077 U	4.1 U	—	—
Hexachlorobutadiene	0.077 U	4.1 U	3.9	6.2
Phthalate Esters in mg/kg (ppm) (c)				
Dimethyl phthalate	0.048 J	2.5 J	53	53
Diethyl phthalate	0.077 U	4.1 U	61	110
Di-n-butyl phthalate	0.040 J	2.1 J	22	1,700
Butylbenzylphthalate	0.096	5.1	4.9	64
Bis(2-ethylhexyl)phthalate	1.000	52.6	47	78
Di-n-octyl phthalate	0.077 U	4.1 U	58	4,500
Miscellaneous Neutrals in mg/kg (ppm) (c)				
Benzyl alcohol	0.077 U	—	57	73
Benzoic Acid	0.770 U	—	650	650
Dibenzofuran	0.250	13.2	15	58
Organonitrogen Compounds in mg/kg (ppm) (c)				
N-nitrosodiphenylamine	0.770 U	40.5 U	11	11
Butyltins in µg/kg-DW (ppb)				
Tributyltin	226.2 J	—	—	—
Dibutyltin	58.3 J	—	—	—
Monobutyltin	1.2 UJ	—	—	—

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Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-2	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
Grain Size in Percent				
Percent Sand >62μm	57	—	—	—
Percent Silt 4-62μm	27	—	—	—
Percent Clay <4μm	16	—	—	—
Bioassay Results				
- Acute Ten-Day Amphipod Mortality				
Is response to sediment sample signigicantly different from control sediment?	Yes	—	—	—
- Acute Larval Mortality/Abnormality				
Is response to sediment sample signigicantly different from control sediment?	Yes	—	—	—
- Chronic Twenty-Day Juvenile Polychaete				
Is response to sediment sample signigicantly different from control sediment?	No	—	—	—
Conventionals in percent				
Total Organic Carbon	2.74	—	—	—
Total Solids	67.13	—	—	—
Total Metals in mg/kg-DW (ppm)				
Antimony	120 J	—	—	—
Arsenic	1,130	—	57	93
Beryllium	0.7	—	—	—
Cadmium	3.5	—	5.1	6.7
Chromium	145	—	260	270
Copper	1,970 J	—	390	390
Lead	854 J	—	450	530
Mercury	0.35	—	0.41	0.59
Nickel	59	—	—	—
Selenium	0.9	—	—	—
Silver	1 U	—	6.1	6.1
Thallium	0.8 U	—	—	—
Zinc	4,440 J	—	410	960
Low Molecular Weight PAHs in mg/kg (ppm) (c)				
2-Methylnaphthalene	0.19	6.9	38	64
Acenaphthene	0.84	30.7	16	57
Acenaphthylene	0.1	3.6	66	66
Anthracene	1.4	51.1	220	1,200
Fluorene	1.2	43.8	23	79
Phenanthrene	7.1	259.1	100	480
Naphthalene	0.15	5.5	99	170
Total LPAH (a)	10.79	393.8	370	780

Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-2	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
High Molecular Weight PAHs in mg/kg (ppm) (c)				
Benzo(b)Fluoranthene	1.8	65.7	—	—
Benzo(k)Fluoranthene	1.7	62.0	—	—
Benzo(a)Anthracene	2.3	83.9	110	270
Benzo(a)Pyrene	1.4	51.1	99	210
Chrysene	3	109.5	110	460
Dibenzo(a,h)Anthracene	0.25	9.1	12	33
Fluoranthene	9.7	354.0	160	1,200
Indeno(1,2,3-c,d)Pyrene	1.1	40.1	34	88
Pyrene	6.1	222.6	1,000	1,400
Benzo(g,h,i)perylene	0.77	28.1	31	78
Total HPAH (b)	27.35	998.2	960	5,300
Chlorinated Hydrocarbons in mg/kg (ppm) (c)				
1,3-Dichlorobenzene	0.078 U	2.8 U	—	—
1,4-Dichlorobenzene	0.078 U	2.8 U	3.1	9
1,2-Dichlorobenzene	0.078 U	2.8 U	2.3	2.3
1,2,4-Trichlorobenzene	0.078 U	2.8 U	0.81	1.8
Hexachlorobenzene	0.078 U	2.8 U	0.38	2.3
Hexachloroethane	0.078 U	2.8 U	—	—
Hexachlorobutadiene	0.078 U	2.8 U	3.9	6.2
Phthalate Esters in mg/kg (ppm) (c)				
Dimethyl phthalate	0.078 U	2.8 U	53	53
Diethyl phthalate	0.078 U	2.8 U	61	110
Di-n-butyl phthalate	0.078 U	2.8 U	22	1,700
Butylbenzylphthalate	0.078 U	2.8 U	4.9	64
Bis(2-ethylhexyl)phthalate	1.8	65.7	47	78
Di-n-octyl phthalate	0.078 U	2.8 U	58	4,500
Miscellaneous Neutrals in mg/kg (ppm) (c)				
Benzyl alcohol	0.078 U	—	57	73
Benzoic Acid	0.78 U	—	650	650
Dibenzofuran	0.66	24.1	15	58
Organonitrogen Compounds in mg/kg (ppm) (c)				
N-nitrosodiphenylamine	0.078 U	2.8 U	11	11
Butyltins in µg/kg-DW (ppb)				
Tributyltin	431.7 J	—	—	—
Dibutyltin	171.9 J	—	—	—
Monobutyltin	1.2 UJ	—	—	—

Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-3	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
Grain Size in Percent				
Percent Sand >62μm	19	—	—	—
Percent Silt 4-62μm	52	—	—	—
Percent Clay <4μm	29	—	—	—
Bioassay Results				
- Acute Ten-Day Amphipod Mortality Is response to sediment sample signigicantly different from control sediment?	Yes	—	—	—
- Acute Larval Mortality/Abnormality Is response to sediment sample signigicantly different from control sediment?	Yes	—	—	—
- Chronic Twenty-Day Juvenile Polychaete Is response to sediment sample signigicantly different from control sediment?	No	—	—	—
Conventionals in percent				
Total Organic Carbon	2.35	—	—	—
Total Solids	49.08	—	—	—
Total Metals in mg/kg-DW (ppm)				
Antimony	5 J	—	—	—
Arsenic	75	—	57	93
Beryllium	0.4	—	—	—
Cadmium	0.6	—	5.1	6.7
Chromium	51	—	260	270
Copper	507 J	—	390	390
Lead	144 J	—	450	530
Mercury	0.3 J	—	0.41	0.59
Nickel	32	—	—	—
Selenium	0.2 U	—	—	—
Silver	0.6 U	—	6.1	6.1
Thallium	1 U	—	—	—
Zinc	418 J	—	410	960
Low Molecular Weight PAHs in mg/kg (ppm) (c)				
2-Methylnaphthalene	0.077 U	3.3 U	38	64
Acenaphthene	0.075 J	3.2 J	16	57
Acenaphthylene	0.077 U	3.3 U	66	66
Anthracene	0.31	13.2	220	1,200
Fluorene	0.1	4.3	23	79
Phenanthrene	0.63	26.8	100	480
Naphthalene	0.039 J	1.7 J	99	170
Total LPAH (a)	1.231 J	52.4 J	370	780

Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-3	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
High Molecular Weight PAHs in mg/kg (ppm) (c)				
Benzo(b)Fluoranthene	0.74	31.5	—	—
Benzo(k)Fluoranthene	0.84	35.7	—	—
Benzo(a)Anthracene	0.74	31.5	110	270
Benzo(a)Pyrene	0.64	27.2	99	210
Chrysene	1.2	51.1	110	460
Dibenzo(a,h)Anthracene	0.11	4.7	12	33
Fluoranthene	2.1	89.4	160	1,200
Indeno(1,2,3-c,d)Pyrene	0.5	21.3	34	88
Pyrene	1.5	63.8	1,000	1,400
Benzo(g,h,i)perylene	0.3	12.8	31	78
Total HPAH (b)	8.37	356.2	960	5,300
Chlorinated Hydrocarbons in mg/kg (ppm) (c)				
1,3-Dichlorobenzene	0.077 U	3.3 U	—	—
1,4-Dichlorobenzene	0.077 U	3.3 U	3.1	9
1,2-Dichlorobenzene	0.077 U	3.3 U	2.3	2.3
1,2,4-Trichlorobenzene	0.077 U	3.3 U	0.81	1.8
Hexachlorobenzene	0.077 U	3.3 U	0.38	2.3
Hexachloroethane	0.077 U	3.3 U	—	—
Hexachlorobutadiene	0.077 U	3.3 U	3.9	6.2
Phthalate Esters in mg/kg (ppm) (c)				
Dimethyl phthalate	0.077 U	3.3 U	53	53
Diethyl phthalate	0.077 U	3.3 U	61	110
Di-n-butyl phthalate	0.077 U	3.3 U	22	1,700
Butylbenzylphthalate	0.12	5.1	4.9	64
Bis(2-ethylhexyl)phthalate	0.95	40.4	47	78
Di-n-octyl phthalate	0.077 U	3.3 U	58	4,500
Miscellaneous Neutrals in mg/kg (ppm) (c)				
Benzyl alcohol	0.077 U	—	57	73
Benzoic Acid	0.77 U	—	650	650
Dibenzofuran	0.066 J	2.8 J	15	58
Organonitrogen Compounds in mg/kg (ppm) (c)				
N-nitrosodiphenylamine	0.077 U	3.3 U	11	11
Butyltins in μg/kg-DW (ppb)				
Tributyltin	418.1 J	—	—	—
Dibutyltin	85.9 J	—	—	—
Monobutyltin	18.8 J	—	—	—

Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-4	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
Grain Size in Percent				
Percent Sand >62μm	17	—	—	—
Percent Silt 4-62μm	60	—	—	—
Percent Clay <4μm	22	—	—	—
Bioassay Results				
- Acute Ten-Day Amphipod Mortality				
Is response to sediment sample signigicantly different from control sediment?	Yes	—	—	—
- Acute Larval Mortality/Abnormality				
Is response to sediment sample signigicantly different from control sediment?	No	—	—	—
- Chronic Twenty-Day Juvenile Polychaete				
Is response to sediment sample signigicantly different from control sediment?	No	—	—	—
Conventionals in percent				
Total Organic Carbon	1.54	—	—	—
Total Solids	49.45	—	—	—
Total Metals in mg/kg-DW (ppm)				
Antimony	29 J	—	—	—
Arsenic	120	—	57	93
Beryllium	0.6	—	—	—
Cadmium	1.5	—	5.1	6.7
Chromium	48.0	—	260	270
Copper	247 J	—	390	390
Lead	102 J	—	450	530
Mercury	0.25	—	0.41	0.59
Nickel	34	—	—	—
Selenium	0.2 U	—	—	—
Silver	0.6 U	—	6.1	6.1
Thallium	1 U	—	—	—
Zinc	526 J	—	410	960
Low Molecular Weight PAHs in mg/kg (ppm) (c)				
2-Methylnaphthalene	0.074 U	4.8 U	38	64
Acenaphthene	0.074 U	4.8 U	16	57
Acenaphthylene	0.074 U	4.8 U	66	66
Anthracene	0.15	9.7	220	1,200
Fluorene	0.045 J	2.9 J	23	79
Phenanthrene	0.41	26.6	100	480
Naphthalene	0.074 U	4.8 U	99	170
Total LPAH (a)	0.827 J	53.7 J	370	780

Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-4	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
High Molecular Weight PAHs in mg/kg (ppm) (c)				
Benzo(b)Fluoranthene	0.46	29.9	—	—
Benzo(k)Fluoranthene	0.36	23.4	—	—
Benzo(a)Anthracene	0.38	24.7	110	270
Benzo(a)Pyrene	0.37	24.0	99	210
Chrysene	0.56	36.4	110	460
Dibenzo(a,h)Anthracene	0.08	5.2	12	33
Fluoranthene	0.98	63.6	160	1,200
Indeno(1,2,3-c,d)Pyrene	0.31	20.1	34	88
Pyrene	0.76	49.4	1,000	1,400
Benzo(g,h,i)perylene	0.23	14.9	31	78
Total HPAH (b)	4.26	276.6	960	5,300
Chlorinated Hydrocarbons in mg/kg (ppm) (c)				
1,3-Dichlorobenzene	0.074 U	4.8 U	—	—
1,4-Dichlorobenzene	0.074 U	4.8 U	3.1	9
1,2-Dichlorobenzene	0.074 U	4.8 U	2.3	2.3
1,2,4-Trichlorobenzene	0.074 U	4.8 U	0.81	1.8
Hexachlorobenzene	0.074 U	4.8 U	0.38	2.3
Hexachloroethane	0.074 U	4.8 U	—	—
Hexachlorobutadiene	0.074 U	4.8 U	3.9	6.2
Phthalate Esters in mg/kg (ppm) (c)				
Dimethyl phthalate	0.074 U	4.8 U	53	53
Diethyl phthalate	0.074 U	4.8 U	61	110
Di-n-butyl phthalate	0.074 U	4.8 U	22	1,700
Butylbenzylphthalate	0.074 U	4.8 U	4.9	64
Bis(2-ethylhexyl)phthalate	2.2	142.9	47	78
Di-n-octyl phthalate	0.074 U	4.8 U	58	4,500
Miscellaneous Neutrals in mg/kg (ppm) (c)				
Benzyl alcohol	0.074 U	—	57	73
Benzoic Acid	0.74 U	—	650	650
Dibenzofuran	0.074 U	4.8 U	15	58
Organonitrogen Compounds in mg/kg (ppm) (c)				
N-nitrosodiphenylamine	0.074 U	4.8 U	11	11
Butyltins in µg/kg-DW (ppb)				
Tributyltin	159.1 J	—	—	—
Dibutyltin	38.5 J	—	—	—
Monobutyltin	4.6 J	—	—	—

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Table 1 - Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-5	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
Grain Size in Percent				
Percent Sand >62μm	13	—	—	—
Percent Silt 4-62μm	62	—	—	—
Percent Clay <4μm	25	—	—	—
Bioassay Results				
- Acute Ten-Day Amphipod Mortality				
Is response to sediment sample signigicantly different from control sediment?	—	—	—	—
- Acute Larval Mortality/Abnormality				
Is response to sediment sample signigicantly different from control sediment?	—	—	—	—
- Chronic Twenty-Day Juvenile Polychaete				
Is response to sediment sample signigicantly different from control sediment?	—	—	—	—
Conventionals in percent				
Total Organic Carbon	1.41	—	—	—
Total Solids	48.14	—	—	—
Total Metals in mg/kg-DW (ppm)				
Antimony	0.3 J	—	—	—
Arsenic	16	—	57	93
Beryllium	0.5	—	—	—
Cadmium	0.4	—	5.1	6.7
Chromium	39	—	260	270
Copper	111 J	—	390	390
Lead	59 J	—	450	530
Mercury	0.28	—	0.41	0.59
Nickel	29	—	—	—
Selenium	0.2 U	—	—	—
Silver	0.6 U	—	6.1	6.1
Thallium	1 U	—	—	—
Zinc	161 J	—	410	960
Low Molecular Weight PAHs in mg/kg (ppm) (c)				
2-Methylnaphthalene	0.012 J	0.83 J	38	64
Acenaphthene	0.024	1.7	16	57
Acenaphthylene	0.015 J	1.1 J	66	66
Anthracene	0.1	7.1	220	1,200
Fluorene	0.034	2.4	23	79
Phenanthrene	0.28	19.9	100	480
Naphthalene	0.015 J	1.1 J	99	170
Total LPAH (a)	0.468 J	33.2 J	370	780

Table 1 – Physical, Biological, and Chemical Data for Duwamish Shipyard Sediment Samples

Sample ID:	SS-5	TOC* (c)(d)	SMS Sediment Quality Standards (SQS)	SMS Sediment Cleanup Screening Levels (CSL)
High Molecular Weight PAHs in mg/kg (ppm) (c)				
Benzo(b)Fluoranthene	0.36	25.5	—	—
Benzo(k)Fluoranthene	0.39	27.7	—	—
Benzo(a)Anthracene	0.26	18.4	110	270
Benzo(a)Pyrene	0.27	19.1	99	210
Chrysene	0.42	29.8	110	460
Dibenzo(a,h)Anthracene	0.076	5.4	12	33
Fluoranthene	0.59	41.8	160	1,200
Indeno(1,2,3-c,d)Pyrene	0.22	15.6	34	88
Pyrene	0.51	36.2	1,000	1,400
Benzo(g,h,i)perylene	0.16	11.3	31	78
Total HPAH (b)	3.096	219.5	960	5,300
Chlorinated Hydrocarbons in mg/kg (ppm) (c)				
1,3-Dichlorobenzene	0.019 U	1.3 U	—	—
1,4-Dichlorobenzene	0.019 U	1.3 U	3.1	9
1,2-Dichlorobenzene	0.019 U	1.3 U	2.3	2.3
1,2,4-Trichlorobenzene	0.019 U	1.3 U	0.81	1.8
Hexachlorobenzene	0.019 U	1.3 U	0.38	2.3
Hexachloroethane	0.019 U	1.3 U	—	—
Hexachlorobutadiene	0.019 U	1.3 U	3.9	6.2
Phthalate Esters in mg/kg (ppm) (c)				
Dimethyl phthalate	0.019 J	1.3 J	53	53
Diethyl phthalate	0.019 U	1.3 U	61	110
Di-n-butyl phthalate	0.02	1.4	22	1,700
Butylbenzylphthalate	0.054	3.8	4.9	64
Bis(2-ethylhexyl)phthalate	0.41	29.1	47	78
Di-n-octyl phthalate	0.019 U	1.3 U	58	4,500
Miscellaneous Neutrals in mg/kg (ppm) (c)				
Benzyl alcohol	0.019 U	— U	57	73
Benzoic Acid	0.19 U	— U	650	650
Dibenzofuran	0.025	1.8	15	58
Organonitrogen Compounds in mg/kg (ppm) (c)				
N-nitrosodiphenylamine	0.019 U	1.3 U	11	11
Butyltins in μg/kg-DW (ppb)				
Tributyltin	87.4 J	—	—	—
Dibutyltin	19.5 J	—	—	—
Monobutyltin	3.8 J	—	—	—

Table 2 - Sediment Sampling Field Observations

Sample Number	Date	Time	Water Depth in Feet	Penetration Depth in Centimeters	Comments
SS-1	8/17/93	12:30	27	18	Sheen observed on water when emptying sediment from van Veen. Brown. Collected top 7.5 centimeters.
SS-2	8/17/93	3:20	14.5	15	Black-brown sandy silt. Sheen observed. Collected top 7.5 centimeters.
SS-3	8/17/93	5:00	40	20	Black-brown slightly sandy silt. Sheen - no odor. Some shells. Collected top 5 centimeters. Collected field duplicate (SS-6).
SS-4	8/17/93	10:50	26	20	MS/MSD collected. Shell fragments. No sheen or odor. Worms. Collected top 10 centimeters.
SS-5	8/17/93	1:00	44	8	Brownish black slightly sandy silt. No worms, shells, no sheen or odor. Collected top 5 centimeters.

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Table 3 - Parameters of Concern, Methods, and Limit of Detection Limit Goals

Sheet 1 of 3

Parameter	Method	Limit of Detection
TOTAL METALS	METHOD (SW)	mg/kg Dry Weight
Antimony	ICP (6010)	3.2
Arsenic	GFAA (7061)	0.1
Beryllium	ICP (6010)	0.1
Cadmium	ICP (6010)	4.0
Chromium	ICP (6010)	0.5
Copper	ICP (6010)	0.6
Lead	ICP (6010)	4.2
Mercury	CVAA (7471)	0.01
Nickel	ICP (6010)	1.5
Selenium	GFAA (7061)	0.1
Silver	ICP (6010)	0.7
Thallium	GFA (7061)	0.1
Zinc	ICP (6010)	0.2
LOW MOLECULAR WEIGHT AROMATIC HYDROCARBONS	SW METHOD	μg/kg Dry Weight
Naphthalene	8270	20
2-Methylnaphthalene	8270	20
Acenaphthylene	8270	20
Acenaphthene	8270	20
Fluorene	8270	20
Phenanthrene	8270	20
Anthracene	8270	20

Table 3 - Parameters of Concern, Methods, and Limit of Detection Limit Goals

Parameter	Method	Limit of Detection
HIGH MOLECULAR WEIGHT AROMATIC HYDROCARBONS	SW METHOD	µg/kg Dry Weight
Fluoranthene	8270	20
Pyrene	8270	20
Benzo(a)anthracene	8270	20
Chrysene	8270	20
Benzo(b)fluoranthene	8270	20
Benzo(k)fluoranthene	8270	20
Benzo(a)pyrene	8270	20
Indeno(1,2,3-cd)pyrene	8270	20
Dibenzo(a,h)anthracene	8270	20
CHLORINATED HYDROCARBONS	SW METHOD	µg/kg Dry Weight
1,3-Dichlorobenzene	8270	20
1,4-Dichlorobenzene	8270	20
1,2-Dichlorobenzene	8270	20
1,2,4-Trichlorobenzene	8270	20
Hexachlorobenzene	8270	20
Hexachloroethane	8270	20
Hexachlorobutadiene	8270	20
PHTHALATE ESTERS	SW METHOD	µg/kg Dry Weight
Dimethyl phthalate	8270	20
Diethyl phthalate	8270	20
Di-n-butyl phthalate	8270	20
Butylbenzylphthalate	8270	20
Bis(2-ethylhexyl)phthalate	8270	20
Di-n-octyl phthalate	8270	20

Table 3 - Parameters of Concern, Methods, and Limit of Detection Limit Goals

Sheet 3 of 3

Parameter	Method	Limit of Detection
MISCELLANEOUS NEUTRALS	SW METHOD	µg/kg Dry Weight
Benzyl alcohol	8270	20
Benzoic Acid	8270	200
Dibenzofuran	8270	20
ORGANONITROGEN COMPOUNDS	SW METHOD	µg/kg Dry Weight
N-Nitrosodiphenylamine	8270	20
BUTLYTINS	METHOD	µg/kg Dry Weight
Tributyltin	GC/FPD	20
Dibutyltin	GC/FPD	20
Monobutyltin	GC/FPD	Unknown
CONVENTIONALS	METHOD	Percent Dry Weight
Total Organic Carbon (TOC)	PSEP (5310 B)	0.1

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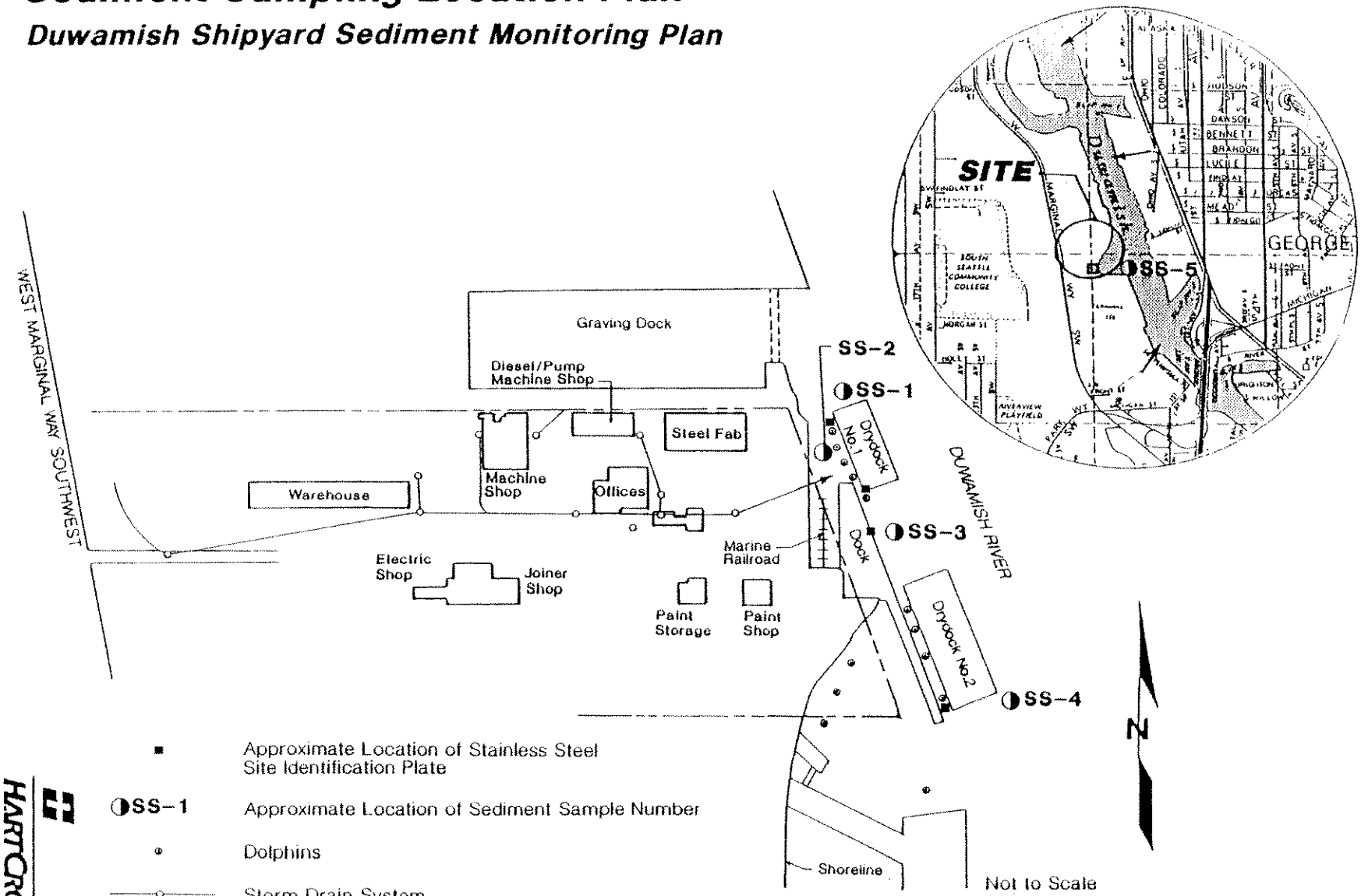
Sediment Sampling Location Plan

Duwamish Shipyard Sediment Monitoring Plan



■	Approximate Location of Stainless Steel Site Identification Plate
◑SS-1	Approximate Location of Sediment Sample Number
●	Dolphins
—○—	Storm Drain System
→	Storm Drain/CSO Outfall
- - -	Duwamish Shipyard Property Line

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J-3763-03 11/93
Figure 1

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Earth and Environmental Technologies

Dry Dock and Graving Dock Discharge Metals Report Duwamish Shipyard Seattle, Washington

Prepared for
Duwamish Shipyard, Inc.

December 24, 1996
J-3763-06

Table 1 - Metals Concentrations in Discharges from Dry Docks and Graving Dock
Duwamish Shipyard, Inc.

Sample Date (1996)	Total Metals Concentrations in ug/L											
	Dry Dock #1 Flood Water Outfall 001 (1)			Dry Dock #3 Flood Water Outfall 002 (1)			Graving Dock Pump-Out Outfall 003 (2)			Graving Dock Flood Water Outfall 004 (3)		
	Copper	Lead	Zinc	Copper	Lead	Zinc	Copper	Lead	Zinc	Copper	Lead	Zinc
Jan	15	1	7	10	0.6	10	44	2.3	23	24	3.5	46
Feb	79	9	96	ns	ns	ns	36	10	56	24	9	34
March	24	1	25	28	1	23	29	2	34	28	2	14
April	9	1.5	16	21	2.5	21	46	1	44	22	0.8	18
May	16	0.72	29	130	4	53	77	1.5	100	46	1.5	41
June	21	0.3	16	61	0.3	33	46	1	49	41	0.4	23
July	50	2	67	69	0.2	37	13	2	39	130	1	35
Aug	5	0.16	21	250	4	93	47	0.81	19	9	0.97	23
Sept	14	1	22	28	1	28	6	0.3	15	9	2	10
Oct	37	1	18	170	3	110	15	2	31	18	0.8	20
Nov	42	2	46	120	2	54	510	69	1400	390	4	78
Average	28.4	1.8	33.0	88.7	1.9	46.2	79.0	8.4	164.5	67.4	2.4	31.1

Notes:

ns No sample collected

(1) Dry dock flood water samples are collected during flooding operations, when there is 3 to 6 feet of water over the dry dock floor.

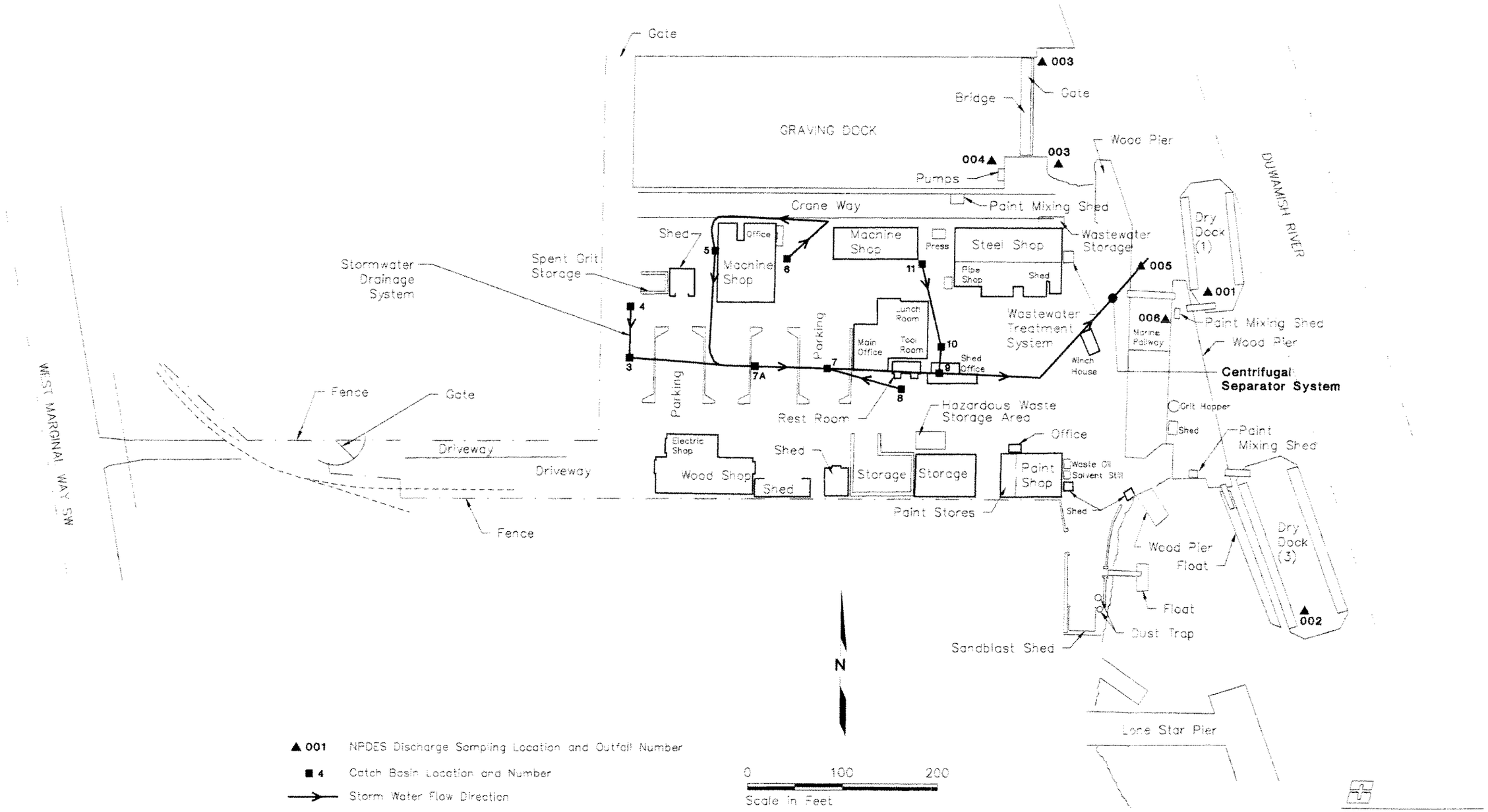
(2) Water leaking into the graving dock is pumped out through two discharge pipes. Pump-out water samples are collected at least once in any month when water is discharged. Grab samples are collected from the two discharge pipes, and composited for metals analysis.

(3) Graving dock flood water samples are collected when the graving dock is flooded prior to opening the tide gate to launch a vessel.

(4) Currently there are no effluent limitations for copper, lead, and zinc in these four outfalls. The Washington State Department of Ecology reserves the right to establish limits following the process outlined in the Fact Sheet which accompanies DSI's NPDES permit. For comparison purposes, the Washington State Marine Water Acute criteria are 2.5 ug/L for copper, 151.1 ug/L for lead, and 84.6 ug/L for zinc.

Site Plan Showing NPDES Discharge Sampling Locations

Duwamish Shipyard, Inc.



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J-3763-06 12/96

Figure 1

HARTCROWSER

Earth and Environmental Technologies

1997 Dry Dock and Graving Dock Discharge Metals Report Duwamish Shipyard Seattle, Washington

Prepared for
Duwamish Shipyard, Inc.

May 15, 1998
J-3763-09

Table 1 - Metals Concentrations in Discharges from Dry Docks and Graving Dock
Duwamish Shipyard, Inc.

Sample Date (1997)	Total Metals Concentrations in ug/L														
	Dry Dock #1 Flood Water Outfall 001 (1)			Dry Dock #3 Flood Water Outfall 002 (1)			Graving Dock Pump-Out Outfall 003 (2)			Graving Dock Flood Water Outfall 004 (3)			Background Sample		
	Copper	Lead	Zinc	Copper	Lead	Zinc	Copper	Lead	Zinc	Copper	Lead	Zinc	Copper	Lead	Zinc
Jan	26	2	17	62	3	17	38	<0.8	21	4	0.9	50	3	0.8	5
Feb	3	<0.3	6	29	<0.3	38	6	<0.3	13	35	<0.6	38	3	<0.3	20
March	10	0.6	12	10	<0.3	18	2	<0.3	5	2	<0.3	7	3	<0.3	5
April	40	3	70	ns	ns	ns	10	<1	52	19	<0.6	18	2	1	3
May	50	<0.6	65	3	<0.3	14	9	<0.6	39	26	<0.6	23	2	<0.3	3
June	38	<1	50	ns	ns	ns	140	<1	390	89	<1	26	22	<1	8
July	7	1	24	15	<1	47	10	<1	28	30	0.9	45	ns	ns	ns
Aug	100	65	86	38	<1	36	11	<1	43	7	<1	17	280	<1	5
Sept	25	2	28	ns	ns	ns	7.3	<0.1	20	220	2	42	6	3	16
Oct	13	<0.1	8	76	3	38	16	<0.1	22	10	<0.1	22	9	<0.1	26
Nov	8	<0.1	21	ns	ns	ns	8	3	38	ns	ns	ns	4	1	8
Dec	13	1	33	4	<1	13	4	<1	18	9	<1	13	19	2	27
1997 Average	27.8	6.3	35.0	29.6	1.0	27.6	21.8	0.6	57.4	41.0	0.6	27.4	32.1	0.8	11.5
1996 Average	28.4	1.8	33.0	88.7	1.9	46.2	79.0	8.4	164.5	67.4	2.4	31.1			

Notes:

ns = No sample collected.

(1) Dry dock flood water samples are collected during flooding operations, when there is 3 to 6 feet of water over the dry dock floor.

(2) Water leaking into the graving dock is pumped out through two discharge pipes. Pump-out water samples are collected at least once in any month when water is discharged. Grab samples are collected from the two discharge pipes, and composited for metals analysis.

(3) Graving dock flood water samples are collected when the graving dock is flooded prior to opening the tide gate to launch a vessel.

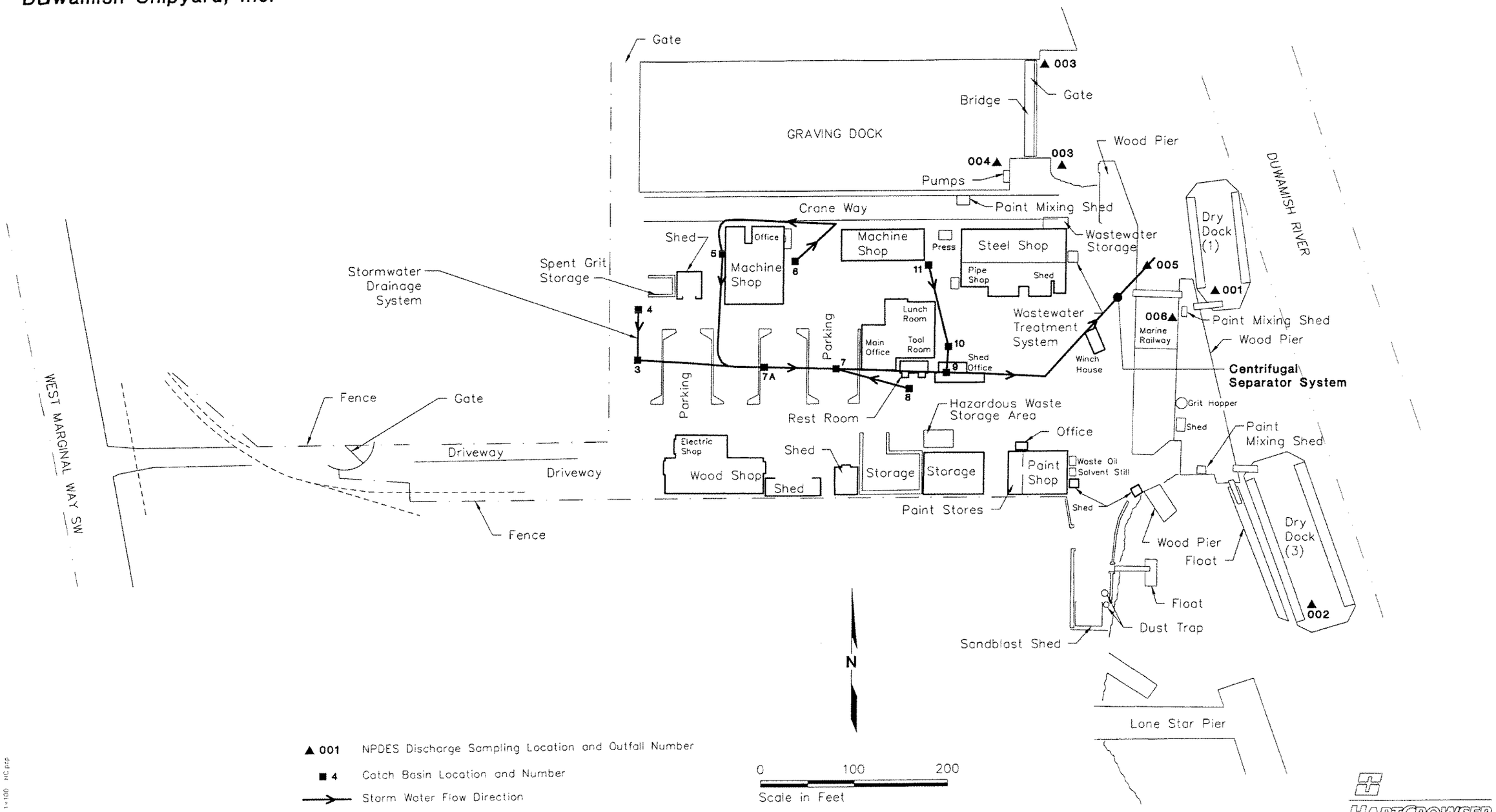
(4) Currently there are no effluent limitations for copper, lead, and zinc in these four outfalls. The Washington State Department of Ecology reserves the right to establish limits following the process outlined in the Fact Sheet which accompanies DSI's NPDES permit. For comparison purposes, the Washington State Marine Water Acute criteria are 2.5 ug/L for copper, 151.1 ug/L for lead, and 84.6 ug/L for zinc.

(5) For purposes of calculating an average value, non-detected constituents are assumed to be present at one-half the detection limit.

376309\Table1.xls

Site Plan Showing NPDES Discharge Sampling Locations

Duwamish Shipyard, Inc.



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J-3763-09 5/98

Figure 1

1429/548568

Release #548568
DUWAMISH SHIPYARD
SEATTLE/KING

SITE 2.3

Independent Remedial Action Report
Underground Storage Tank Closure

Duwamish Shipyard
Seattle, Washington

October 6, 2000

Submitted to:	Department of Ecology, Northwest Region
Prepared for:	Duwamish Shipyard, Inc.
Prepared by:	RK Kuroiwa, PE

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

DUWAMISH SHIPYARD PROJECT
Seattle, Washington
Roy Kuroiwa, P.E.

Analyses of BTEX (EPA 8021B) & Gasoline (NWTPH-Gx) in Soil.

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery(%)
Method Blank	8/31/00	nd	nd	nd	nd	nd	98
B2	8/31/00	nd	nd	nd	nd	nd	103
SS-2	8/31/00	1.6	2.0	nd	0.3	1900	105
B1	8/31/00	--	--	--	--	3200	int
B4	8/31/00	3.5	1.2	0.81	2.1	88	108
B3	8/31/00	0.4	1.4	nd	nd	170	100
SS-1	8/31/00	--	--	--	--	140	108
SS-2(2)	8/31/00	nd	nd	nd	nd	76	111
SS-3	8/31/00	--	--	--	--	3400	int
SS-4	8/31/00	nd	nd	nd	nd	nd	100
SS-5	8/31/00	nd	nd	nd	nd	nd	98
SS-3(2)	8/31/00	0.38	nd	nd	nd	300	115
B1(2)	8/31/00	0.70	nd	0.64	1.3	nd	112
B5	8/31/00	nd	nd	nd	nd	nd	96
B5 Dupl	8/31/00	nd	nd	nd	nd	nd	91
SS-6	8/31/00	nd	nd	nd	nd	nd	106
SS-6 Dupl	8/31/00	nd	nd	nd	nd	nd	86
SS-7	8/31/00	nd	nd	nd	nd	nd	102
SS-8	8/31/00	nd	nd	nd	nd	nd	112
SP-1	8/31/00	nd	nd	nd	nd	nd	96
SP-2	8/31/00	nd	nd	nd	nd	nd	98
SP-3	8/31/00	nd	nd	nd	nd	nd	91
SP-3 Dupl	8/31/00	nd	nd	nd	nd	nd	109
B4(1)	8/31/00	--	--	--	--	800	int
Detection Limits		0.05	0.05	0.05	0.05	10	

" -- " Indicates analysis not performed.
"nd" Indicates no detection at listed detection limits.
"int" Indicates interferences prevent determination.

Analyses Performed by : Michael Dee

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

DUWAMISH SHIPYARD PROJECT
Port Angeles, Washington
KHM Environmental Management, Inc.

Diesel and Oil in Soil by NWTPH-Dx/Dextended.

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)
Method Blank	8/31/00	106	nd	nd
B2	8/31/00	106	330	200
SS-2	8/31/00	106	210	--
B1	8/31/00	int	--	--
B4	8/31/00	102	nd	--
B3	8/31/00	int	460	--
SS-1	8/31/00	108	900	100
SS-2(2)	8/31/00	109	225	nd
SS-3	8/31/00	int	--	--
SS-4	8/31/00	104	39	--
B3(2)	8/31/00	105	4000	--
SS-5	8/31/00	110	nd	--
SS-3(2)	8/31/00	102	130	--
B1(2)	8/31/00	111	560	--
B5	8/31/00	113	nd	--
B5 Dupl	8/31/00	102	nd	--
SS-6	8/31/00	123	nd	--
SS-6 Dupl	8/31/00	90	nd	--
SS-7	8/31/00	108	nd	--
SS-8	8/31/00	100	64	--
SP-1	8/31/00	110	200	--
SP-2	8/31/00	102	96	--
SP-3	8/31/00	104	nd	--
SP-3 Dupl	8/31/00	106	nd	--
B4(1)	8/31/00	int	340	--
Detection Limits			20	40

" -- " Indicates analysis not performed.
"nd" Indicates no detection at listed detection limits.
"int" Indicates interferences prevent determination.

Analyses Performed by : Michael Dee

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

DUWAMISH SHIPYARD PROJECT
Seattle, Washinton
RK Kuroiwa, PE
Client Project #DW

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Lead (Pb) EPA 7420 (mg/kg)
Method Blank	9/1/00	nd
SS-1	9/1/00	25
SS-1 Dup.	9/1/00	27
SS-2 (2)	9/1/00	61
SS-3 (2)	9/1/00	48
SS-5	9/1/00	22
SP-1	9/1/00	41
SP-3	9/1/00	56
B-1 (2)	9/1/00	37
B-2	9/1/00	62
B-3	9/1/00	28
B-5	9/1/00	70
Method Detection Limits		5

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Tim McCall

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

DUWAMISH SHIPYARD PROJECT
Seattle, Washinton
RK Kuroiwa, PE
Client Project #DW

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number: SS-1							
	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Lead	250	269	108	250	253	101	6.13

	Laboratory Control Sample		
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead	250	241	96

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Tim McCall
DATA REVIEWED BY: Sherry Chilcutt

TEG NW SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

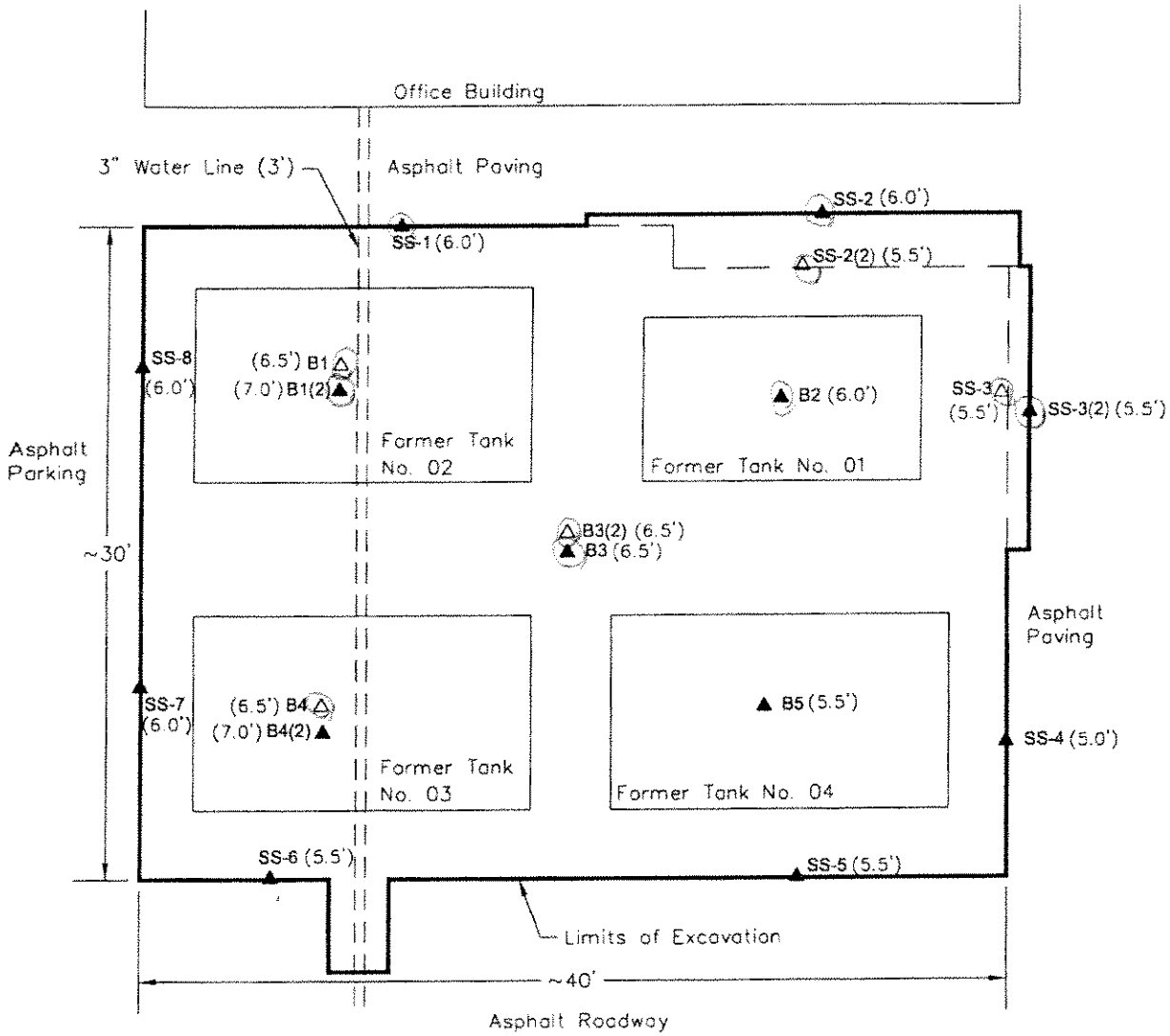
TEG Job Number:	S00901-1
Client:	RK KUROIWA, PE
Client Job Name:	DUWAMISH SHIPYARD
Client Job Number:	NA

Analytical Results

BTEX		MTH BLK	LCS	B-4(1)
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/01/00	09/01/00	09/01/00
Date analyzed	Limits	09/01/00	09/01/00	09/01/00
Moisture, %				15%
BTEX , µg/kg				
Benzene	50	nd	72%	nd
Toluene	50	nd	81%	230
Ethylbenzene	50	nd		3,300
Xylenes	50	nd		13,000
Surrogate recoveries:				
Trifluorotoluene		91%	84%	127%
Bromofluorobenzene		98%	92%	C

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%



Legend

▲ B1(2) (7.0') Confirmation Sample Location and Designation (Sample Depth bgs)

△ B1 (6.5') Overexcavated Sample Location and Designation (Sample Depth bgs)

Limit of Excavation

N

0 Excavation method A

0 8 16

Approximate Scale in Feet

FIGURE 2

Site Sampling Plan

DUWAMISH SHIPYARD
INDEPENDENT REMEDIAL ACTION
SEATTLE, WASHINGTON

RK Kuroiwa, PE September 25, 2000

DATE: 09/21/00 11:23am
DWG NAME: G:\project\Oliesta\Kuroiwa2\duwamish\skdwg01.dwg

Duwamish Shipyard Inc
SIT 3.6.1

RECEIVED
DEC 27 2006
DEPT OF ECOLOGY

PRELIMINARY INVESTIGATION DATA REPORT

DUWAMISH SHIPYARD, INC. (SITE #1429)
SEATTLE, WASHINGTON

Prepared for

Duwamish Shipyard, Inc.
5658 West Marginal Way SW
Seattle, Washington 98106

Prepared by

Anchor Environmental, L.L.C.
1423 Third Avenue, Suite 300
Seattle, Washington 98101

December 2006

Table 2
Summary of Sample Coordinates and Intervals

Station ID	Soil/Catch Basin Sample ID	Sample Interval (feet)		Groundwater Sample ID	Screened Sample Interval (feet)		Northing (feet)	Easting (feet)	Ground Surface Elevation
DSI01	DSI01-SO-A	0	3	DSI01-GW	0	10	204362.38	1267483.65	15.85
	DSI01-SO-B	4	6	-			204362.38	1267483.65	15.85
DSI02	DSI02-SO-A	0	3	DSI02-GW	-	-	204484.72	1267482.28	16.55
	DSI02-SO-B	3	5	-			204484.72	1267482.28	16.55
DSI03	DSI03-SO-A	0	3	DSI03-GW	0	10	204614.54	1267538.20	16.56
	DSI03-SO-B	5	6.5	-			204614.54	1267538.20	16.56
DSI04	DSI04-SO-A	0	3	DSI04-GW	0	10	204577.53	1267677.30	14.95
	DSI04-SO-B	3	5	-			204577.53	1267677.30	14.95
DSI05	DSI05-SO-A	0	3	DSI05-GW	0	10	204414.79	1267664.49	15.38
	DSI05-SO-B	3	5	-			204414.79	1267664.49	15.38
DSI06	DSI06-SO-A	0	3	DSI06-GW	0	10	204403.48	1267832.57	15.38
	DSI06-SO-B	4	6	-			204403.48	1267832.57	15.38
DSI07	DSI07-SO-A	0	3	DSI07-GW	0	10	204440.17	1267843.29	15.30
	DSI07-SO-B	3	5	-			204440.17	1267843.29	15.30
DSI08	DSI08-SO-A	0	3	DSI08-GW	0	10	204599.08	1267815.08	15.08
	DSI08-SO-B	3	5	-			204599.08	1267815.08	15.08
DSI09	DSI09-SO-A	0	3	DSI09-GW	0	10	204599.10	1267972.09	15.10
	DSI09-SO-B	3	5	-			204599.10	1267972.09	15.10
DSI10	DSI10-SO-A	0	3	DSI10-GW	0	10	204456.02	1267928.63	14.96
	DSI10-SO-B	3	5	-			204456.02	1267928.63	14.96
DSI11	DSI11-SO-A	0	3	DSI11-GW	0	10	204358.81	1267970.43	14.74
	DSI11-SO-B	3	5	-			204358.81	1267970.43	14.74
DSI12	DSI12-SO-A	0	3	DSI12-GW	0	10	204269.04	1267970.42	14.38
	DSI12-SO-B	3	5	-			204269.04	1267970.42	14.38
DSI13	DSI13-CB-YYMMDD	-	-	-	-	-	204534.18	1267506.84	15.60
DSI14	DSI14-CB-YYMMDD	-	-	-	-	-	204487.92	1267507.37	15.31
DSI15	DSI15-CB-YYMMDD	-	-	-	-	-	204566.32	1267577.87	14.60
DSI16	DSI16-CB-YYMMDD	-	-	-	-	-	204603.21	1267662.99	14.75
DSI17	DSI17-CB-YYMMDD	-	-	-	-	-	204482.78	1267687.03	14.66
DSI18	DSI18-CB-YYMMDD	-	-	-	-	-	204572.22	1267818.66	14.97
DSI19	DSI19-CB-YYMMDD	-	-	-	-	-	204512.92	1267823.23	14.49
DSI20	DSI20-CB-YYMMDD	-	-	-	-	-	204435.85	1267776.70	14.43
DSI21	DSI21-CB-YYMMDD	-	-	-	-	-	204471.91	1267822.86	15.23
DSI22	DSI22-CB-YYMMDD	0	1.5	-	-	-	204481.19	1268018.19	-
DSI23	DSI23-CB-YYMMDD	-	-	-	-	-	204460.68	1267966.97	14.59
MW-4	-	-	-	MW4-GW-YYMMDD	5	17	204675.26	1267474.81	20.09
MW-5	-	-	-	MW5-GW-YYMMDD	11	16	204585.26	1267494.81	16.49

Northing and Easting coordinates are referenced to the Washington State Coordinate System, North Zone in U.S. Survey feet
Ground surface elevation coordinates are referenced to mean lower low water (MLLW) in feet.

Table 3

Summary of Analytical Results for Soil Samples and Comparison with MTCA Method A Cleanup Levels

Location ID		DSI-01	DSI-01	DSI-02	DSI-02	DSI-03	DSI-03	DSI-04	DSI-04	DSI-05	DSI-05	DSI-06	DSI-06	DSI-07	DSI-07
Sample ID		DSI01-SO-A	DSI01-SO-B	DSI02-SO-A	DSI02-SO-B	DSI03-SO-A	DSI03-SO-B	DSI04-SO-A	DSI04-SO-B	DSI05-SO-A	DSI05-SO-B	DSI06-SO-A	DSI06-SO-B	DSI07-SO-A	DSI07-SO-B
Sample Date		9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/28/2006	9/28/2006
Depth Interval		0-3 ft	4-6 ft	0-3 ft	3-5 ft	0-3 ft	5-6.5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	4-6 ft	0-3 ft	3-5 ft
Sample Matrix	MTCA A	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type	Industrial	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Conventionals (%)															
Total solids	--	88.40	80.20	96.10	78.60	96.10	89.40	74.30	87.60	76.70	88.90	78.40	90.20	74.10	95.50
Total Organic Carbon	--	1.11	0.384	0.305	0.698	0.325	0.781	0.579	0.084	1.07	0.226	1.37	0.308	1.05	0.097
TPH (mg/kg)															
TPH - Gasoline Range	30/100[1]	5.3 U	6.3 U	4.8 U	22	92	110	20	6.4 U	16	8.4	120	13	74	36
TPH - Diesel Range	2000	65	12	15	66	61	380	40	5.5 U	46	5.7 U	2700	2200	16	20
TPH - Motor Oil Range	2000	140	33	170	130	110	310	100	11 U	160	11 U	260	190	29	18
Metals (mg/kg)															
Arsenic	20	48.1 J	3.5	18.9	5.8	7.1	10.4	6.4	1.1	7.1	1.3	7.0	2.2	4.3 J	1.6
Cadmium	2	0.4	0.2	2 U	0.3	1 U	0.5	0.5	0.2 U	0.6	0.2 U	0.3	0.2 U	0.3 U	0.2 U
Chromium	2000	20.4	15.9	5	21.7	61	34	27.2	10.4	21.1	11.0	20.0	15.2	19.6	25.9
Chromium VI	19	0.125 UJ	0.135 UJ	0.116 UJ	0.140 UJ	0.111 UJ	0.126 UJ	0.151 UJ	0.127 UJ	0.142 UJ	0.127 UJ	0.143 UJ	0.120 UJ	0.150 UJ	0.115 UJ
Copper	--	103 J	20.4	55	33.6	539	238	45.9	9.0	122	11.9	37.1	18.2	52.1 J	10.3
Lead	1000	36 J	6	20 U	32	460	94	14	2 U	78	3	14	6	11 J	3
Mercury	2	0.09	0.05 U	0.05	0.20	0.05 U	0.05 U	0.15	0.04 U	0.27	0.04 U	0.14	0.05 U	0.72 J	0.04 U
Silver	--	0.3 U	0.3 U	3 U	0.4 U	2 U	0.8 U	0.4 U	0.3 U	0.4 U	0.3 U	0.4 U	0.3 U	0.4 U	0.3 U
Zinc	--	192	36.8	57	57.7	129	160	85.4	21.9	127	26.4	57.5	33.6	53.2	29.1
Pesticides (µg/kg)															
4,4'-DDD	--	3.3 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U	3.2 U	3.1 U	28	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U
4,4'-DDE	--	3.3 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U	3.2 U	3.1 U	3.1 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U
4,4'-DDT	4000	3.3 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U	3.2 U	3.1 U	3.1 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U
Total DDT (U=1/2)	--	4.95 U	4.8 U	4.8 U	4.95 U	4.8 U	4.8 U	4.8 U	4.65 U	31.1	4.8 U	4.8 U	4.95 U	4.8 U	4.8 U
Aldrin	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
alpha-BHC	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
beta-BHC	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
delta-BHC	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
gamma-BHC (Lindane)	10	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
alpha-Chlordane	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
gamma-Chlordane	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
Dieldrin	--	3.3 U	3.2 U	3.2 U	3.3 U	8.5 U	3.2 U	3.2 U	3.1 U	3.1 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U
Endosulfan I	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
Endosulfan II	--	3.3 U	3.2 U	3.2 U	3.3 U	9.9 U	7.2 U	3.2 U	3.1 U	3.1 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U
Endosulfan Sulfate	--	3.3 U	3.2 U	3.2 U	3.3 U	15 U	3.2 U	3.2 U	3.1 U	3.1 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U
Endrin	--	3.3 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U	3.2 U	3.1 U	3.1 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U
Endrin aldehyde	--	3.3 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U	3.2 U	3.1 U	3.1 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U
Endrin ketone	--	3.3 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U	3.2 U	3.1 U	3.1 U	3.2 U	3.2 U	3.3 U	3.2 U	3.2 U
Heptachlor	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
Heptachlor Epoxide	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
Methoxychlor	--	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	17 U	16 U	16 U
Toxaphene	--	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U	170 U	160 U	160 U
PCBs (µg/kg)															
Aroclor 1016	--	9.8 U	9.8 U	9.7 U	9.7 U	48 U	9.5 U	9.6 U	9.5 U	9.8 U	9.6 U	9.7 U	9.7 U	9.7 U	9.6 U
Aroclor 1221	--	9.8 U	9.8 U	9.7 U	9.7 U	48 U	9.5 U	9.6 U	9.5 U	9.8 U	9.6 U	9.7 U	9.7 U	9.7 U	9.6 U
Aroclor 1232	--	9.8 U	9.8 U	9.7 U	9.7 U	48 U	9.5 U	9.6 U	9.5 U	9.8 U	9.6 U	9.7 U	9.7 U	9.7 U	9.6 U
Aroclor 1242	--	9.8 U	9.8 U	9.7 U	9.7 U	48 U	9.5 U	9.6 U	9.5 U	9.8 U	9.6 U	9.7 U	9.7 U	9.7 U	9.6 U
Aroclor 1248	--	9.8 U	9.8 U	9.7 U	9.7 U	48 U	9.5 U	9.6 U	9.5 U	9.8 U	9.6 U	9.7 U	9.7 U	9.7 U	9.6 U
Aroclor 1254	--	9.8 U	9.8 U	9.7 U	9.7 U	48 U	9.5 U	9.6 U	9.5 U	39 U	9.6 U	9.7 U	9.7 U	9.7 U	9.6 U
Aroclor 1260	--	43 J	10 J	9.7 UJ	9.7 UJ	300 J	94 J	9.6 UJ	9.5 UJ	46 J	9.6 UJ	9.7 UJ	9.7 UJ	9.7 U	9.6 U
Total PCBs (U=1/2)	10000	72.4	39.4	34 U	34 U	444	122	33.6 U	33.2 U	90	33.6 U	34 U	34 U	34 U	33.6 U
SVOCs (µg/kg)															

Table 3

Summary of Analytical Results for Soil Samples and Comparison with MTCA Method A Cleanup Levels

Location ID		DSI-01	DSI-01	DSI-02	DSI-02	DSI-03	DSI-03	DSI-04	DSI-04	DSI-05	DSI-05	DSI-06	DSI-06	DSI-07	DSI-07
Sample ID		DSI01-SO-A	DSI01-SO-B	DSI02-SO-A	DSI02-SO-B	DSI03-SO-A	DSI03-SO-B	DSI04-SO-A	DSI04-SO-B	DSI05-SO-A	DSI05-SO-B	DSI06-SO-A	DSI06-SO-B	DSI07-SO-A	DSI07-SO-B
Sample Date		9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/28/2006	9/28/2006
Depth Interval		0-3 ft	4-6 ft	0-3 ft	3-5 ft	0-3 ft	5-6.5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	4-6 ft	0-3 ft	3-5 ft
Sample Matrix	MTCA A	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type	Industrial	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1,2,3-Trichlorobenzene	--	4.6 U	5.6 U	4.8 U	5.2 U	5.2 U	4.6 U	6.5 U	5.6 U	6.4 UJ	6.4 U	470 U	5.5 U	6.1 U	6.2 U
1,2,4-Trichlorobenzene	--	4.6 U	5.6 U	4.8 U	5.2 U	5.2 U	4.6 U	6.5 U	5.6 U	6.4 UJ	6.4 U	470 U	5.5 U	6.1 U	6.2 U
1,2,4-Trimethylbenzene	--	0.9 U	1.1 U	3.8	100	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	120	1.1 U	3200	51
1,2-Dichlorobenzene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,3,5-Trimethylbenzene	--	0.9 U	1.1 U	1.2	39	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	80	15
1,3-Dichlorobenzene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,4-Dichlorobenzene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
2,4-Dimethylphenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	--	19	5.0 U	4.7	98	4.7 U	40	16	5.0 U	26	4.7 U	33	27 U	22	66
2-Methylphenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	--	5.8	5.0 U	4.7 U	120	5.6	4.7 U	5.0 U	5.0 U	4.9 U	4.7 U	30 U	27 U	5.0 U	9.9
Acenaphthylene	--	9.1	5.0 U	4.7 U	4.8 U	4.7 U	4.7 U	5.0 U	5.0 U	6.4	4.7 U	30 U	48	5.0 U	5.0 U
Anthracene	--	44	8.4	4.7 U	100	5.1	8.5	5.9	5.0 U	12	4.7 U	30 U	27 U	5.5	7.9
Benzo(a)anthracene	--	64	9.9	4.7 U	110	9.8	11	14	5.0 U	28	4.7 U	30	43	14	6.4
Benzo(a)pyrene	2000	56	9.4	5.7	110	10	12	8.4	5.0 U	29	4.7 U	39	99	11	5.9
Benzo(b)fluoranthene	--	120	15	11	72	12	21	16	5.0 U	48	4.7 U	57	91	16	5.9
Benzo(g,h,i)perylene	--	65	9.4	5.7	38	7.0	5.2	5.0 U	5.0 U	13	4.7 U	30 U	54	9.5	5.0 U
Benzo(k)fluoranthene	--	74	17	9.4	90 J	14	15	13	5.0 U	28	4.7 U	54	94	14	5.0 U
Benzoic acid	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butylbenzylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	--	130	22	10	140 J	17	31	25	5.0 U	50	4.7 U	78	120	22	6.9
Dibenzo(a,h)anthracene	--	18	5.0 U	4.7 U	12	4.7 U	4.7 U	5.0 U	5.0 U	4.9 U	4.7 U	30 U	27 U	5.0 U	5.0 U
Dibenzofuran	--	12	5.0 U	4.7 U	56	4.7 U	9.4	5.4	5.0 U	16	4.7 U	30 U	27 U	5.0 U	5.0 U
Diethylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	--	170	36	11	270	26	38	40	5.0 U	96	4.7 U	120	120	45	15
Fluorene	--	11	5.0 U	4.7 U	120	5.1	19	5.0 U	5.0 U	6.9	4.7 U	30 U	27	5.0 U	14
Hexachlorobenzene	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
Hexachlorobutadiene	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
Hexachloroethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	54	8.9	4.7 U	37	5.6	4.7 U	5.4	5.0 U	13	4.7 U	30 U	48	7.0	5.0 U
Naphthalene	5000	24	5.0	5.2	180	6.5	12	13	5.0 U	53	4.7 U	57	27	69	47
n-Nitrosodiphenylamine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	--	68	14	7.6	410 J	27	100	24	5.0 U	91	4.7 U	90	80	25	13
Phenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	--	140	29	10	280	21	37	33	5.0 U	72	4.7 U	160	320	34	21
Total PAHs (U=1/2)	--	1053	194	92	2091	176	319	210	40 U	551	37.6 U	790	1212	282	165
Volatiles (µg/kg)															
1,1,1,2-Tetrachloroethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,1,1-Trichloroethane	2000	13	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,1,2,2-Tetrachloroethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,1,2-Trichloroethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,1-Dichloroethane	--	10	7.9	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,1-Dichloroethene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U

Table 3

Summary of Analytical Results for Soil Samples and Comparison with MTCA Method A Cleanup Levels

Location ID		DSI-01	DSI-01	DSI-02	DSI-02	DSI-03	DSI-03	DSI-04	DSI-04	DSI-05	DSI-05	DSI-06	DSI-06	DSI-07	DSI-07
Sample ID		DSI01-SO-A	DSI01-SO-B	DSI02-SO-A	DSI02-SO-B	DSI03-SO-A	DSI03-SO-B	DSI04-SO-A	DSI04-SO-B	DSI05-SO-A	DSI05-SO-B	DSI06-SO-A	DSI06-SO-B	DSI07-SO-A	DSI07-SO-B
Sample Date		9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/28/2006	9/28/2006
Depth Interval		0-3 ft	4-6 ft	0-3 ft	3-5 ft	0-3 ft	5-6.5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	4-6 ft	0-3 ft	3-5 ft
Sample Matrix	MTCA A	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type	Industrial	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1,1-Dichloropropene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,2,3-Trichloropropane	--	1.8 U	2.2 U	1.9 U	2.1 U	2.1 U	1.8 U	2.6 U	2.2 U	2.5 UJ	2.6 U	190 U	2.2 U	2.4 U	2.5 U
1,2-Dibromo-3-chloropropane	--	4.6 U	5.6 U	4.8 U	5.2 U	5.2 U	4.6 U	6.5 U	5.6 U	6.4 UJ	6.4 U	470 U	5.5 U	6.1 U	6.2 U
1,2-Dibromoethane	5	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,2-Dichloroethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,2-Dichloropropane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
1,3-Dichloropropane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
2,2-Dichloropropane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
2-Butanone	--	**11**	**12**	**5.2**	**18**	**11**	**5.2**	**9.2**	5.6 U	6.4 U	**10**	**780**	**13**	**27**	**16**
2-Chlorotoluene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
2-Hexanone	--	4.6 U	5.6 U	4.8 U	5.2 U	5.2 U	4.6 U	6.5 U	5.6 U	6.4 U	6.4 U	470 U	5.5 U	6.1 U	6.2 U
4-Chlorotoluene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
4-Isopropyltoluene	--	0.9 U	1.1 U	1.0 U	**6.0**	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	**1.3**
4-Methyl-2-pentanone	--	4.6 U	5.6 U	4.8 U	5.2 U	5.2 U	4.6 U	6.5 U	5.6 U	6.4 U	6.4 U	470 U	5.5 U	6.1 U	6.2 U
Acetone	--	**77**	**70**	**83**	**160**	**85**	**41 U**	**66**	29 U	**51 U**	**90**	**6500**	**92**	6.1 U	**110**
Benzene	30	0.9 U	**1.2**	1.0 U	**2.0**	1.0 U	0.9 U	**1.6**	1.1 U	**1.8**	1.3 U	**260**	**1.7**	**50**	**6.0**
Bromobenzene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Bromochloromethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Bromodichloromethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Bromoform	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Bromomethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Carbon disulfide	--	**1.8**	**11**	**1.2**	**4.9**	**1.4**	**1.2**	**8.6**	1.1 U	1.3 U	**17**	93 U	**30**	**3.3**	**10**
Carbon tetrachloride	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Chloroethane	--	**1.5**	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Chloroform	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Chloromethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
cis-1,2-Dichloroethene	--	0.9 U	**2.2**	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
cis-1,3-Dichloropropene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Dibromochloromethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Dibromomethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Dichlorodifluoromethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Dichloromethane	20	2.1 U	2.6 U	1.9 U	2.1 U	2.1 U	1.8 U	2.6 U	2.2 U	2.5 U	2.6 U	190 U	2.5 U	**2.6**	2.5 U
Ethylbenzene	6000	0.9 U	1.1 U	1.0 U	**6.0**	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	**60**	**7.4**
Isopropylbenzene	--	0.9 U	1.1 U	1.0 U	**19**	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	**34**	**5.0**
n-Butylbenzene	--	0.9 U	1.1 U	1.0 U	**4.4**	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	**22**	**20**
n-Propylbenzene	--	0.9 U	1.1 U	1.0 U	**9.9**	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	**120**	**28**
sec-Butylbenzene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	**5.4**
Styrene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
tert-Butylbenzene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 UJ	1.3 U	93 U	1.1 U	1.2 U	1.2 U
tert-Butylmethylether	100	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Tetrachloroethene	50	**3.7**	**1.3**	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Toluene	7000	0.9 U	1.1 U	**1.8**	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	**5.5**	1.2 U
trans-1,2-Dichloroethene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
trans-1,3-Dichloropropene	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Trichloroethene	30	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Trichlorofluoromethane	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
Vinyl chloride	--	0.9 U	1.1 U	1.0 U	1.0 U	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	93 U	1.1 U	1.2 U	1.2 U
m,p-Xylenes	--	0.9 U	1.1 U	**3.5**	**47**	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	**290**	**1.5**	**160**	**13**
o-Xylene	--	0.9 U	1.1 U	**1.8**	**26**	1.0 U	0.9 U	1.3 U	1.1 U	1.3 U	1.3 U	**100**	1.1 U	**5.1**	1.2 U

Table 3

Summary of Analytical Results for Soil Samples and Comparison with MTCA Method A Cleanup Levels

Location ID		DSI-08	DSI-08	DSI-09	DSI-09	DSI-10	DSI-10	DSI-11	DSI-11	DSI-12	DSI-12
Sample ID		DSI08-SO-A	DSI08-SO-B	DSI09-SO-A	DSI09-SO-B	DSI10-SO-A	DSI10-SO-B	DSI11-SO-A	DSI11-SO-B	DSI12-SO-A	DSI12-SO-B
Sample Date		9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006
Depth Interval		0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft
Sample Matrix	MTCA A	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type	Industrial	N	N	N	N	N	N	N	N	N	N
Conventionals (%)											
Total solids	--	70.40	92.90	92.60	89.60	69.70	95.30	76.10	93.70	87.70	86.70
Total Organic Carbon	--	0.661	0.133	0.939	2.35	1.30	0.147	1.34	0.099	1.25	1.12
TPH (mg/kg)											
TPH - Gasoline Range	30/100	8.8 U	6.7 U	14	200	8.3 U	6.0 U	8.0	5.9 U	6.6 U	27
TPH - Diesel Range	2000	5.7 U	5.4 U	42	56	16	5.2 U	120	5.5 U	88	170
TPH - Motor Oil Range	2000	21	11 U	87	110	39	10 U	180	11 U	130	240
Metals (mg/kg)											
Arsenic	20	4.8	0.7	3.7	20.2	6.2	1.9	4.4	1.4	17.1	3.3
Cadmium	2	0.3 U	0.2 U	0.3	8.5	0.3 U	0.2 U	0.3	0.2 U	0.2	0.2 U
Chromium	2000	17.7	9.7	17.4	36	20.2	14.2	17.1	11.4	20.1	15.5
Chromium VI	19	0.160 UJ	0.116 UJ	0.117 UJ	0.124 UJ	0.157 UJ	0.117 UJ	2.05 J	0.120 UJ	0.125 UJ	0.123 UJ
Copper	--	31.0	8.5	65.9	3310	29.0	8.8	49.0	8.4	34.2	18.1
Lead	1000	11	2 U	118	4940	8	11	92	2 U	20	6
Mercury	2	0.10	0.05 U	0.31	0.18	0.11	0.04 U	0.76	0.04 U	0.08	0.05 U
Silver	--	0.4 U	0.3 U	0.3 U	1.2	0.4 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U
Zinc	--	52.3	30.5	115	5840	43.7	25.2	78.3	23.0	77.4	36.8
Pesticides (µg/kg)											
4,4'-DDD	--	3.2 U	3.2 U	3.2 U	3.3 U	3.3 U	3.3 U	3.2 U	3.3 UJ	3.3 U	3.3 U
4,4'-DDE	--	3.2 U	3.2 U	3.2 U	3.3 U	3.3 U	3.3 U	3.2 U	3.3 UJ	3.3 U	3.3 U
4,4'-DDT	4000	3.2 U	3.2 U	3.2 U	3.3 U	3.3 U	3.3 U	3.2 U	3.3 UJ	3.3 U	12 U
Total DDT (U=1/2)	--	4.8 U	4.8 U	4.8 U	4.95 U	4.95 U	4.95 U	4.8 U	4.95 U	4.95 U	9.3 U
Aldrin	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
alpha-BHC	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
beta-BHC	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	4.0 U	3.1 U
delta-BHC	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
gamma-BHC (Lindane)	10	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
alpha-Chlordane	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
gamma-Chlordane	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
Dieldrin	--	3.2 U	3.2 U	3.2 U	3.3 U	3.3 U	3.3 U	3.2 U	3.3 UJ	3.3 U	3.3 U
Endosulfan I	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
Endosulfan II	--	3.2 U	3.2 U	3.2 U	3.3 U	3.3 U	3.3 U	3.2 U	3.3 UJ	3.3 U	3.3 U
Endosulfan Sulfate	--	3.2 U	3.2 U	3.2 U	3.3 U	3.3 U	3.3 U	3.2 U	3.3 UJ	19 U	21 U
Endrin	--	3.2 U	3.2 U	3.2 U	3.3 U	3.3 U	3.3 U	3.2 U	3.3 UJ	14 U	17 U
Endrin aldehyde	--	3.2 U	3.2 U	3.2 U	3.3 U	3.3 U	3.3 U	3.2 U	3.3 UJ	3.3 U	3.3 U
Endrin ketone	--	3.2 U	3.2 U	3.2 U	3.3 U	3.3 U	3.3 U	3.2 U	3.3 UJ	15 U	16 U
Heptachlor	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
Heptachlor Epoxide	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	3.8 U
Methoxychlor	--	16 U	16 U	16 U	16 U	16 U	17 U	16 U	16 UJ	16 U	16 U
Toxaphene	--	160 U	160 U	160 U	160 U	160 U	170 U	160 U	160 UJ	160 U	160 U
PCBs (µg/kg)											
Aroclor 1016	--	9.8 U	9.5 U	9.6 U	9.8 U	9.8 U	9.4 U	9.8 U	9.9 U	29 U	29 U
Aroclor 1221	--	9.8 U	9.5 U	9.6 U	9.8 U	9.8 U	9.4 U	9.8 U	9.9 U	29 U	29 U
Aroclor 1232	--	9.8 U	9.5 U	9.6 U	9.8 U	9.8 U	9.4 U	9.8 U	9.9 U	29 U	29 U
Aroclor 1242	--	9.8 U	9.5 U	9.6 U	9.8 U	9.8 U	9.4 U	9.8 U	9.9 U	29 U	29 U
Aroclor 1248	--	9.8 U	9.5 U	9.6 U	9.8 U	9.8 U	9.4 U	9.8 U	9.9 U	29 U	29 U
Aroclor 1254	--	9.8 U	9.5 U	9.6 U	9.8 U	9.8 U	9.4 U	9.8 U	9.9 U	29 U	29 U
Aroclor 1260	--	9.8 U	9.5 U	9.6 U	9.8 U	9.8 U	9.4 U	35	9.9 U	29 U	29 U
Total PCBs (U=1/2)	10000	34.3 U	33.2 U	33.6 U	34.3 U	34.3 U	32.9 U	64.4	34.6 U	102 U	102 U
SVOCs (µg/kg)											

Table 3

Summary of Analytical Results for Soil Samples and Comparison with MTCA Method A Cleanup Levels

Location ID		DSI-08	DSI-08	DSI-09	DSI-09	DSI-10	DSI-10	DSI-11	DSI-11	DSI-12	DSI-12
Sample ID		DSI08-SO-A	DSI08-SO-B	DSI09-SO-A	DSI09-SO-B	DSI10-SO-A	DSI10-SO-B	DSI11-SO-A	DSI11-SO-B	DSI12-SO-A	DSI12-SO-B
Sample Date		9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006
Depth Interval		0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft
Sample Matrix	MTCA A	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type	Industrial	N	N	N	N	N	N	N	N	N	N
1,2,3-Trichlorobenzene	--	6.4 U	5.7 U	5.2 U	5.0 UJ-	6.0 U	5.1 U	5.6 U	5.3 U	4.9 U	5.4 U
1,2,4-Trichlorobenzene	--	6.4 U	5.7 U	5.2 U	5.0 UJ-	6.0 U	5.1 U	5.6 U	5.3 U	4.9 U	5.4 U
1,2,4-Trimethylbenzene	--	1.3 U	1.2 U	1.0 U	1.4 J-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,2-Dichlorobenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,3,5-Trimethylbenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,3-Dichlorobenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,4-Dichlorobenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
2,4-Dimethylphenol	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	--	5.0	4.9 U	47	34	7.8	5.0 U	19	4.8 U	230	300
2-Methylphenol	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	--	5.0 U	4.9 U	82	30	4.8 U	5.0 U	6.9	4.8 U	37 U	45
Acenaphthylene	--	5.0 U	4.9 U	14	5.4	4.8 U	5.0 U	14	4.8 U	880	1700
Anthracene	--	5.0 U	4.9 U	87	19	11	5.0 U	18	4.8 U	290	450
Benzo(a)anthracene	--	12	4.9 U	160	27	18	5.0 U	54	4.8 U	1800	3600
Benzo(a)pyrene	2000	12	4.9 U	180	23	15	5.0 U	61	4.8 U	3000	7900
Benzo(b)fluoranthene	--	18	4.9 U	240	35	20	5.0 U	73	4.8 U	1700	3400
Benzo(g,h,i)perylene	--	8.4	4.9 U	110	9.9	6.3	5.0 U	37	4.8 U	1300	2900
Benzo(k)fluoranthene	--	13	4.9 U	230	26	18	5.0 U	67	4.8 U	2100	5600
Benzoic acid	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	--	--	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	--	--	--	--	--	--	--	--	--	--	--
Butylbenzylphthalate	--	--	--	--	--	--	--	--	--	--	--
Chrysene	--	22	4.9 U	280	54	23	5.0 U	87	4.8 U	3000	7500
Dibenzo(a,h)anthracene	--	5.0 U	4.9 U	38	5.0 U	4.8 U	5.0 U	8.4	4.8 U	390	900
Dibenzofuran	--	5.0 U	4.9 U	32	18	6.8	5.0 U	7.9	4.8 U	37 U	38 U
Diethylphthalate	--	--	--	--	--	--	--	--	--	--	--
Dimethylphthalate	--	--	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	--	--	--	--	--	--	--	--	--	--	--
Di-n-octylphthalate	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	--	37	4.9 U	480	91	61	5.0 U	120	4.8 U	2500	6000
Fluorene	--	5.0 U	4.9 U	88	35	7.3	5.0 U	7.9	4.8 U	67	53
Hexachlorobenzene	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
Hexachlorobutadiene	--	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U
Hexachloroethane	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	7.4	4.9 U	110	9.4	6.3	5.0 U	35	4.8 U	1200	2700
Naphthalene	5000	5.0 U	4.9 U	74	58	7.3	5.0 U	24	4.8 U	340	470
n-Nitrosodiphenylamine	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	--	26	4.9 U	370	140	27	5.0 U	54	4.8 U	510	640
Phenol	--	--	--	--	--	--	--	--	--	--	--
Pyrene	--	32	4.9 U	400	110	51	5.0 U	120	4.8 U	4000	10000
Total PAHs (U=1/2)	--	203	39.2 U	2943	675	278	40 U	787	38.4 U	23096	53858
Volatiles (µg/kg)											
1,1,1,2-Tetrachloroethane	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,1,1-Trichloroethane	2000	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,1,2,2-Tetrachloroethane	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,1,2-Trichloroethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,1-Dichloroethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,1-Dichloroethene	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U

Table 3
Summary of Analytical Results for Soil Samples and Comparison with MTCA Method A Cleanup Levels

Location ID		DSI-08	DSI-08	DSI-09	DSI-09	DSI-10	DSI-10	DSI-11	DSI-11	DSI-12	DSI-12
Sample ID		DSI08-SO-A	DSI08-SO-B	DSI09-SO-A	DSI09-SO-B	DSI10-SO-A	DSI10-SO-B	DSI11-SO-A	DSI11-SO-B	DSI12-SO-A	DSI12-SO-B
Sample Date		9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006
Depth Interval		0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft
Sample Matrix	MTCA A	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Sample Type	Industrial	N	N	N	N	N	N	N	N	N	N
1,1-Dichloropropene	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,2,3-Trichloropropane	--	2.6 U	2.3 U	2.1 U	2.0 UJ-	2.4 U	2.0 U	2.2 U	2.1 U	2.0 U	2.2 U
1,2-Dibromo-3-chloropropane	--	6.4 U	5.7 U	5.2 U	5.0 UJ-	6.0 U	5.1 U	5.6 U	5.3 U	4.9 U	5.4 U
1,2-Dibromoethane	5	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,2-Dichloroethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,2-Dichloropropane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
1,3-Dichloropropane	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
2,2-Dichloropropane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
2-Butanone	--	**6.6**	5.7 U	**10**	5.0 U	**6.5**	5.1 U	**12**	**9.4**	**5.6**	5.4 U
2-Chlorotoluene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
2-Hexanone	--	6.4 U	5.7 U	5.2 U	5.0 UJ-	6.0 U	5.1 U	5.6 U	5.3 U	4.9 U	5.4 U
4-Chlorotoluene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
4-Isopropyltoluene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
4-Methyl-2-pentanone	--	6.4 U	5.7 U	5.2 U	5.0 U	6.0 U	5.1 U	5.6 U	5.3 U	4.9 U	5.4 U
Acetone	--	**62**	**49**	**100**	**55**	**55**	35 U	**96**	**70**	**57**	**45**
Benzene	30	1.3 U	1.2 U	**1.0**	**1.3**	1.2 U	1.0 U	**2.3**	1.1 U	**1.4**	**3.0**
Bromobenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Bromochloromethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Bromodichloromethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Bromoform	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Bromomethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Carbon disulfide	--	1.3 U	1.2 U	1.0 U	**1.6**	1.2 U	**1.0**	**1.9**	**15**	1.0 U	1.1 U
Carbon tetrachloride	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Chloroethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Chloroform	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Chloromethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
cis-1,2-Dichloroethene	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
cis-1,3-Dichloropropene	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Dibromochloromethane	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Dibromomethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Dichlorodifluoromethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Dichloromethane	20	**2.8**	2.3 U	2.1 U	2.0 U	2.4 U	**2.3**	2.2 U	2.1 U	2.0 U	2.2 U
Ethylbenzene	6000	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Isopropylbenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
n-Butylbenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
n-Propylbenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
sec-Butylbenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Styrene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
tert-Butylbenzene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
tert-Butylmethylether	100	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Tetrachloroethene	50	**3.6**	**1.4**	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Toluene	7000	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	**3.4**
trans-1,2-Dichloroethene	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
trans-1,3-Dichloropropene	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Trichloroethene	30	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Trichlorofluoromethane	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
Vinyl chloride	--	1.3 U	1.2 U	1.0 U	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
m,p-Xylenes	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U
o-Xylene	--	1.3 U	1.2 U	1.0 U	1.0 UJ-	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U

Table 3
Notes

Qualifiers:

N	normal field sample
FD	field duplicate
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U	The analyte was analyzed for, but not detected above the sample reporting limit.
	Denotes criteria exceedance
Bold	Denotes detections

Notes:

--	No numerical criterion of this type for this chemical
MTCA	Model Toxics Control Act (WAC 173-340)
HPAH	High molecular weight polycyclic aromatic hydrocarbon
LPAH	Low molecular weight polycyclic aromatic hydrocarbon
mg/kg	milligrams per kilogram
µg/kg	micrograms per kilogram
(1)	If benzene is present, the cleanup level is 30 mg/kg. If benzene is not present, the cleanup level is 100 mg/kg

Table 4
Summary of Analytical Results for Groundwater Samples and Comparison with MTCA Method A Cleanup Levels

Location ID		DSI-01	DSI-02	DSI-03	DSI-04	DSI-05	DSI-06	DSI-07	DSI-07	DSI-08	DSI-09	DSI-10	DSI-11	DSI-12	MW-4	MW-5
Sample ID		DSI01-GW	DSI02-GW	DSI03-GW	DSI04-GW	DSI05-GW	DSI06-GW	DSI07-GW	DSI57-GW	DSI08-GW	DSI09-GW	DSI10-GW	DSI11-GW	DSI12-GW	MW-4-GW-060929	MW-5-GW-060929
Sample Date		9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/29/2006	9/29/2006
Sample Matrix	MTCA A	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG
Sample Type	Industrial	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
TPH (mg/L)																
TPH - Gasoline Range	800/1000[1]	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2.0	2.2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
TPH - Diesel Range	500	0.25 U	0.25 U	0.93	0.25 U	0.25 U	0.25 U	1.9	1.9	0.25 U	0.25 U	0.25 U	3.2	0.63	0.35	0.25 U
TPH - Motor Oil Range	500	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals-dissolved (µg/L)																
Arsenic	--	68.4	2.4	1.5	2.2	0.6	1.8	3.8	4.2	1.4	1.6	0.8	0.8	5.0	1.0	3.4
Cadmium	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	--	0.5 UJ	0.5 U	2 U	2 U	2 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	1 U	42
Copper	--	0.5 U	0.5 U	0.8	0.7	0.5 U	0.5 U	0.6	1.1	0.7	0.9	0.5 U	0.5 U	0.5 U	0.5 U	14.3
Lead	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Mercury	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Silver	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4
Zinc	--	5	4 U	13	4 U	7	5	6	7	4 U	44	7	8	4 U	4	8
Metals-total (µg/L)																
Arsenic	5	84.4	16.4	9.5	11.2	2	2.3	9.5	7.2	11.8	2.6	2.4	6.7	32.5	1.0	4.9
Cadmium	5	0.3	0.3	0.2	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.3	1.6	0.3	0.2 U	0.2 U
Chromium	50	7	49	38	29	6	2 U	21	14	37	5 U	5	34	20	1 U	54
Copper	--	18.5	86.7	53	55.6	15.2	7.5	39.1	24	70.4	34.4	26.1	49.2	126	0.5 U	29
Lead	15	3	11	8	13	6	2	6	5	12	55	14	10	27	1 U	2
Mercury	2	0.1 U	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.10 U	0.10 U	0.12	0.10 U	0.10 U	0.10 U	0.12	0.10 U	0.10 U
Silver	--	0.2 UJ	0.3	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2	0.2 U	0.2 U	0.2	0.2 U	0.8
Zinc	--	33	137	147	92	25	9	61	42	103	98	19	154	109	4	14
Pesticides (µg/L)																
4,4'-DDD	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
4,4'-DDE	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
4,4'-DDT	0.3	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Total DDT (U=1/2)	--	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Aldrin	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
alpha-BHC	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
beta-BHC	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
delta-BHC	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
gamma-BHC (Lindane)	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.018 U	0.0050 U	0.0050 U
alpha-Chlordane	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
gamma-Chlordane	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Dieldrin	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan I	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Endosulfan II	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan Sulfate	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin aldehyde	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin ketone	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Heptachlor	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Heptachlor Epoxide	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Methoxychlor	--	0.054 U	0.056 U	0.055 U	0.054 U	0.053 U	0.055 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Toxaphene	--	0.54 U	0.56 U	0.55 U	0.54 U	0.53 U	0.55 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

Table 4
Summary of Analytical Results for Groundwater Samples and Comparison with MTCA Method A Cleanup Levels

Location ID		DSI-01	DSI-02	DSI-03	DSI-04	DSI-05	DSI-06	DSI-07	DSI-07	DSI-08	DSI-09	DSI-10	DSI-11	DSI-12	MW-4	MW-5
Sample ID		DSI01-GW	DSI02-GW	DSI03-GW	DSI04-GW	DSI05-GW	DSI06-GW	DSI07-GW	DSI57-GW	DSI08-GW	DSI09-GW	DSI10-GW	DSI11-GW	DSI12-GW	MW-4-GW-060929	MW-5-GW-060929
Sample Date		9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/29/2006	9/29/2006
Sample Matrix	MTCA A	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG
Sample Type	Industrial	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
PCBs (µg/L)																
Aroclor 1016	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ
Aroclor 1221	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.080 U	0.080 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ
Aroclor 1232	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.040 U	0.080 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ
Aroclor 1242	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ
Aroclor 1248	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ
Aroclor 1254	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ
Aroclor 1260	--	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 U	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 U	0.020 UJ
Total PCBs (U=1/2)	0.1	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.11 U	0.13 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
SVOCs (µg/L)																
1,2,3-Trichlorobenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.5 U
1,2,4-Trichlorobenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.5 U
1,2,4-Trimethylbenzene	--	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.2 U	24	26	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,2-Dichlorobenzene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,3,5-Trimethylbenzene	--	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.2 U	10	12	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,3-Dichlorobenzene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,4-Dichlorobenzene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
2-Methylnaphthalene	--	0.10 U	0.07 U	0.11	0.02 U	0.12	0.06 U	32	28	0.06 U	0.08 U	0.06 U	0.07 U	0.47	1.3	0.01 U
Acenaphthene	--	0.07	0.03	0.01	0.01 U	0.06	0.09	0.54	0.53	0.01 J	0.05	0.11	0.22	2.2	2.9	0.01 U
Acenaphthylene	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 J	0.06	0.06	0.01 U	0.01 U	0.01 U	0.02	1.8	0.06	0.01 U
Anthracene	--	0.02	0.01 J	0.02	0.01 U	0.01 J	0.01 J	0.03	0.03	0.01 J	0.02	0.01 U	0.01	2.6	0.14	0.01 U
Benzo(a)anthracene	--	0.01 J	0.01 U	0.03	0.01 U	0.01 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01	0.01 U	0.01 U	3.4	0.01 U	0.01 U
Benzo(a)pyrene	0.1	0.01 U	0.01 U	0.02	0.01 U	0.01 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 J	0.01 U	0.01 U	3.5	0.01 U	0.01 U
Benzo(b)fluoranthene	--	0.01 U	0.01 U	0.02	0.01 U	0.01 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 J	0.01 J	0.01 U	2.0	0.01 U	0.01 U
Benzo(g,h,i)perylene	--	0.01 U	0.01 U	0.01 J	0.01 U	0.01 J	0.01 U	0.01 J	0.01 U	0.01 U	0.01 U	0.01 J	0.01 U	1.9	0.01 U	0.01 U
Benzo(k)fluoranthene	--	0.01 U	0.01 U	0.03	0.01 U	0.01 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 J	0.01 J	0.01 U	2.2	0.01 U	0.01 U
Chrysene	--	0.01	0.01 J	0.06	0.01 U	0.02	0.01 J	0.01 J	0.01 J	0.01 J	0.02	0.02	0.01 J	5.0	0.01 U	0.01 U
Dibenzo(a,h)anthracene	--	0.01 U	0.01 U	0.01 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.65	0.01 U	0.01 U
Dibenzofuran	--	0.03	0.01	0.01	0.01 U	0.01 J	0.01 J	0.14	0.14	0.01 J	0.01 J	0.01 U	0.03	0.44	0.13	0.01 U
Fluoranthene	--	0.05	0.02	0.02	0.01	0.02	0.03	0.02	0.02	0.02	0.04	0.01 J	0.03	8.5	0.13	0.01 J
Fluorene	--	0.06	0.03	0.02	0.01 U	0.01	0.03	0.57	0.54	0.01 J	0.03	0.01 J	0.16	3.3	2.0	0.01 J
Hexachlorobenzene	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Hexachlorobutadiene	--	0.0054 U	0.0056 U	0.0055 U	0.0054 U	0.0053 U	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	--	--
Indeno(1,2,3-cd)pyrene	--	0.01 U	0.01 U	0.01 J	0.01 U	0.01 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	1.5	0.01 U	0.01 U
Naphthalene	160	0.12	0.12	0.13	0.07	0.16	0.15	4.7	4.2	0.08	0.10	0.10	0.20	1.2	8.7	0.01 J
Phenanthrene	--	0.14	0.05	0.06	0.01	0.04	0.04	0.31	0.31	0.03	0.13	0.02	0.04	5.6	0.15	0.02
Pyrene	--	0.04	0.02	0.01	0.01 J	0.02	0.05	0.02	0.02	0.01	0.05	0.01	0.02	11	0.07	0.01 J
Total PAHs (U=1/2)	--	0.55	0.33	0.46	0.16	0.41	0.45	6.3	5.75	0.22	0.5	0.34	0.74	56.4	14.2	0.11
Volatiles (µg/L)																
1,1,1,2-Tetrachloroethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,1,1-Trichloroethane	200	1.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,1,2,2-Tetrachloroethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,1,2-Trichloroethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,1-Dichloroethane	--	0.2	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.6 U
1,1-Dichloroethene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,1-Dichloropropene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,2,3-Trichloropropane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.5 U
1,2-Dibromo-3-chloropropane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.5 U
1,2-Dibromoethane	0.01	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,2-Dichloroethane	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,2-Dichloropropane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
1,3-Dichloropropane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
2,2-Dichloropropane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
2-Butanone	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U
2-Chlorotoluene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
2-Hexanone	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	9.0 U
4-Chlorotoluene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U

Table 4
Summary of Analytical Results for Groundwater Samples and Comparison with MTCA Method A Cleanup Levels

Location ID		DSI-01	DSI-02	DSI-03	DSI-04	DSI-05	DSI-06	DSI-07	DSI-07	DSI-08	DSI-09	DSI-10	DSI-11	DSI-12	MW-4	MW-5
Sample ID		DSI01-GW	DSI02-GW	DSI03-GW	DSI04-GW	DSI05-GW	DSI06-GW	DSI07-GW	DSI57-GW	DSI08-GW	DSI09-GW	DSI10-GW	DSI11-GW	DSI12-GW	MW-4-GW-060929	MW-5-GW-060929
Sample Date		9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/27/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/29/2006	9/29/2006
Sample Matrix	MTCA A	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG
Sample Type	Industrial	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
4-isopropyltoluene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
4-Methyl-2-pentanone	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U
Acetone	--	**5.4**	**8.0**	**6.3**	**3.8**	3.0 U	**3.8**	3.0 U	3.0 U	**5.5**	**4.7**	**4.7**	**6.3**	**6.3**	**4.1**	9.0 U
Benzene	5	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	**0.6**	**180**	**210**	**0.3**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Bromobenzene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Bromochloromethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Bromodichloromethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Bromoform	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Bromomethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Carbon disulfide	--	**0.2**	**0.6**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Carbon tetrachloride	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U	0.2 U	0.2 U	0.6 U
Chloroethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Chloroform	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Chloromethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
cis-1,2-Dichloroethene	--	**0.5**	0.2 U	**0.2**	**0.6**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
cis-1,3-Dichloropropene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Dibromochloromethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Dibromomethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Dichlorodifluoromethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Dichloromethane	5	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.2 U	0.6 U
Ethylbenzene	700	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**10**	**11**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.3**	0.9 U
Isopropylbenzene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**25**	**28**	0.2 U	0.2 U	0.2 U	**0.5**	**0.5**	0.2 U	0.6 U
n-Butylbenzene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**14**	**13**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
n-Propylbenzene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**94**	**110**	0.2 U	0.2 U	0.2 U	**0.5**	**0.5**	0.2 U	0.6 U
sec-Butylbenzene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.2**	**8.5**	0.2 U	0.2 U	0.2 U	**0.2**	**0.2**	0.2 U	0.6 U
Styrene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
tert-Butylbenzene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.5**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
tert-Butylmethylether	20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Tetrachloroethene	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Toluene	1000	**0.5**	**0.7**	**0.6**	**0.5**	**0.4**	**0.4**	**4.4**	**4.6**	**0.4**	**0.4**	**0.7**	**0.5**	**0.4**	0.2 U	0.6 U
trans-1,2-Dichloroethene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
trans-1,3-Dichloropropene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Trichloroethene	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Trichlorofluoromethane	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
Vinyl chloride	0.2	0.2 U	0.2 U	0.2 U	**0.6**	**0.3**	0.2 U	0.2 U	0.2 U	**0.4**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 U
m,p-Xylenes	1000	0.4 U	**0.5**	**0.5**	0.4 U	0.4 U	**0.4**	**6.4**	**7.1**	0.4 U	0.4 U	0.4 U	**0.5**	**0.5**	0.4 U	1.2 U
o-Xylene	--	0.2 U	**0.2**	**0.2**	0.2 U	0.2 U	**0.2**	0.2 U	**0.9**	0.2 U	0.2 U	0.2 U	**0.3**	**0.3**	0.2 U	0.6 U

Qualifiers:

N Normal field sample
FD Field duplicate
J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U The analyte was analyzed for, but not detected above the sample reporting limit
Denotes criteria exceedance
Bold Denotes detections

Notes:

-- No numerical criterion of this type for this chemical
MTCA Model Toxics Control Act (WAC 173-340)
HPAH High molecular weight polycyclic aromatic hydrocarbon
LPAH Low molecular weight polycyclic aromatic hydrocarbon
mg/L milligrams per liter
µg/L micrograms per liter
1 If benzene is present, the cleanup level is 800 mg/L. If benzene is not present, the cleanup level is 1,000 mg/L.

Table 5

Summary of Analytical Results for Selected Soil Samples (Organic Carbon Normalized) and Comparison with Washington Sediment Management Standards

Location ID			DSI-09	DSI-09	DSI-10	DSI-10	DSI-11	DSI-11	DSI-12	DSI-12	DSI-22
Sample ID			DSI09-SO-A	DSI09-SO-B	DSI10-SO-A	DSI10-SO-B	DSI11-SO-A	DSI11-SO-B	DSI12-SO-A	DSI12-SO-B	DSI22-CB-060929
Sample Date			9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/29/2006
Depth Interval			0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	
Sample Matrix	SMS	SMS	SO	SO	SO	SO	SO	SO	SO	SO	SE
Sample Type	SQS	CSL	N	N	N	N	N	N	N	N	N
Conventionals (%)											
Total solids	--	--	92.60	89.60	69.70	95.30	76.10	93.70	87.70	86.70	67.00
Total Organic Carbon	--	--	0.939	2.35	1.30	0.147	1.34	0.099	1.25	1.12	3.28
Metals (mg/kg)											
Arsenic	57	93	3.7	20.2	6.2	1.9	4.4	1.4	17.1	3.3	29.7 J
Cadmium	5.1	6.7	0.3	8.5 * #	0.3 U	0.2 U	0.3	0.2 U	0.2	0.2 U	2
Chromium	260	270	17.4	36	20.2	14.2	17.1	11.4	20.1	15.5	87
Chromium VI			0.117 UJ	0.124 UJ	0.157 UJ	0.117 UJ	2.05 J	0.120 UJ	0.125 UJ	0.123 UJ	--
Copper	390	390	65.9	3310 * #	29.0	8.8	49.0	8.4	34.2	18.1	2450 * #
Lead	450	530	118	4940 * #	8	11	92	2 U	20	6	350 J
Mercury	0.41	0.59	0.31	0.18	0.11	0.04 U	0.76 * #	0.04 U	0.08	0.05 U	1.05 * #
Silver	6.1	6.1	0.3 U	1.2	0.4 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U	2 U
Zinc	410	960	115	5840 * #	43.7	25.2	78.3	23.0	77.4	36.8	2600 * #
PCBs (mg/kg-OC)											
Total PCBs (SMS)	12	65	1.02 U	0.417 U	0.754 U	6.39 U	2.61	10 U	2.32 U	2.59 U	11.9 U
LPAH (mg/kg-OC)											
Naphthalene	99	170	7.88	2.47	0.562	3.4 U	1.79	4.85 U	27.2	42	12.5
Acenaphthylene	66	66	1.49	0.23	0.369 U	3.4 U	1.04	4.85 U	70.4 * #	152 * #	1.8 U
Acenaphthene	16	57	8.73	1.28	0.369 U	3.4 U	0.515	4.85 U	2.96 U	4.02	22.6 J *
Fluorene	23	79	9.37	1.49	0.562	3.4 U	0.59	4.85 U	5.36	4.73	17.7
Phenanthrene	100	480	39.4	5.96	2.08	3.4 U	4.03	4.85 U	40.8	57.1	67.1
Anthracene	220	1200	9.27	0.809	0.846	3.4 U	1.34	4.85 U	23.2	40.2	13.4
2-Methylnaphthalene	38	64	5.01	1.45	0.6	3.4 U	1.42	4.85 U	18.4	26.8	4.88
Total LPAH (SMS)	370	780	76.1	12.2	4.05	3.4 U	9.33	4.85 U	167	300	133
HPAH (mg/kg-OC)											
Fluoranthene	160	1200	51.1	3.87	4.69	3.4 U	8.96	4.85 U	200 *	536 *	97.6
Pyrene	1000	1400	42.6	4.68	3.92	3.4 U	8.96	4.85 U	320	893	79.3 J
Benzo(a)anthracene	110	270	17	1.15	1.38	3.4 U	4.03	4.85 U	144 *	321 * #	14.6
Chrysene	110	460	29.8	2.3	1.77	3.4 U	6.49	4.85 U	240 *	670 * #	39.6
Benzo(a)pyrene	99	210	19.2	0.979	1.15	3.4 U	4.55	4.85 U	240 * #	705 * #	21
Indeno(1,2,3-cd)pyrene	34	88	11.7	0.4	0.485	3.4 U	2.61	4.85 U	96 * #	241 * #	8.54
Dibenzo(a,h)anthracene	12	33	4.05	0.213 U	0.369 U	3.4 U	0.627	4.85 U	31.2 *	80.4 * #	2.44
Benzo(g,h,i)perylene	31	78	11.7	0.421	0.485	3.4 U	2.76	4.85 U	104 * #	259 * #	9.76
Total benzofluoranthenes (SMS)	230	450	50.1	2.6	2.92	3.4 U	10.4	4.85 U	304 *	804 * #	50.9
Total HPAH (SMS)	960	5300	237	16.4	16.8	3.4 U	49.4	4.85 U	1679 *	4509 *	324
Chlorinated Hydrocarbons (mg/kg-OC)											
1,4-Dichlorobenzene	3.1	9	0.106 U	0.0426 UJ-	0.0923 U	0.68 U	0.0821 U	1.11 U	0.08 U	0.0982 U	1.8 U
1,2-Dichlorobenzene	2.3	2.3	0.106 U	0.0426 UJ-	0.0923 U	0.68 U	0.0821 U	1.11 U	0.08 U	0.0982 U	1.8 U
1,2,4-Trichlorobenzene	0.81	1.8	0.554 U	0.213 UJ-	0.462 U	3.47 U	0.418 U	5.35 U	0.392 U	0.482 U	1.8 U
Hexachlorobenzene	0.38	2.3	0.17 U	0.0681 U	0.123 U	1.16 U	0.119 U	1.62 UJ	0.128 U	0.143 U	1.8 U
Phthalates (mg/kg-OC)											
Dimethylphthalate	53	53	NA	NA	NA	NA	NA	NA	NA	NA	1.8 U
Diethylphthalate	61	110	NA	NA	NA	NA	NA	NA	NA	NA	1.8 U
Di-n-butylphthalate	220	1700	NA	NA	NA	NA	NA	NA	NA	NA	5.49
Butylbenzylphthalate	4.9	64	NA	NA	NA	NA	NA	NA	NA	NA	14.3 *
bis(2-Ethylhexyl)phthalate	47	78	NA	NA	NA	NA	NA	NA	NA	NA	488 * #
Di-n-octylphthalate	58	4500	NA	NA	NA	NA	NA	NA	NA	NA	24.4
Misc Extractables (mg/kg-OC)											
Dibenzofuran	15	58	3.41	0.766	0.523	3.4 U	0.59	4.85 U	2.96 U	3.39 U	14.6
Hexachlorobutadiene	3.9	6.2	0.17 U	0.0681 U	0.123 U	1.16 U	0.119 U	1.62 UJ	0.128 U	0.143 U	1.8 U
n-Nitrosodiphenylamine	11	11	NA	NA	NA	NA	NA	NA	NA	NA	3.96 UJ

Table 5

Summary of Analytical Results for Selected Soil Samples (Organic Carbon Normalized) and Comparison with Washington Sediment Management Standards

Location ID			DSI-09	DSI-09	DSI-10	DSI-10	DSI-11	DSI-11	DSI-12	DSI-12	DSI-22
Sample ID			DSI09-SO-A	DSI09-SO-B	DSI10-SO-A	DSI10-SO-B	DSI11-SO-A	DSI11-SO-B	DSI12-SO-A	DSI12-SO-B	DSI22-CB-060929
Sample Date			9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/29/2006
Depth Interval			0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	0-3 ft	3-5 ft	
Sample Matrix	SMS	SMS	SO	SO	SO	SO	SO	SO	SO	SO	SE
Sample Type	SQS	CSL	N	N	N	N	N	N	N	N	N
Phenols (µg/kg)											
Phenol	420	1200	NA	NA	NA	NA	NA	NA	NA	NA	**140 J**
2-Methylphenol	63	63	NA	NA	NA	NA	NA	NA	NA	NA	59 U
4-Methylphenol	670	670	NA	NA	NA	NA	NA	NA	NA	NA	**96**
2,4-Dimethylphenol	29	29	NA	NA	NA	NA	NA	NA	NA	NA	59 U
Pentachlorophenol	360	690	NA	NA	NA	NA	NA	NA	NA	NA	290 UJ
Misc Extractables (µg/kg)											
Benzyl alcohol	57	73	NA	NA	NA	NA	NA	NA	NA	NA	240 U
Benzoic acid	650	650	NA	NA	NA	NA	NA	NA	NA	NA	590 U
Dibenzofuran	--	--	**32**	**18**	**6.8**	5.0 U	**7.9**	4.8 U	37 U	38 U	**480**
Hexachloroethane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	59 U
Hexachlorobutadiene	--	--	1.6 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 UJ	1.6 U	1.6 U	59 U
n-Nitrosodiphenylamine	--	--	NA	NA	NA	NA	NA	NA	NA	NA	130 UJ

Qualifiers:

N normal field sample

FD field duplicate

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

U The analyte was analyzed for, but not detected above the sample reporting limit.

Denotes criteria exceedance

* Exceeds SQS criteria

Exceeds CSL criteria

Bold Denotes detections

Notes:

-- No numerical criterion of this type for this chemical

NA Sample not analyzed for this chemical

HPAH High molecular weight polycyclic aromatic hydrocarbon

LPAH Low molecular weight polycyclic aromatic hydrocarbon

SMS Sediment Management Standards (WAC 173-204)

SQS Sediment Quality Standards (WAC 173-204-320)

CSL Cleanup Screening Level (WAC 173-204-520)

mg/kg milligrams per kilogram

µg/kg micrograms per kilogram

OC organic carbon normalized

Where laboratory analysis indicates a chemical is not detected in a sediment sample, the detection limit will be reported, except as noted. Where chemical criteria in this table represent the sums of individual compounds (e.g., total LPAHs and total HPAHs), isomers (e.g., total benzofluoranthenes), or groups of aroclors/congeners (e.g., total PCBs), and a chemical analysis identifies an undetected value for one or more individual compounds, isomers, or groups of congeners, the SMS require that the sum of the detected values should be used as the sum of the respective compounds or groups of isomers or aroclors/congeners. If all values are undetected, then the highest detection limit should be used as the sum of the respective compounds or groups of isomers or aroclors/congeners.

The listed values represent concentrations in parts per million (ppm) "normalized" on a total organic carbon (TOC) basis. To normalize to TOC, the dry-weight concentration for each parameter is divided by the decimal fraction representing the percent TOC content of the sediment.

The total LPAH criteria will be compared to the sum of the concentrations of the following LPAH compounds: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene. 2-methylnaphthalene is not included in the LPAH definition under the SMS. Inclusion of 2-methylnaphthalene in the LPAH definition under the SMS is being considered. The total LPAH criteria are not the sums of the corresponding criteria listed for the individual LPAH compounds.

The total HPAH criteria will be compared to the sum of the concentrations of the following HPAH compounds: fluoranthene, pyrene, benz[a]-anthracene, chrysene, total benzo-fluoranthenes, benzo[a]pyrene, indeno[1,2,3-cd]pyrene, dibenz[a,h]anthracene, and benzo-[g,h,i]-perylene. The total HPAH criteria are not the sums of the corresponding criteria listed for the individual HPAH compounds.

The total benzofluoranthenes criteria will be compared to the sums of the concentrations of the b, j, and k isomers of benzofluoranthene.

Table 6

Summary of Analytical Results for Selected Groundwater Samples and Comparison with Washington Marine Water Quality Criteria

Location ID	Washington Marine Chronic	Washington Marine Acute	DSI-06	DSI-07	DSI-07	DSI-08	DSI-09	DSI-10	DSI-11	DSI-12
Sample ID			DSI06-GW	DSI07-GW	DSI57-GW	DSI08-GW	DSI09-GW	DSI10-GW	DSI11-GW	DSI12-GW
Sample Date			9/27/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006
Sample Matrix			WG	WG	WG	WG	WG	WG	WG	WG
Sample Type			N	N	FD	N	N	N	N	N
TPH (mg/L)										
TPH - Gasoline Range	--	--	0.25 U	**2.0**	**2.2**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
TPH - Diesel Range	--	--	0.25 U	**1.9**	**1.9**	0.25 U	0.25 U	0.25 U	**3.2**	**0.63**
TPH - Motor Oil Range	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals-dissolved (µg/L)										
Arsenic	36	69	**1.8**	**3.8**	**4.2**	**1.4**	**1.6**	**0.8**	**0.8**	**5.0**
Cadmium	9.3	42	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	--	--	0.5 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U
Copper	3.1	4.8	0.5 U	**0.6**	**1.1**	**0.7**	**0.9**	0.5 U	0.5 U	0.5 U
Lead	8.1	210	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Mercury	0.025	1.8	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Silver	--	1.9	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Zinc	81	90	**5**	**6**	**7**	4 U	**44**	**7**	**8**	4 U
Metals-total (µg/L)										
Arsenic	--	--	**2.3**	**9.5**	**7.2**	**11.8**	**2.6**	**2.4**	**6.7**	**32.5**
Cadmium	--	--	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U	**0.3**	**1.6**	**0.3**
Chromium	--	--	2 U	**21**	**14**	**37**	5 U	**5**	**34**	**20**
Copper	--	--	**7.5**	**39.1**	**24**	**70.4**	**34.4**	**26.1**	**49.2**	**126**
Lead	--	--	**2**	**6**	**5**	**12**	**55**	**14**	**10**	**27**
Mercury	--	--	0.1 U	0.10 U	0.10 U	**0.12**	0.10 U	0.10 U	0.10 U	**0.12**
Silver	--	--	0.2 U	0.2 U	0.2 U	**0.4**	**0.2**	0.2 U	0.2 U	**0.2**
Zinc	--	--	**9**	**61**	**42**	**103**	**98**	**19**	**154**	**109**
Pesticides (µg/L)										
4,4'-DDD	0.001	0.13	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
4,4'-DDE	0.001	0.13	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
4,4'-DDT	0.001	0.13	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Total DDT (U=1/2)	--	--	0.017 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Aldrin	0.0019	0.71	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
alpha-BHC	--	--	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
beta-BHC	--	--	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
delta-BHC	--	--	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
gamma-BHC (Lindane)	--	0.16	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.018 U
alpha-Chlordane	--	--	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
gamma-Chlordane	--	--	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Dieldrin	0.0019	0.71	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan I	--	--	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Endosulfan II	--	--	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan Sulfate	--	--	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin	0.0023	0.037	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin aldehyde	--	--	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin ketone	--	--	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Heptachlor	0.0036	0.053	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Heptachlor Epoxide	--	--	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Methoxychlor	--	--	0.055 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Toxaphene	0.0002	0.21	0.55 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
PCBs (µg/L)										
Aroclor 1016	--	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor 1221	--	--	0.020 U	0.080 U	0.080 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor 1232	--	--	0.020 U	0.040 U	0.080 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor 1242	--	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor 1248	--	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor 1254	--	--	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor 1260	--	--	0.020 UJ	0.020 UJ	0.020 UJ	0.020 U	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ
Total PCBs (U=1/2)	0.03	10	0.07 U	0.11 U	0.13 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
SVOCs (µg/L)										
1,2,3-Trichlorobenzene	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	--	0.2 U	**24**	**26**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichlorobenzene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-Trimethylbenzene	--	--	0.2 U	**10**	**12**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-Dichlorobenzene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-Dichlorobenzene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Methylnaphthalene	--	--	0.06 U	**32**	**28**	0.06 U	0.08 U	0.06 U	0.07 U	**0.47**
Acenaphthene	--	--	**0.09**	**0.54**	**0.53**	**0.01 J**	**0.05**	**0.11**	**0.22**	**2.2**
Acenaphthylene	--	--	**0.01 J**	**0.06**	**0.06**	0.01 U	0.01 U	0.01 U	**0.02**	**1.8**
Anthracene	--	--	**0.01 J**	**0.03**	**0.03**	**0.01 J**	**0.02**	0.01 U	**0.01**	**2.6**
Benzo(a)anthracene	--	--	0.01 U	0.01 U	0.01 U	0.01 U	**0.01**	0.01 U	0.01 U	**3.4**
Benzo(a)pyrene	--	--	0.01 U	0.01 U	0.01 U	0.01 U	**0.01 J**	0.01 U	0.01 U	**3.5**
Benzo(b)fluoranthene	--	--	0.01 U	0.01 U	0.01 U	0.01 U	**0.01 J**	**0.01 J**	0.01 U	**2.0**
Benzo(g,h,i)perylene	--	--	0.01 U	**0.01 J**	0.01 U	0.01 U	0.01 U	**0.01 J**	0.01 U	**1.9**
Benzo(k)fluoranthene	--	--	0.01 U	0.01 U	0.01 U	0.01 U	**0.01 J**	**0.01 J**	0.01 U	**2.2**
Chrysene	--	--	**0.01 J**	**0.01 J**	**0.01 J**	**0.01 J**	**0.02**	**0.02**	**0.01 J**	**5.0**
Dibenzo(a,h)anthracene	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.65**
Dibenzofuran	--	--	**0.01 J**	**0.14**	**0.14**	**0.01 J**	**0.01 J**	0.01 U	**0.03**	**0.44**
Fluoranthene	--	--	**0.03**	**0.02**	**0.02**	**0.02**	**0.04**	**0.01 J**	**0.03**	**8.5**
Fluorene	--	--	**0.03**	**0.57**	**0.54**	**0.01 J**	**0.03**	**0.01 J**	**0.16**	**3.3**
Hexachlorobenzene	--	--	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Hexachlorobutadiene	--	--	0.0055 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Indeno(1,2,3-cd)pyrene	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**1.5**
Naphthalene	--	--	**0.15**	**4.7**	**4.2**	**0.08**	**0.10**	**0.10**	**0.20**	**1.2**
Phenanthrene	--	--	**0.04**	**0.31**	**0.31**	**0.03**	**0.13**	**0.02**	**0.04**	**5.6**
Pyrene	--	--	**0.05**	**0.02**	**0.02**	**0.01**	**0.05**	**0.01**	**0.02**	**11**
Total PAHs (U=1/2)	--	--	**0.45**	**6.3**	**5.75**	**0.22**	**0.5**	**0.34**	**0.74**	**56.4**
Volatiles (µg/L)										
1,1,1,2-Tetrachloroethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-Trichloroethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Table 6
Summary of Analytical Results for Selected Groundwater Samples and Comparison with Washington Marine Water Quality Criteria

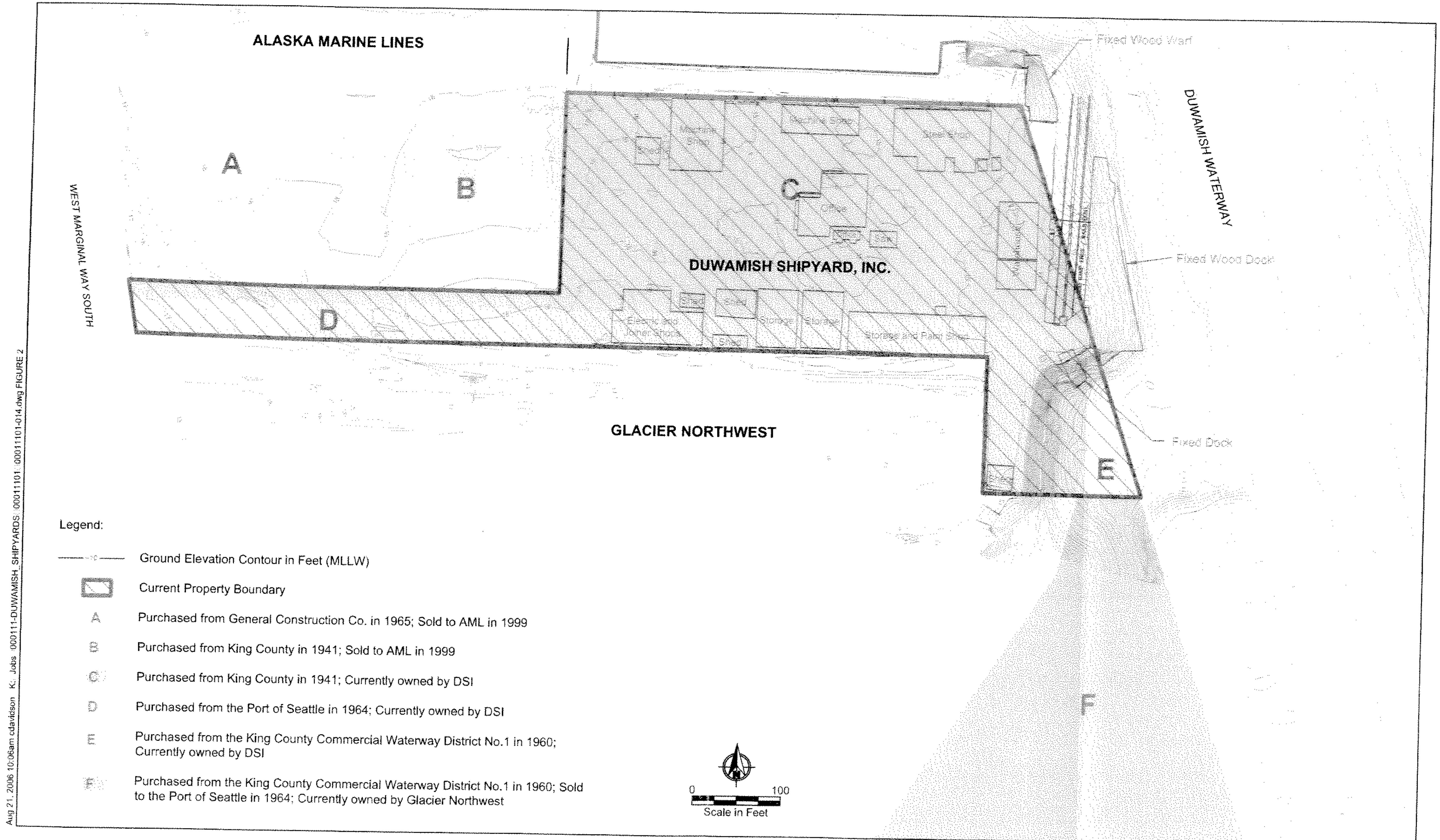
Location ID			DSI-06	DSI-07	DSI-07	DSI-08	DSI-09	DSI-10	DSI-11	DSI-12
Sample ID			DSI06-GW	DSI07-GW	DSI57-GW	DSI08-GW	DSI09-GW	DSI10-GW	DSI11-GW	DSI12-GW
Sample Date	Washington Marine Chronic	Washington Marine Acute	9/27/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006	9/28/2006
Sample Matrix			WG	WG	WG	WG	WG	WG	WG	WG
Sample Type			N	N	FD	N	N	N	N	N
1,1,2-Trichloroethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloropropene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichloropropane	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloroethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-Dichloropropane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2,2-Dichloropropane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Butanone	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Hexanone	--	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
4-Chlorotoluene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Isopropyltoluene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Methyl-2-pentanone	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	--	--	**3.8**	3.0 U	3.0 U	**5.5**	**4.7**	**4.7**	**6.3**	**6.3**
Benzene	--	--	**0.6**	**180**	**210**	**0.3**	0.2 U	0.2 U	0.2 U	0.2 U
Bromobenzene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromochloromethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromoform	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromomethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Carbon disulfide	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U	0.2 U
Carbon tetrachloride	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloroethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloroform	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloromethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,3-Dichloropropene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromochloromethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromomethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dichlorodifluoromethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dichloromethane	--	--	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylbenzene	--	--	0.2 U	**10**	**11**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Isopropylbenzene	--	--	0.2 U	**25**	**28**	0.2 U	0.2 U	0.2 U	**0.5**	**0.5**
n-Butylbenzene	--	--	0.2 U	**14**	**13**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
n-Propylbenzene	--	--	0.2 U	**94**	**110**	0.2 U	0.2 U	0.2 U	**0.5**	**0.5**
sec-Butylbenzene	--	--	0.2 U	**8.2**	**8.5**	0.2 U	0.2 U	0.2 U	**0.2**	**0.2**
Styrene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
tert-Butylbenzene	--	--	0.2 U	0.2 U	**0.5**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
tert-Butylmethylether	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Toluene	--	--	**0.4**	**4.4**	**4.6**	**0.4**	**0.4**	**0.7**	**0.5**	**0.4**
trans-1,2-Dichloroethene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichlorofluoromethane	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl chloride	--	--	0.2 U	0.2 U	0.2 U	**0.4**	0.2 U	0.2 U	0.2 U	0.2 U
m,p-Xylenes	--	--	**0.4**	**6.4**	**7.1**	0.4 U	0.4 U	0.4 U	**0.5**	**0.5**
o-Xylene	--	--	**0.2**	0.2 U	**0.9**	0.2 U	0.2 U	0.2 U	**0.3**	**0.3**

Qualifiers:

- N normal field sample
- FD field duplicate
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- U The analyte was analyzed for, but not detected above the sample reporting limit.
- Denotes criteria exceedance
- * Exceeds chronic criteria
- ? Exceeds acute criteria
- **Bold** Denotes detections

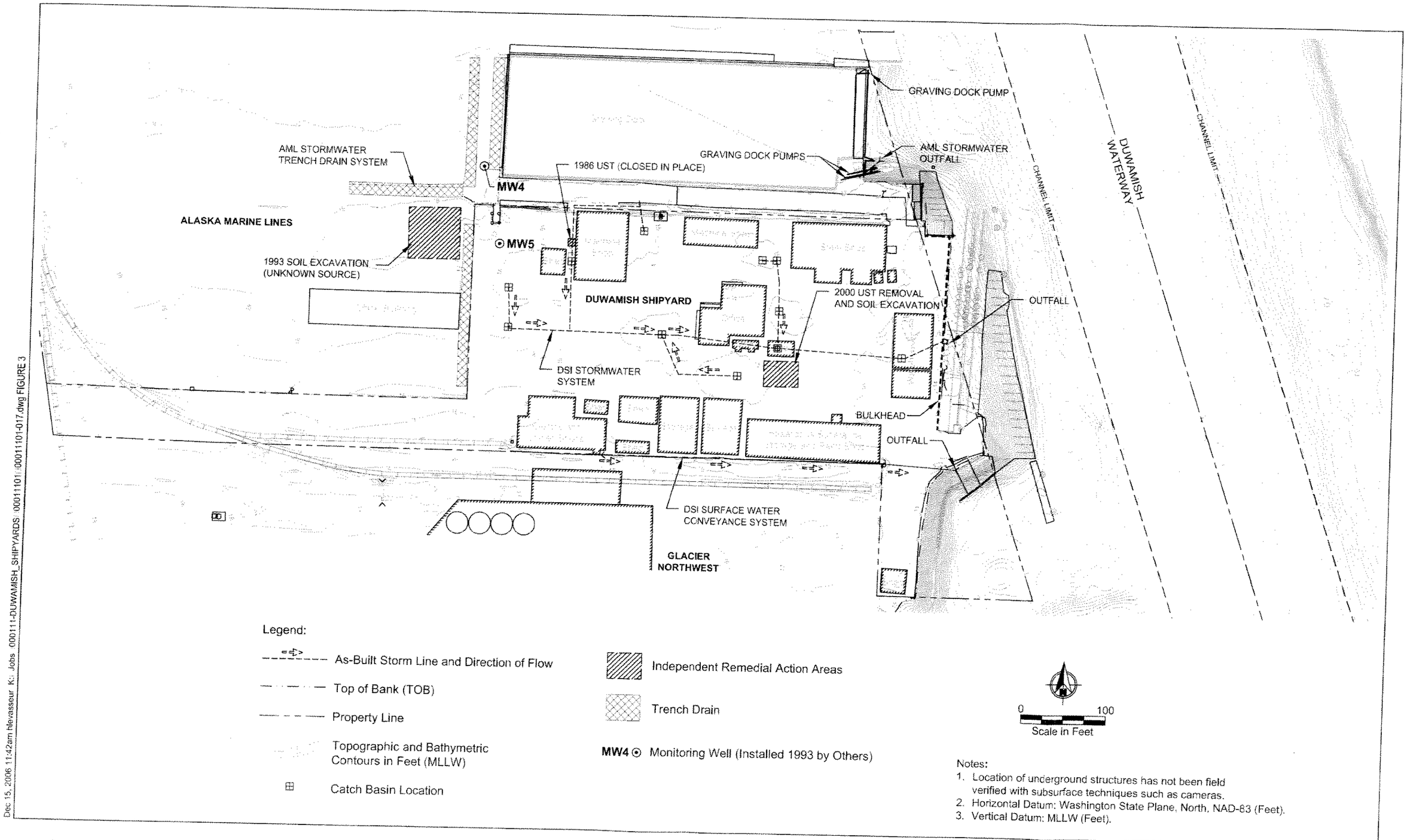
Notes:

- -- No numerical criterion of this type for this chemical
- NA Sample not analyzed for this chemical
- mg/L milligrams per liter
- µg/L micrograms per liter



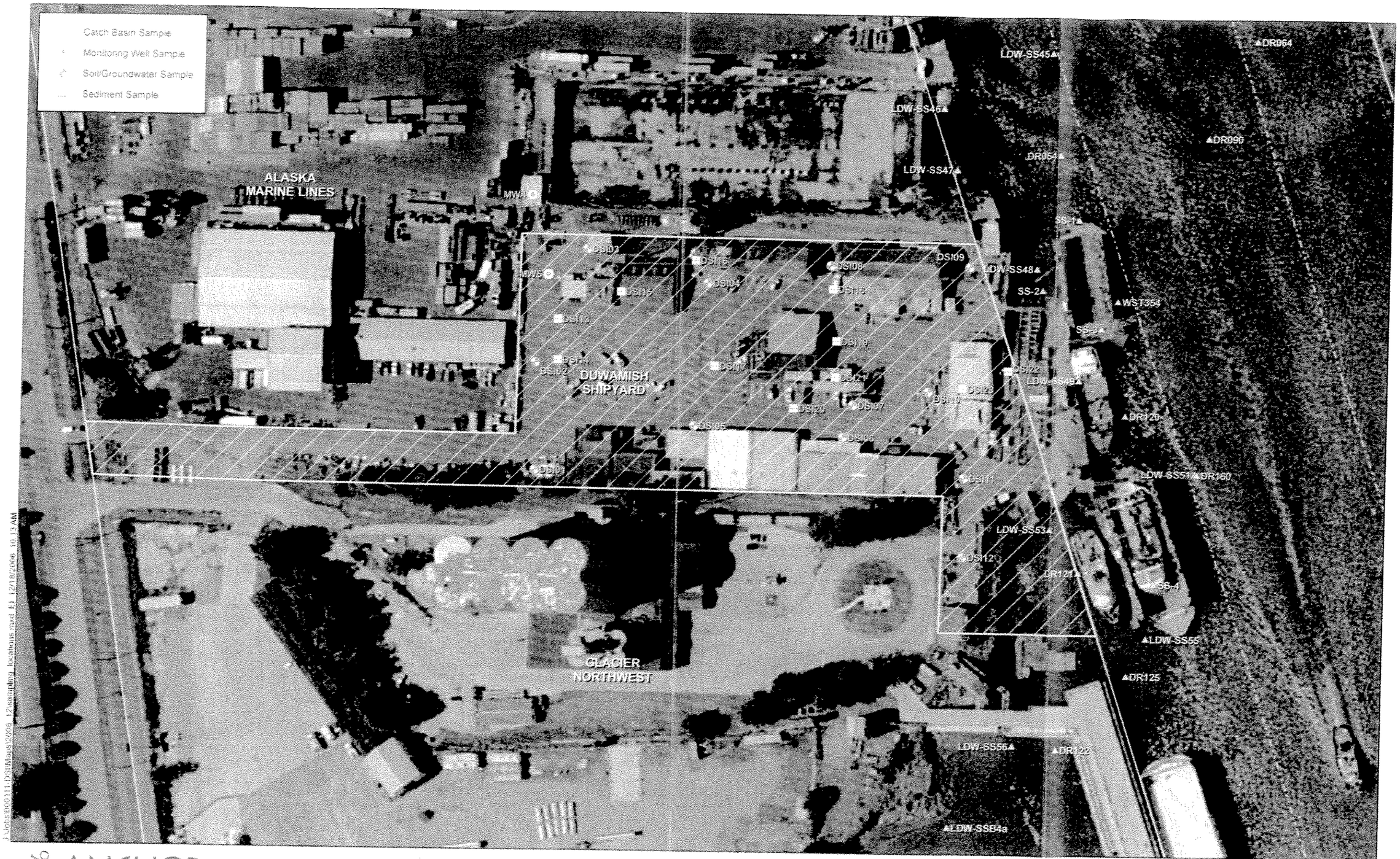
ANCHOR ENVIRONMENTAL, L.L.C.

Figure 2
Historic Property Boundaries
Duwamish Shipyard, Inc., Site #1429



ANCHOR ENVIRONMENTAL, L.L.C.

Figure 3
Existing Stormwater System and Independent Remedial Action Areas
Duwamish Shipyard, Inc., Site #1429



ANCHOR ENVIRONMENTAL L.L.C.

Scale 2 Feet

Figure 4
Preliminary Investigation Sample Location Map
Duwamish Shipyard, Inc., Site #1429

ATTACHMENT B

Kaiser Property Environmental Audit

Port of Seattle

FEB 1 1988
Superfund Branch

May 1985

Parametrix, Inc.
13020 Northup Way, Suite 8
Bellevue, Washington 98005

MICROFILMED

TABLE 1

SUMMARY OF FIELD OBSERVATIONS

BORING & SAMPLE #	DEPTH	DESCRIPTION	BORING OVA	SOIL SAMPLE pH	SAMPLE OVA*
1-1	0.0	Orange Sawdust	>1000	8.2	>1000
1-2	2.5	Grey Sand		8.0	50
1-3	5.0	Grey Sand		7.4	>1000
2-1	2.5	Grey Sand	>1000	7.4	>1000
2-2	5.0	Grey Sand & Silty Fine Sand		7.2	>1000
3-1	2.5	Black Sand	>1000	6.3	10
3-2	5.0	Black Sand		6.1	10
3-3	7.5	Black Sand		6.3	50
3-4A	10.0	Black Sand		6.4	100
3-4B	10.5	Grey Silt		7.0	100
3-5	12.5	Silt & Silty Fine Sand w/organics		7.0	10
3-6	15.0	Black Medium Sand		6.3	14
4-1	2.5	Black Sand	>1000	9.7	0
4-2	5.0	Black Sand, wet		9.0	15
5-1	2.5	Black Sand	>1000	5.3	>1000
5-2	5.0	Black Sand		5.4	>1000
6-1	2.5	Black Sand	100	5.7	60
6-2	5.0	Black Sand		5.6	38
7-1	2.5	Brown Sand	200	5.3	4
7-2	5.0	Grey Sand		5.5	6
8-1	2.5	Black Sand	>1000	8.2	9
8-2	5.0	Black Sand, wet		6.4	6
9-1	2.5	Black Sand	10	6.8	9
9-2	5.0	Black Sand		6.1	160
10-1	2.5	Brown & Grey Sandy Silt & Sand	80	7.8	2
10-2	5.0	Grey Sand		-------	100
11-1	2.5	Grey Sand	250	7.6	>1000
11-2	5.0	Grey Silty Sand		7.5	>1000
12-1	2.5	Black Fine Sand w/ fine carbon	100	5.8	200
12-2	5.0	Black Medium Sand		5.9	50
13-1	1.0	Fine Carbon with Sand	>1000	6.3	-------
13-2	2.5	Black Sand		6.2	>1000
14-1	2.5	Grey Sand	------	7.3	450
14-2	5.0	Grey Sand and Silty Fine Sand		6.8	>1000
15-1	1.0	Sawdust	>1000	5.9	100
15-2	2.5	Black Sand		6.2	40
15-3	5.0	Silty Fine Sand		6.8	200

* OVA reading in auger after sample was taken

TABLE 1 (continued)

SUMMARY OF FIELD OBSERVATIONS

BORING & SAMPLE #	DEPTH	DESCRIPTION	BORING OVA	SOIL SAMPLE pH	SOIL SAMPLE OVA*
16-1	2.5	Brown Sand	------	7.6	350
16-2	5.0	Grey Sand & Grey Silt		-------	>1000
17-1	2.5	Brown Sand	>1000	7.6	230
17-2	5.0	Black Sand & Black Silt w/organics		8.2	>1000
18-1	2.5	Brown Sand	30	7.6	6
18-2	5.0	No Recovery		-------	7
19-1	2.5	Brown Fine Sand	50	7.8	2
19-2	5.0	Grey Sand		7.7	10
20-1	2.5	Grey Fine Sandy Silt w/organics	7	8.1	0
20-2	5.0	Grey Sand		7.3	3
21-1	2.5	Grey Sand	------	7.9	20
21-2	5.0	Grey Sand		7.5	600
22-1	2.5	Grey Silty Sand	9	6.6	9
22-2	5.0	Grey Sand		6.5	0
23-1	2.5	Black Sand w/ carbon	30	6.2	0
24-1	2.5	Black Sand	------	6.4	0
24-2	5.0	Black Sand		6.4	280
25-1	2.5	Dark Grey Silty Sand	60	6.5	2
26-1	2.5	Dark Grey Silty Sand	600	6.6	600
26-2	5.0	Dark Grey Sand		6.3	>1000
27-1	2.5	Grey Sand	0	6.8	0
27-2	5.0	Grey Sand		6.8	0
28-1	2.5	Fine Sandy Silt	>1000	7.0	0
28-2	5.0	Black Sand & Silty Sand		6.7	600
28-3	7.5	Black Sand		7.2	15
28-4	10.0	Brown Silt w/organics		7.9	10
28-5	12.5	Grey Sand		7.2	80
28-6	15.0	Grey Sandy Silt w/organics		8.0	660
29-1	2.5	Orange Sawdust	>1000	8.2	210
29-2	5.0	Yellow Sawdust and Black Sand		7.6	>1000

* OVA reading in auger after sample was taken

TABLE 2

SUMMARY OF COMPOSITE SAMPLES

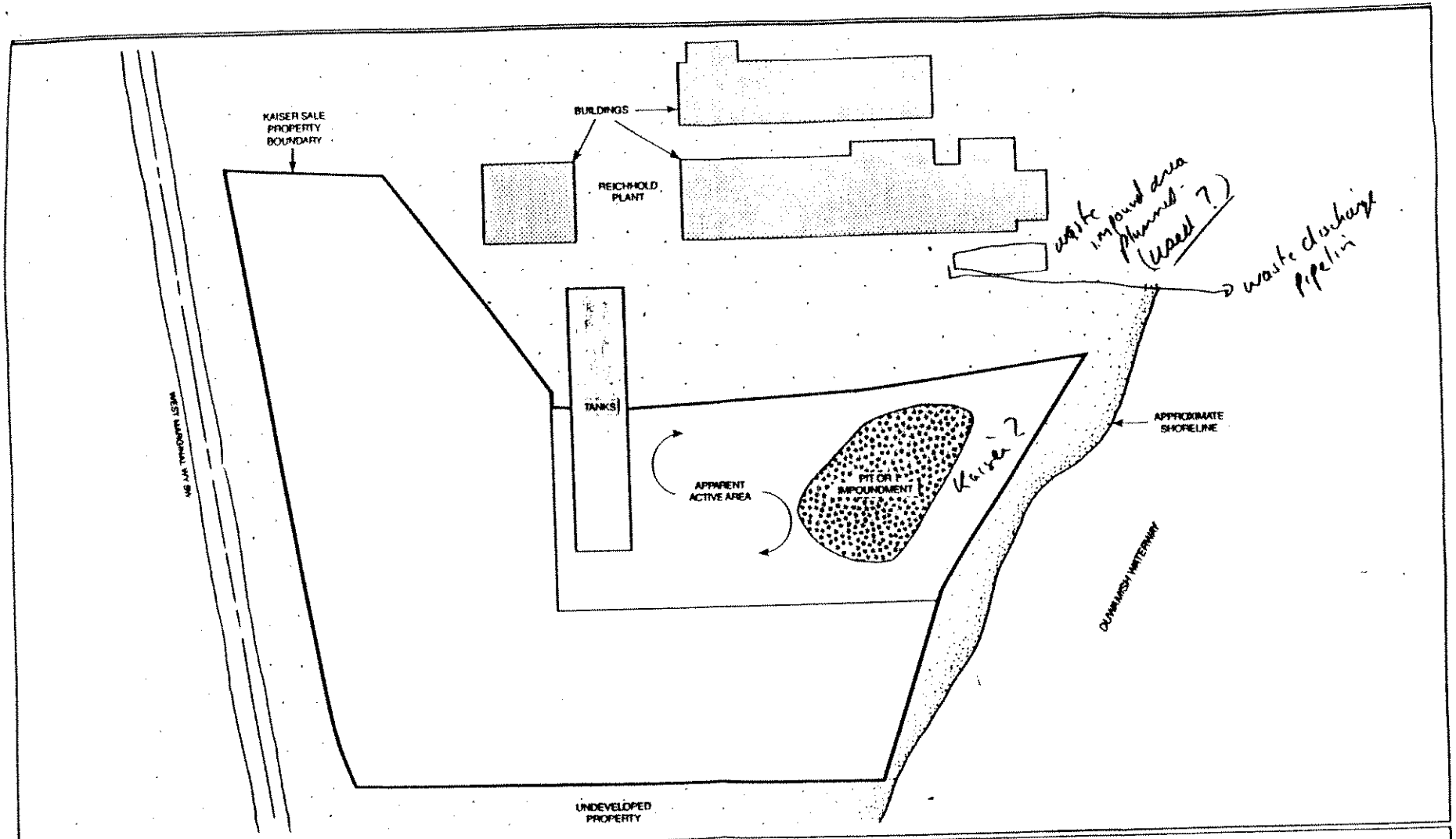
COMPOSITE	BORING & SAMPLE #	DEPTH	BORING OVA	SOIL pH	SAMPLE OVA*
ONE	5-1	2.5	>1000	5.3	>1000
	5-2	5.0		5.4	>1000
	6-1	2.5	100	5.7	60
	6-2	5.0		5.6	38
	7-1	2.5	200	5.3	4
	7-2	5.0		5.5	6
TWO	1-1	0.0	>1000	8.2	>1000
	1-2	2.5		8.0	50
	1-3	5.0		7.4	>1000
	2-1	2.5	>1000	7.4	>1000
	2-2	5.0		7.2	>1000
	13-1	1.0	>1000	6.3	-------
	13-2	2.5		6.2	>1000
THREE	26-1	2.5	600	6.6	600
	26-2	5.0		6.3	>1000
	28-1	2.5	>1000	7.0	0
	28-2	5.0		6.7	600
	29-1	2.5	>1000	8.2	210
	29-2	5.0		7.6	>1000
FOUR	18-1	2.5	30	7.6	6
	19-1	2.5	50	7.8	2
	19-2	5.0		7.7	10
	20-1	2.5	7	8.1	0
	20-2	5.0		7.3	3

* OVA reading in auger after sample withdrawal

TABLE 3

SUMMARY OF DETECTABLE COMPONENTS FROM LABORATORY ANALYSIS

PARAMETER	UNITS	COMPOSITE NUMBER 1	2	3	4
PRIORITY POLLUTANT METALS					
Arsenic	mg/kg	51.0	26.0	46.0	20.0
Chromium	mg/kg	5.8	8.3	7.3	6.4
Copper	mg/kg	17.1	5.9	24.1	4.4
Lead	mg/kg	<2.5	2.5	<2.5	<2.5
Nickel	mg/kg	3.8	3.7	11.4	5.3
Mercury	mg/kg	<0.10	<0.10	<0.10	0.2
Zinc	mg/kg	27.6	18.7	40.3	17.0
Fluoride	mg/kg	116.0	92.0	84.0	98.0
SEMI-VOLATILE ORGANIC COMPOUNDS					
Di-n-butyl Phthalate	mg/kg	0.93	0.33	<0.08	0.43
Bis (2-ethylhexyl) phthalate	mg/kg	0.13	1.3	<0.08	<0.08
VOLATILE ORGANIC COMPOUNDS		None detected			
PESTICIDES & PCB's					
Aldrin	ug/kg	<2.0	<2.0	5.4	<2.0
Alpha - BHC	ug/kg	2.4	<1.5	3.4	<1.5
Dieldrin	ug/kg	<1.0	<1.0	<1.0	2.6

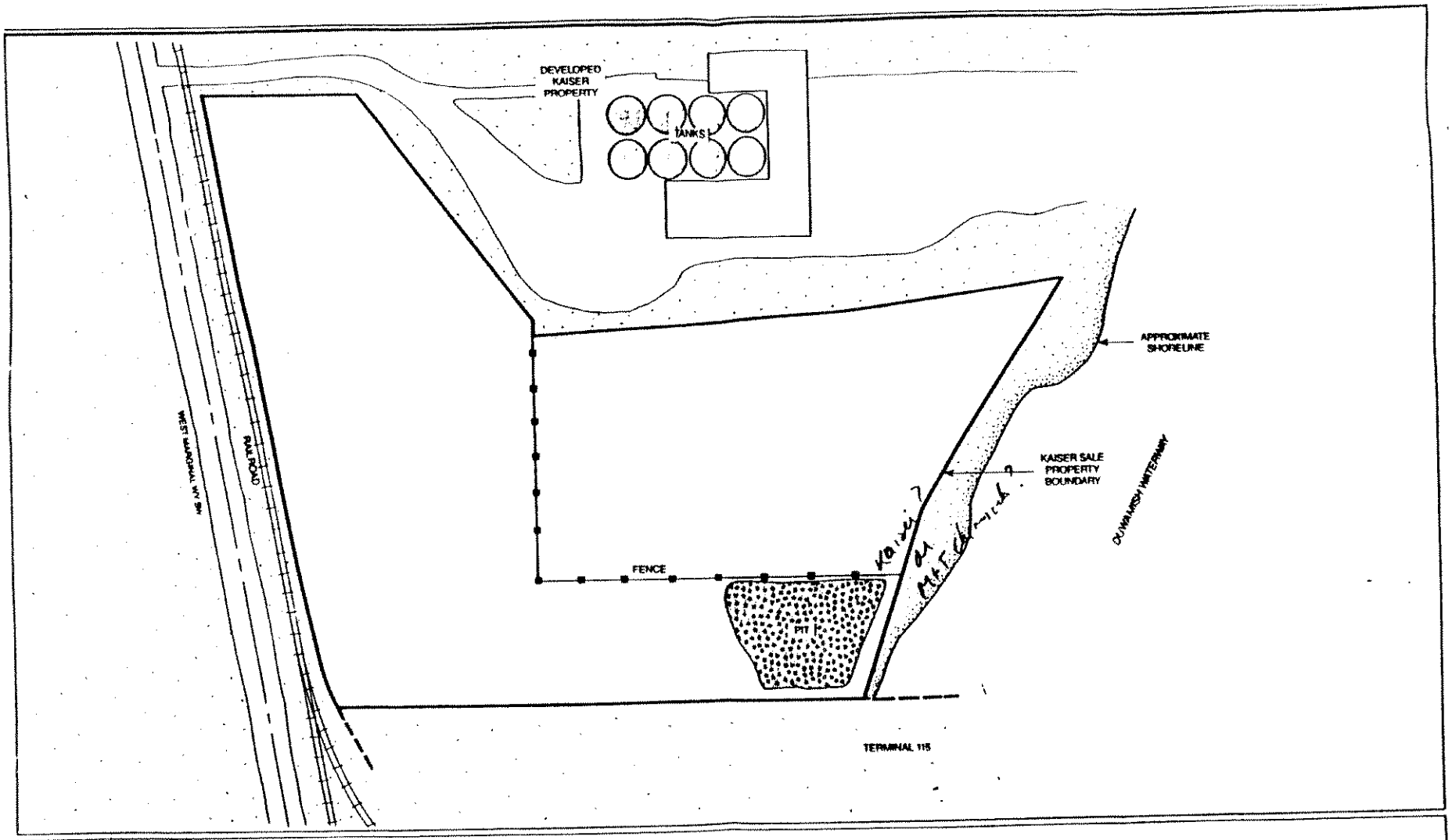


SCALE IN FEET
0 50 100

N

Figure 4.
Development of Kaiser Sale Property in 1958.

Parametrix, Inc.

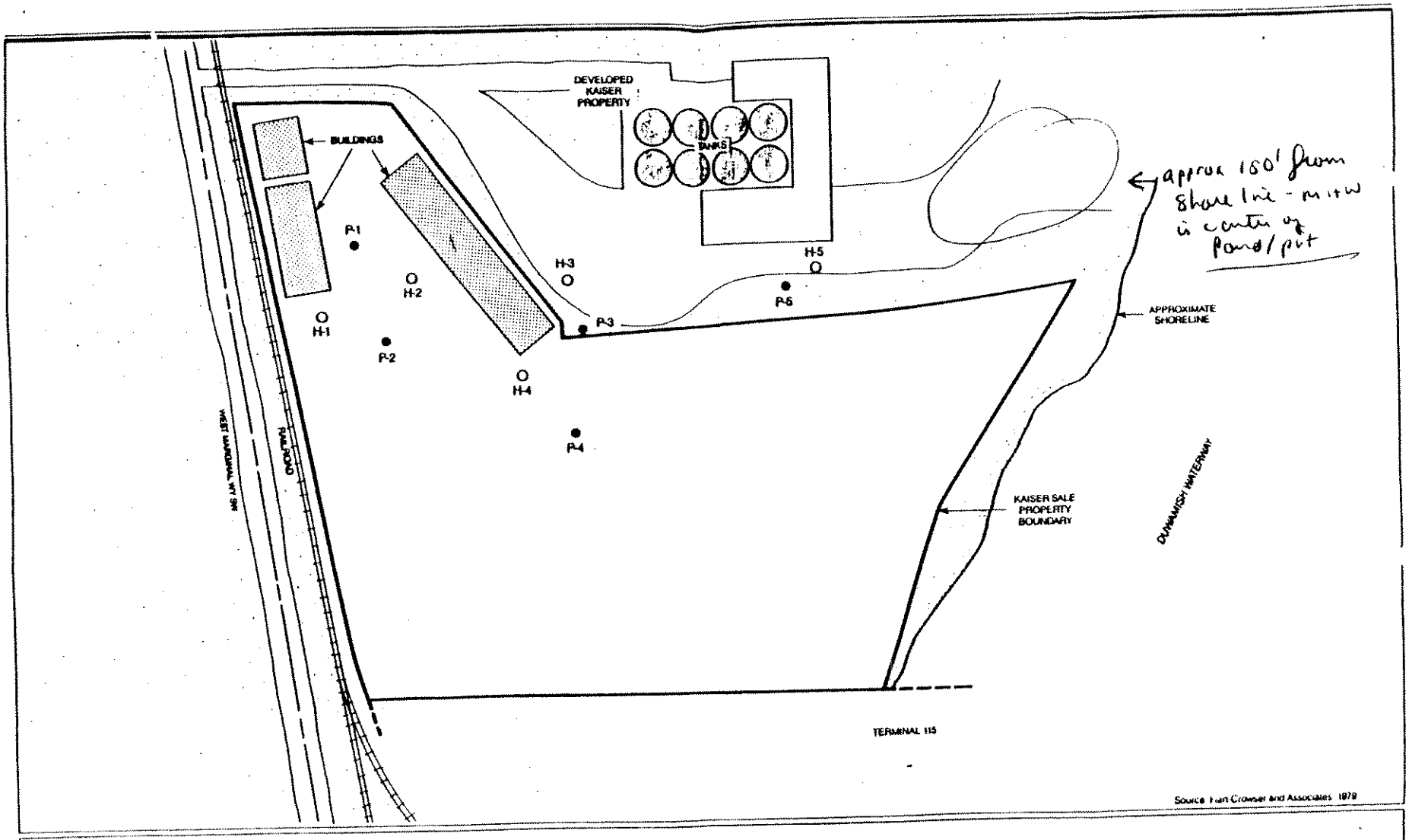


SCALE IN FEET
0 50 100

N

Figure 5.
Development of Kaiser Sale Property in 1974.

Parametrix, Inc.



SCALE IN FEET
0 50 100

N

H-1 ○ Hollow Stem Auger Borings

P-1 ● Probe Number

Figure 6.
Approximate locations of Dutch Cone Penetrometer probes and soil borings conducted by Hart-Crowser and Associates in 1979.

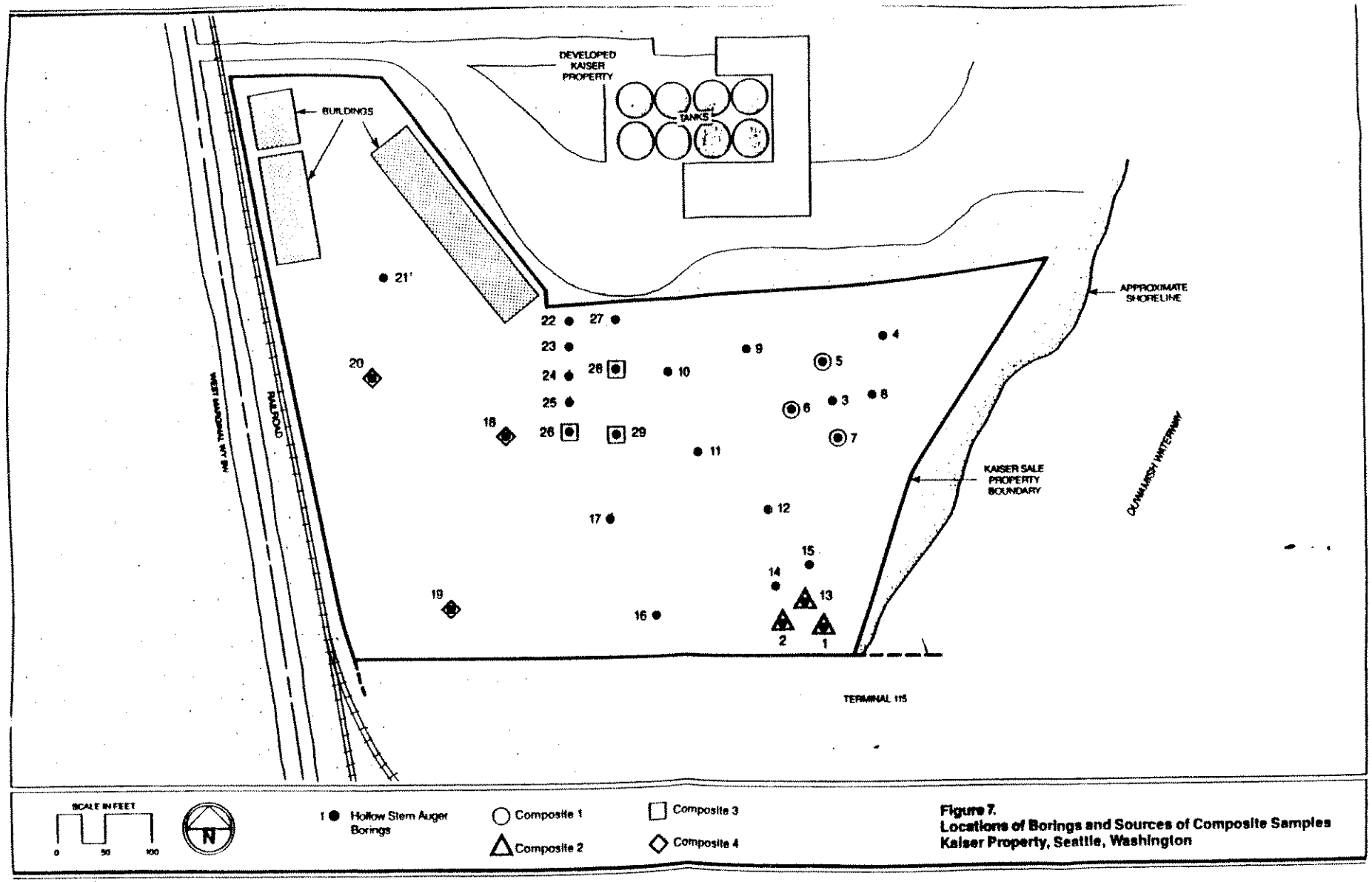


Figure 7.
Locations of Borings and Sources of Composite Samples
Kaiser Property, Seattle, Washington

Parametrix, Inc.

PHASE II SITE ASSESSMENT
5900 WEST MARGINAL WAY
SEATTLE, WASHINGTON

Prepared for

LONE STAR NORTHWEST
5975 East Marginal Way South
Seattle, Washington 98111

Prepared by

PARAMETRIX, INC.
13020 Northup Way
Bellevue, Washington 98005

August 1990

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6/7/91

Table 1. Summary of analytical results from soil sampling.

Parameter	Sample Location													
	B-1	B-1	B-1	B-2	B-2	B-2	B-3	B-3	B-3	TP-1	TP-2	TP-3	TP-4	TP-5
DEPTH (feet)	4	8	C	4	8	C	4	8	C	1.5	1.5	1.5	1.5	1.5
TOX (mg/kg)	<4	<4	NA	<4	16	NA	4	<4	NA	<4	<4	23	<4	<4
TPH (mg/kg)	36	28	NA	51	57	NA	63	67	NA	92	240	10,000	130	180
TOTAL METALS (mg/kg)														
Arsenic	NA	NA	<0.5	NA	NA	79	NA	NA	150	NA	NA	NA	NA	NA
Barium	NA	NA	20	NA	NA	25	NA	NA	20	NA	NA	NA	NA	NA
Cadmium	NA	NA	<1	NA	NA	<1	NA	NA	<1	NA	NA	NA	NA	NA
Chromium	NA	NA	21	NA	NA	24	NA	NA	22	NA	NA	NA	NA	NA
Lead	NA	NA	<10	NA	NA	10	NA	NA	<10	NA	NA	NA	NA	NA
Mercury	NA	NA	0.26	NA	NA	0.22	NA	NA	<0.15	NA	NA	NA	NA	NA
Selenium	NA	NA	<0.5	NA	NA	<0.5	NA	NA	<0.5	NA	NA	NA	NA	NA
Silver	NA	NA	<2	NA	NA	<2	NA	NA	<2	NA	NA	NA	NA	NA
TLCP METALS (mg/l)														
Arsenic	NA	NA	0.006	NA	NA	0.29	NA	NA	0.60	0.24	0.043	0.073	NA	NA
Barium	NA	NA	0.18	NA	NA	0.09	NA	NA	<0.01	0.05	0.12	0.09	NA	NA
Cadmium	NA	NA	<0.01	NA	NA	<0.01	NA	NA	<0.01	<0.01	<0.01	0.01	NA	NA
Chromium	NA	NA	0.04	NA	NA	<0.02	NA	NA	<0.02	<0.02	<0.02	<0.02	NA	NA
Lead	NA	NA	<0.1	NA	NA	<0.01	NA	NA	<0.01	<0.1	<0.1	0.1	NA	NA
Mercury	NA	NA	<0.0005	NA	NA	<0.0005	NA	NA	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA
Selenium	NA	NA	<0.005	NA	NA	<0.005	NA	NA	<0.005	<0.005	<0.005	<0.005	NA	NA
Silver	NA	NA	<0.02	NA	NA	<0.02	NA	NA	<0.02	<0.02	<0.02	<0.02	NA	NA

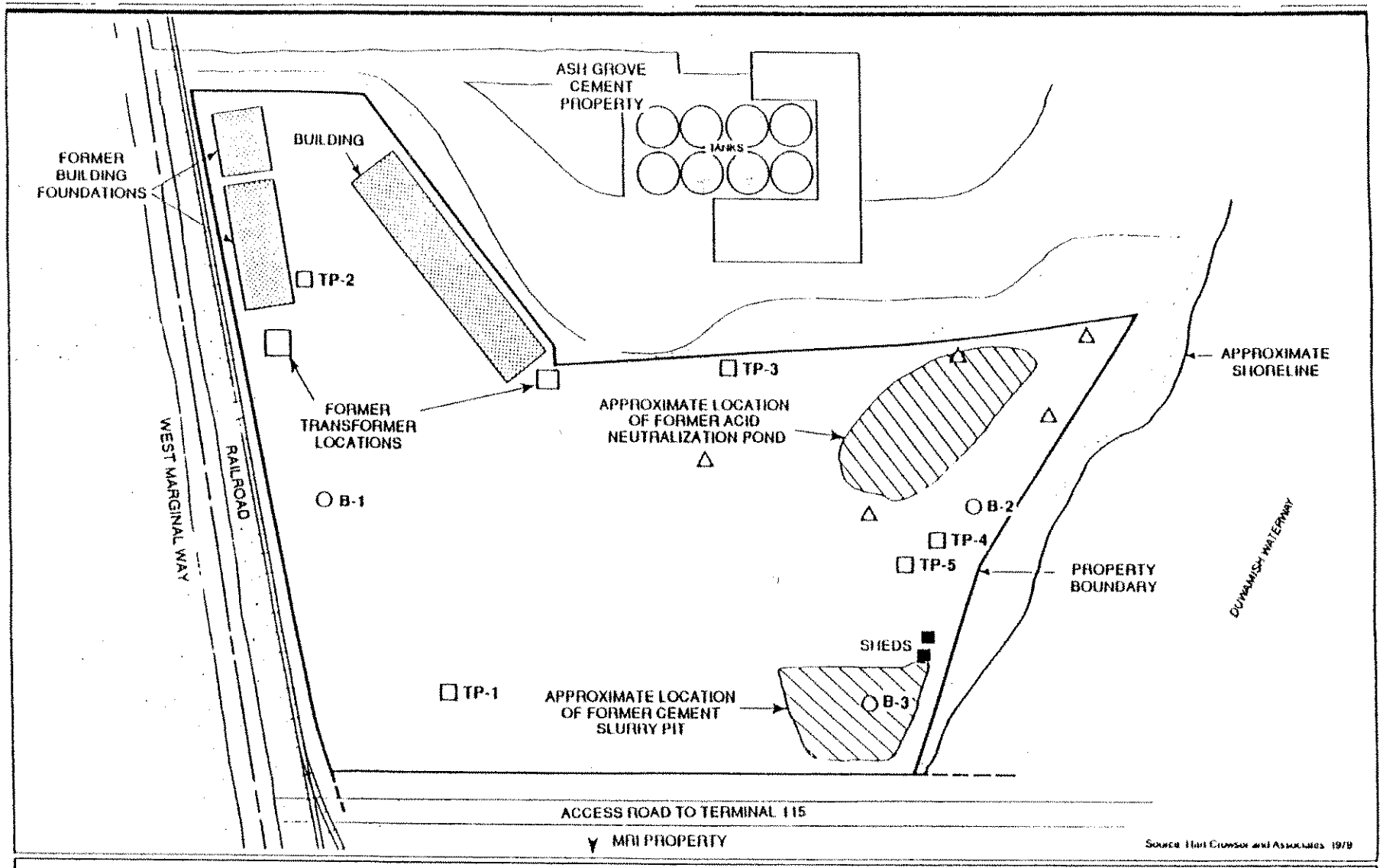
NA - Not analyzed
C - Composite sample

100281

Table 2. Summary of analytical results from groundwater sampling.

Parameter	Well Location and Sampling Date				
	Well B-1 (5/24/90)	Well B-2 (5/24/90)	Well B-3 (5/24/90)	Well B-2[1] (6/07/90)	Well B-3[1] (6/07/90)
PHYSICAL CHARACTERISICS					
pH	6.3	6.10	5.97	6.29	6.02
Specific Conductivity μhos	1,381	798	341	760	376
VOLATILE ORGANICS[2]					
Acetone		25			
Chloroform		3			
SEMI-VOLATILE ORGANICS[3] (μg/L)					
2-Chlorophenol		28			
2,4-Dichlorophenol		51			
Naphthalene		86			
2,4,6-Trichlorophenol		49			
Penthachlorophenol		3,000		2,800	
DISSOLVED METALS (mg/L)					
Antimony	<0.005	<0.005	<0.005		
Arsenic	<0.005	0.15	0.33		
Beryllium	<0.01	<0.01	<0.01		
Cadmium	0.0005	<0.0003	<0.0003		
Chromium	0.09	<0.02	<0.02		
Copper	0.04	<0.02	<0.02		
Lead	0.006	<0.005	0.005		
Mercury	<0.0005	<0.0005	<0.0005		
Nickel	<0.03	<0.03	<0.03		
Silver	0.27	0.43	0.34		
Thallium	<0.005	<0.005	<0.005		
Selenium	<0.005	<0.005	<0.005		
Zinc	0.04	<0.02	<0.02		

[1] Sample only analyzed for penthachlorophenol.
[2] No other volatile organic compounds were detected.
[3] No other semi-volatile organic compounds were detected.



NOT TO SCALE

N

○ Monitoring Well

□ Test Pit

△ Proposed Monitoring Well Location

Figure 1.
Locations of monitoring wells, test pits, and proposed monitoring wells.
5900 West Marginal Way, Seattle, Washington

100277

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
Fax 206.328.5581
Tel 206.324.9530

J-4267

August 3, 1995

Mr. Ching-Pi Wang, P.E.
Toxics Cleanup Program
Washington Department of Ecology
Northwest Regional Office
3190 - 160th Avenue S.E.
Bellevue, Washington 98008-5452

Re: Request for Initial Review of
Proposed RI/FS for Independent Cleanup Reichhold/Lone Star Site
5900 West Marginal Way,
Seattle, Washington

Dear Ching-Pi:

Following up on our phone conversation today, and on behalf of Reichhold Chemicals, Inc., I am providing all available site characterization data and a brief outline of a Remedial Investigation/Feasibility Study (RI/FS) of the Reichhold/Lone Star Site located at 5900 West Marginal Way, Seattle, Washington. Reichhold would like to work with the current property owner (Lone Star Northwest) in the hope of performing an RI/FS and subsequent site remediation as an independent action under the Model Toxics Control Act (MTCA) Cleanup Regulation. To facilitate this process, we are requesting Ecology's initial comments relating to three (3) issues: 1) the appropriate general scope of RI activities to complete the site characterization; 2) prospective remedial action alternatives to be evaluated in the FS and associated RI data collection requirements; and 3) the possible need for alternate administrative procedures (e.g., Agreed Orders) during the study and/or cleanup phases of the project. We understand that Ecology will be providing initial comments on these issues during a meeting at your offices scheduled for August 10, 1995.

Table 2 – Summary of Surface Water Seep Sampling and Analysis Data, 5900 West Marginal Way Site

Parameter	SW-01	SW-02	SW-03
Sampling Time	1:30 p.m.	1:40 p.m.	2:20 p.m.
Approximate Flow in gpm	2	0.5	0.05
Field Temperature in degrees C	20	19	20
Field pH in standard units	6.8	7.2	7.3
Field Salinity in ppt (a)	0.7	6.1	7.5
Total Arsenic in ug/L	85	82	30
Total Silver in ug/L	1 U	1 U	1 U
Total Pentachlorophenol in ug/L	1 U	1 U	1 U
Total WTPH-D in mg/L	0.25 U	0.25 U	No Data

NOTES:

a) Specific conductance in the nearshore Duwamish River during sampling ranged from 9.9 to 11.2 ppt.

U denotes that analyte was not detected at the indicated detection limit.

Samples collected May 15, 1995.

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Table 1 – Summary of Soil and Groundwater Quality Conditions, 5900 West Marginal Way Site, Seattle, WA

	Former Reichhold Impoundment	Former Kaiser Concrete Pit	Former Lone Star Concrete Pit	Kaiser/Lone Star Solid Concrete Handling/Disposal	Surface Water Ditch
Area in acres; (approx.)	0.3	0.3	0.2	0.5+	ca. 0.05
Average Soil Quality (0 to 8 feet)					
pH in std. units	5.3 to 5.7 (6)	6.2 to 8.2 (7)	No Data	No Data	No Data
Arsenic in mg/kg	58 (4)	57 (4)	No Data	No Data	No Data
Silver in mg/kg	2 U (4)	2 U (4)	No Data	No Data	No Data
Pentachlorophenol in mg/kg	0.1 U (3)	0.1 U (3)	No Data	No Data	No Data
Total Petroleum Hydrocarbons in mg/kg	105 (4)	65 (2)	92 (1)	No Data	10,000 (1)
Leachable Metals					
TCLP-Arsenic in ug/L	290 (1)	600 (1)	240 (1)	No Data	73 (1)
TCLP-Silver in ug/L	20 U (1)	20 U (1)	20 U (1)	No Data	20 U (1)
Groundwater Quality					
Monitoring Well	MW-2	MW-3	No Data	MW-1 (?)	No Data
Salinity in ppt (approx.)	0.5 (2)	0.2 (2)	No Data	0.9 (1)	No Data
pH in std. units	6.2 (2)	6.0 (2)	No Data	6.3 (1)	No Data
Arsenic in ug/L	150 (1)	330 (1)	No Data	5 U (1)	No Data
Silver in ug/L	430 (1)	340 (1)	No Data	270 (1)	No Data
Pentachlorophenol in ug/L	2,900 (2)	50 U (1)	No Data	50 U (1)	No Data

Note:
U = Analyte was not detected at the indicated detection limit.
(Number of samples collected within individual operation areas indicated in parentheses)
4267\5900marg.wk1

Hart Crowser
J-4267