TABLE 2-1
CHRONOLOGY OF SITE INVESTIGATION ACTIVITIES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Investigation	Year	Scope of Site Explorations
Geotechnical Investigation (Dames & Moore)	1960	3 upland borings 2 in-water borings
Geotechnical Investigation (Purnell & Associates)	1985	14 upland borings 6 upland test pits
Initial Site Investigation (Ecology)	1992	4 groundwater seep samples 2 surface sediment samples
Expanded Site Investigation (Landau Associates)	1996	3 groundwater seep samples 3 surface sediment samples 4 intertidal test pits
Whatcom Waterway RI (Hart Crowser)	1996	4 surface sediment samples in Site vicinity
Focused RI (Landau Associates)	1998	5 groundwater monitoring wells (chemical data collected from 2 wells) 3 groundwater seep sampling devices
Supplemental RI (Landau Associates)	2002	5 new groundwater monitoring wells (chemical data collected from 5 existing wells and 5 new wells) 3 groundwater seep sampling devices (2 rounds of seep sampling) 6 surface sediment samples 4 borings in vicinity of MW-1 14 test pits in vicinity of MW-1 and northeastern corner of Site Video survey of stormwater conveyance Diver subtidal refuse survey
Phase II Environmental Assessment (Aspect Consulting)	2004	6 soil borings (13 soil samples with chemical analysis) 2 new groundwater monitoring wells (chemical data collected from the new wells)
R.G. Haley RI (GeoEngineers)	2004-2005	Installed 2 new nested wells (one shallow and one deep) (chemical data collected for 5 quarters from the nested wells and 2 existing wells)
Sediment Investigation (Ecology/Hart Crowser)	2008	Survey of intertidal and subtidal refuse and wood debris 138 locations photographed using sediment profile imaging techniques and plan view photography Sediment core samples collected at 62 of the locations (no chemical testing)
Boulevard Park Sediment Investigation (City of Bellingham/Hart Crowser)	2008	1 Surface sediment sample and 6 core samples collected in the Site vicinity
2012 Additional Groundwater Investigation (Landau Associates)	2012	Installed 12 new nested wells (one shallow and one deep; 6 locations) (chemical data collected during 2 events in 2012)
R.G. Haley Supplemental RI (GeoEngineers)	2012	3 soil borings (8 soil samples with chemical analysis) 3 new groundwater monitoring wells (chemical data collected from the new wells in 2012)

TABLE 2-2
MONITORING WELL AND SEEP COLLECTION DEVICE
GROUND SURFACE AND REFERENCE ELEVATIONS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Location	Northing (a)	Easting (a)	Elevation on Top of PVC Well Casing (b)	Elevation of Ground Surface (b)	Elevation on Top of PVC Well Casing (c)	Elevation of Ground Surface (c)
MW-1	638,746	1,239,936	15.32	15.9	14.15	14.69
MW-2	638,788	1,239,437	16.64	13.4	-	-
MW-3	638,757	1,239,466	16.11	14.2	-	-
MW-4	638,373	1,239,340	14.95	15.1	-	-
MW-5	639,173	1,240,028	16.79	17.3	-	-
MW-6	639,034	1,240,145	17.58	17.8	16.37	16.41
MW-7	639,189	1,239,837	17.5	17.9	-	-
MW-8	639,248	1,239,792	18.7	16.5	-	-
MW-9	638,700	1,239,913	15.32	15.71	14.14	14.46
MW-10	638,927	1,239,694	15.92	16.21	-	-
RIS-1	639,267	1,239,638	1.55	2.29	-	-
RIS-2	638,806	1,239,342	2.24	2.95	-	-
RIS-3	638,306	1,239,202	1.5	2.28	-	-
CL-MW-102	638,880	1,240,037	-	-	14.74	15.04
CL-MW-101	638,937	1,239,888	-	-	13.55	14.1
CL-MW-103	639,110	1,240,003	-	-	14.93	15.31
MW-1	638,746	1,239,936	-	-	14.15	14.69
MW-11D	638,390	1,239,274	-	-	15.85	12.3
MW-11S	638,386	1,239,274	-	-	15.94	12.28
MW-12D	638,576	1,239,268	-	-	17.14	13.38
MW-12S	638,579	1,239,270	-	-	17.13	13.48
MW-13D	638,738	1,239,412	-	-	18.24	14.41
MW-13S	638,740	1,239,414	-	-	18.19	14.62
MW-14D	638,954	1,239,567	-	-	18.9	15.62
MW-14S	638,940	1,239,565	-	-	18.91	15.41
MW-15D	639,092	1,239,644	-	-	19.83	16.4
MW-15S	639,095	1,239,646	-	-	20.01	16.36
MW-16D	639,274	1,239,778	-	-	22.24	18.76
MW-16S	639,271	1,239,775	-	-	22.37	18.73
AF-MW-1	638,398	1,239,425	-	-	13.26	13.49

(a) Horizontal Coordinates shown are NAD 83/98 Washington State Plane Coordinates (North Zone) in US Survey Feet.
(b) Elevation in feet above Mean Lower Low Water (MLLW), surveyed in 1999.
(c) Elevation in feet above MLLW 1983-2001 values, surveyed in 2012.

TABLE 2-3
SURFACE SEDIMENT SAMPLE STATION
SUPPLEMENTAL RI COORDINATES AND ELEVATIONS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample Location Identification	Northing (a)	Easting (a)	Mudline Elevation (b)
SRI-SED-1	638,370	1,239,050	-0.9
SRI-SED-2	638,812	1,239,157	-6.1
SRI-SED-3	638,868	1,239,095	-11.4
SRI-SED-4	639,112	1,239,394	-5.9
SRI-SED-5	639,158	1,239,338	-7.7
SRI-SED-6	639,249	1,239,493	-7.5

(a) Washington state plane north zone NAD83.
(b) Elevation in ft above MLLW.

TABLE 4-1
MONITORING WELL GROUNDWATER ELEVATIONS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Well	Date	Time	Depth to Water (ft) (a)	Groundwater Elevation (ft MLLW)
MW-1	8/21/2002	14:50	5.32	8.83
MW-1	8/14/2012	11:23	6.44	7.71
MW-1	9/26/2012	9:28	7.05	7.10
MW-2	8/21/2002	14:30	8.22	8.42
MW-3	8/21/2002	14:28	6.95	9.16
MW-4	8/21/2002	15:20	5.33	9.62
MW-5	8/21/2002	13:45	5.20	11.59
MW-6	8/21/2002	13:54	4.44	11.93
MW-6	8/14/2012	11:28	7.59	8.78
MW-6	9/26/2012	9:40	8.23	8.14
MW-7	8/21/2002	14:00	8.54	8.96
MW-8	8/21/2002	14:00	10.45	8.25
MW-9	8/21/2002	14:17	5.47	8.67
MW-9	8/14/2012	11:20	6.59	7.55
MW-9	9/26/2012	9:22	7.21	6.93
MW-10	8/21/2002	14:22	6.43	9.49
AF-MW-1	8/14/2012	11:16	5.92	7.34
AF-MW-1	9/26/2012	9:16	6.53	6.73
CL-MW-101	8/14/2012	11:26	5.50	8.05
CL-MW-101	9/26/2012	9:33	6.09	7.46
CL-MW-102	8/14/2012	11:40	5.96	8.78
CL-MW-102	9/26/2012	9:30	6.41	8.33
CL-MW-103	8/14/2012	11:32	6.21	8.72
Cl-MW-103	9/26/2012	9:38	7.04	7.89
MW-11D	8/14/2012	11:07	9.61	6.24
MW-11D	9/26/2012	9:11	9.94	5.91
MW-11S	8/14/2012	11:10	9.64	6.30
MW-11S	9/26/2012	9:13	9.74	6.20
MW-12D	8/14/2012	11:02	10.79	6.35
MW-12D	9/26/2012	9:07	11.12	6.02
MW-12S	8/14/2012	10:58	11.10	6.03
MW-12S	9/26/2012	9:09	11.39	5.74
MW-13D	8/14/2012	10:54	11.81	6.43
MW-13D	9/26/2012	8:58	12.15	6.09
MW-13S	8/14/2012	10:51	12.39	5.80
MW-13S	9/26/2012	9:01	12.71	5.48
MW-14D	8/14/2012	10:40	11.97	6.93
MW-14D	9/26/2012	8:53	12.47	6.43
MW-14S	8/14/2012	10:45	12.07	6.84
MW-14S	9/26/2012	8:50	12.44	6.47
MW-15D	8/14/2012	10:33	12.96	6.87
MW-15D	9/26/2012	8:47	13.50	6.33
MW-15S	8/14/2012	10:31	13.42	6.59
MW-15S	9/26/2012	8:44	13.85	6.16
MW-16D	8/14/2012	10:22	16.13	6.11
MW-16D	9/26/2012	8:39	16.53	5.71
MW-16S	8/14/2012	10:26	16.34	6.03
MW-16S	9/26/2012	8:41	16.66	5.71

TABLE 4-1
MONITORING WELL GROUNDWATER ELEVATIONS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Well	Date	Time	Depth to Water (ft) (a)	Groundwater Elevation (ft MLLW)
HS-MW-19 (b)	9/26/2012	8:20	8.97	7.56
HS-MW-7 (b)	9/26/2012	8:23	9.41	6.28
HS-MW-4 (b)	9/26/2012	8:16	8.89	7.22
TL-MW-1 (b)	9/26/2012	8:32	8.4	5.77

(a) Depth to water measured from top of casing.
(b) R.G. Haley groundwater monitoring well
ft = Feet
MLLW = Mean Lower Low Water

TABLE 4-2
GROUNDWATER AND SURFACE WATER ELEVATION
TIDAL INFLUENCE DATA - 1998
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

	MW-2			Bellingham Bay			t_1
Date	Maximum Groundwater Elevation (ft, MLLW)	Minimum Groundwater Elevation (ft, MLLW)	Time Between Max. & Min. (hours)	Maximum Water Elevation (ft, MLLW)	Minimum Water Elevation (ft, MLLW)	t_0 Time Between Max. & Min. (hours)	Time Lag Between Bellingham Bay and MW-2 Based on Minimum Elevation Data (hours)
06/27/98	4.24	4.06	8.17	11.02	0.79	16.67	3.17
06/28/98	4.30	4.05	7.83	10.89	1.36	17.00	3.67
06/29/98	4.23	4.01	16.83	10.93	2.47	16.67	3.83
06/30/98	4.16	3.99	16.67	10.86	3.68	17.00	4.33
07/01/98	4.09	4.00	17.83	10.70	4.83	17.33	3.17
07/02/98	4.16	4.01	6.50	10.35	4.62	8.50	2.00
07/03/98	4.23	3.98	8.00	10.31	3.95	7.50	3.50
07/04/98	4.22	3.95	9.83	10.06	3.34	7.83	4.67
07/05/98	4.16	3.87	9.33	9.79	2.43	7.67	4.00
07/06/98	4.13	3.90	9.33	9.80	1.87	8.67	3.83
07/07/98	4.16	3.92	9.00	9.90	1.22	8.17	3.50
07/08/98	4.20	3.93	10.17	9.97	0.91	7.17	4.83
07/09/98	4.27	3.98	9.50	10.35	0.99	7.83	3.50
07/10/98	4.23	3.93	9.50	10.79	0.62	17.33	3.67
07/11/98	4.08	3.86	14.33	11.11	0.65	17.00	3.83
07/12/98	4.20	4.02	9.00	10.93	0.88	17.00	3.33
07/12/98	4.02		9.00	0.88		17.00	3.33
Average:			10.74			12.46	3.68

ft = feet
MLLW = Mean Lower Low Water

TABLE 4-3
TIDAL INFLUENCE AT DOWNGRADIENT PERIMETER WELLS - 2012
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Monitoring Well	Top of Casing Elevation (a)	Measurement Date	Measurement Time	High/Low Tide	Depth to Water (Ft BGS)	Groundwater Elevation (MLLW)	Groundwater Elevation Change (Ft)	Vertical Gradient (Ft, Average)
MW-11S	15.94	7/30/2012	9:56 AM	Low	9.04	6.90	-0.01	-0.335
		7/30/2012	6:00 PM	High	9.05	6.89		
MW-11D	15.85	7/30/2012	9:58 AM	Low	9.24	6.61	-0.10	
		7/30/2012	6:02 PM	High	9.34	6.51		
MW-12S	17.13	7/30/2012	10:03 AM	Low	10.93	6.20	0.05	0.37
		7/30/2012	6:04 PM	High	10.88	6.25		
MW-12D	17.14	7/30/2012	10:00 AM	Low	10.55	6.59	0.01	
		7/30/2012	6:06 PM	High	10.54	6.60		
MW-13S	18.19	7/30/2012	10:00 AM	Low	12.19	6.00	0.09	0.81
		7/30/2012	6:07 PM	High	12.10	6.09		
MW-13D	18.24	7/30/2012	9:59 AM	Low	11.30	6.94	-0.17	
		7/30/2012	6:08 PM	High	11.47	6.77		
MW-14S	18.91	7/30/2012	9:58 AM	Low	11.69	7.22	0.09	0.18
		7/30/2012	6:10 PM	High	11.60	7.31		
MW-14D	18.90	7/30/2012	9:57 AM	Low	11.45	7.45	-0.01	
		7/30/2012	6:11 PM	High	11.46	7.44		
MW-15S	20.01	7/30/2012	9:52 AM	Low	13.01	7.00	-0.04	0.22
		7/30/2012	6:14 PM	High	13.05	6.96		
MW-15D	19.83	7/30/2012	9:55 AM	Low	12.63	7.20	0.00	
		7/30/2012	6:15 PM	High	12.63	7.20		
MW-16S	22.37	7/30/2012	9:51 AM	Low	15.62	6.75	NC	-0.18 (c)
		7/30/2012	6:17 PM	High	17.74 (b)	4.63		
MW-16D	22.24	7/30/2012	9:50 AM	Low	15.67	6.57	0.11	
		7/30/2012	6:18 PM	High	15.56	6.68		

(a) Elevations based on surveys conducted in 2012 by Wilson Engineering and Pacific Surveying and Engineering.

(b) Depth to water measurement appears to be erroneous for the high-tide reading and is rejected from this evaluation.

(c) Vertical gradient calculated based on low tide readings from the shallow and deep well pair (see note b).

BGS = Below Ground Surface

Ft = Feet

MLLW = Mean Lower Low Water

NC = Not calculated (see note b)

Tide Information		Time	Tidal Elevation (Ft MLLW)
	Low Tide	9:27:00 AM	-1.8
	High Tide	5:23:00 PM	8

TABLE 5-1
SEDIMENT SITE SCREENING LEVELS FOR CONSTITUENTS DETECTED IN SEDIMENT
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		Sediment Protective of Benthic Toxicity [2,3]				***Protection of Human Health and Higher Trophic Organisms through Seafood Consumption*** [3]		
		WAC 173-204 Sediment Management Standards (SMS)[b]		WAC 173-204 Dry Weight Equivalents of SMS Criteria[c]		Reference Values for Determination of Site-Specific Cleanup Standard		
ANALYTE (BY GROUP) [a]	CAS No.	SMS SQS	SMS CSL/MCUL	Dry Weight SQS	Dry Weight CSL	Applicable Practical Quantitation Level (PQL)[b]	Natural Background Concentration[c]	Human Health Screening Level (Site Specific Cleanup Level for Bioaccumulative Affects)
Heavy Metals		**mg/kg-dry wt**	**mg/kg-dry wt**	**mg/kg-dry wt**	**mg/kg-dry wt**	**mg/kg-dry wt**	**mg/kg-dry wt**	**mg/kg-dry wt**
Arsenic	7440-38-2	57	93	57	93	0.2	11	11
Cadmium	7440-43-9	5.1	6.7	5.1	6.7			(h)
Chromium (Total)	7440-47-3	260	270	260	270			
Copper	7440-50-8	390	390	390	390			
Lead	7439-92-1	450	530	450	530			(h)
Mercury	7439-97-6	0.41	0.59	0.41	0.59	0.025	0.2	0.41[(g)]
Silver	7440-22-4	6.1	6.1	6.1	6.1			
Zinc	7440-66-6	410	960	410	960			
Polycyclic Aromatic Hydrocarbons (PAHs)		**mg/kg OC** [d]	**mg/kg OC** [d]	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**
Anthracene	120-12-7	220	1,200	960	960			
Benzo(g,h,i)perylene	191-24-2	31	78	670	720			
Fluoranthene	206-44-0	160	1,200	1,700	2,500			
Phenanthrene	85-01-8	100	480	1,500	1,500			
Pyrene	129-00-0	1,000	1,400	2,600	3,300			
2-Methylnaphthalene	91-57-6	38	64	670	670			
Naphthalene	91-20-3	99	170	2,100	2,100			
Benz(a)anthracene	56-55-3	110	270	1,300	1,600			(h)
Benzo(a)pyrene	50-32-8	99	210	1,600	1,600			(h)
Chrysene	218-01-9	110	460	1,400	2,800			(h)
Indeno(1,2,3-cd)pyrene	193-39-5	34	88	600	690			(h)
Benzofluoranthenes (total)	Total Benzo.	230	450	3,200	3,600			(h)
Total LPAH[e]	Total LPAHs	370	780	5,200	5,200			
Total HPAH[f]	Total HPAH	960	5,300	12,000	17,000			
Other Semi-volatile Organics		**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**
Phenol	108-95-2	420	1,200	420	1,200			
Phthalate Esters		**mg/kg OC** [d]	**mg/kg OC** [d]	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**
Diethyl phthalate	84-66-2	61	110	200	1,200			
Dimethyl phthalate	131-11-3	53	53	71	160			
Di-n-butyl phthalate	84-74-2	220	1,700	1,400	5,100			
Di-n-octyl phthalate	117-84-0	58	4,500	6,200	6,200			
Bis(2-ethylhexyl) phthalate	117-81-7	47	78	1,300	3,100			
Polychlorinated Biphenyls (PCBs)		**mg/kg OC** [d]	**mg/kg OC** [d]	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**	**µg/kg dry wt**
Aroclor 1242						6		6
Aroclor 1248						6		6
Aroclor 1254						6		6
Aroclor 1260						6		6
Total PCBs		12	65	130	1,000	--	--	--

TABLE 5-1
SEDIMENT SITE SCREENING LEVELS FOR CONSTITUENTS DETECTED IN SEDIMENT
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Numerical Criteria Notes:

a Analytes listed are those with promulgated SMS criteria. Consideration of other analytes should be evaluated with Ecology.

b SQS is no affects value. CSL is minor affects value.

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

e The total LPAH criterion represents the sum of the following low molecular weight polynuclear aromatic compounds: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene.

f The total HPAH criterion represents the sum of the following high molecular weight polynuclear aromatic compounds: fluoranthene, pyrene, benz(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene.

g SQS criteria adequately protective of human health based on results from the Whatcom Waterway CAP.

h Bioaccumulative compound. PCB bioaccumlative-based SL used as surrogate for the purposes of the RI/FS.

Process Notes:

2 The SMS numeric criteria as promulgated are based on protection of benthic toxicity. If site-specific bioassay data indicate no adverse affects to benthic organisms, the sediment can be considered to “pass” the applicable sediment quality standards (SQS) of WAC 173-204-320 through 340 even though it may exceed these chemical criteria (WAC 173-204-310(2)). Bioassay testing may be used for any chemical, and may also be required for chemicals that have no CSL or SQS value.

3 Where available information indicates that a potentially significant release of hazardous substances has occurred to sediments, and the released hazardous substances do not have SMS numeric criteria (e.g., petroleum, organotins, dioxin/furans, woodwaste, or solid waste), Ecology should be consulted regarding appropriate evaluation methods.

4 PQL was selected as the screening level for bioaccumulative affects from PCBs. The PQL for PCBs in sediment recommended in Ecology's Sediment Sampling and Analysis Plan Appendix (Ecology 2008) is 6 µg/kg dry weight.

Abbreviations:

CSL	Cleanup screening level.	OC	Organic carbon.
Ecology	Washington State Department of Ecology.	SMS	Sediment Management Standards.
HPAH	High molecular weight polycyclic aromatic hydrocarbon.	SQS	Sediment quality standards.
LPAH	Low molecular weight polycyclic aromatic hydrocarbon.	WAC	Washington Administrative Code.
MCUL	Maximum cleanup level.	wt	Weight.

This table is adapted from the Harris Avenue Site Baywide Screening Level worksheet developed in cooperation with the Washington State Department of Ecology. Some of the notes have been removed as they are not applicable to this table.

TABLE 5-2
GROUNDWATER SITE SCREENING LEVELS FOR CONSTITUENTS DETECTED IN GROUNDWATER
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

ANALYTE (BY GROUP)	MTCA Method A or Natural Background (MTCA -A)	APPLICABLE GROUNDWATER VALUES: Groundwater Protective of Surface Water: Surface Water ARAR - Aquatic Life - Marine/Chronic - Ch. 173-201A WAC (ma-wac)	Surface Water ARAR - Aquatic Life - Marine/Chronic - Clean Water Act §304 (ma-cwa)	Surface Water ARAR - Aquatic Life - Marine/Chronic - National Toxics Rule, 40 CFR 131 (ma-ntr)	Surface Water ARAR - Human Health – Marine – Clean Water Act §304 (hh-cwa)	Surface Water ARAR - Human Health – Marine – National Toxics Rule, 40 CFR 131 (hh-ntr)	Surface Water, Method B, Most-Restrictive, Standard Formula(a) (sw-b)	Groundwater Protective of Sediment(1): Partitioning/Distribution Coefficients(b): Koc (Soil Organic Carbon-Water Partitioning Coefficient) (L/kg)	Kd (Distribution Coefficient for metals) (L/kg)	Marine Sediment Quality Standards: WAC 173-204 Marine SQS (mg/kg organic carbon)	WAC 173-204 Marine SQS (mg/kg dry weight)	Calculated Porewater Concentration Protective of Marine Sediment(c) (sed)	Applicable Practical Quantitation Level (PQL) for RI Analyses(e) (pql)	Most Stringent Groundwater Screening Level(f)	
Total Petroleum Hydrocarbons															
Gasoline Range Hydrocarbons in ug/L	800												250	800	*(MTCA -A)*
Diesel Range Hydrocarbons in ug/L	500												250	500	*(MTCA -A)*
Oil Range Hydrocarbons in ug/L	500												500	500	*(MTCA -A)*
Heavy Metals															
Arsenic in ug/L(d)	5.0	36	36	36	0.14	0.14			*29*		57	2000	0.5	5.0	*(MTCA -A)*
Chromium (Total) in ug/L	50										260		0.5	50	*(MTCA -A)*
Copper in ug/L		3.1	3.1	2.4			2900		*22*		390	18000	0.5	2.4	*(ma-ntr)*
Lead in ug/L	15	8.1	8.1	8.1					*10000*		450	45	0.1	8.1	*(ma-wac)*
Mercury in ug/L	2.0	0.025	0.94	0.025		0.15			*52*		0.41	7.9	0.001	0.025	*(ma-wac)*
Nickel in ug/L		8.2	8.2	8.2	4600	4600			*65*				0.5	8.2	*(ma-wac)*
Selenium in ug/L		71	71	71	4200				*5*				1	71	*(ma-wac)*
Thallium ug/L					0.47	6.3			*71*				0.2	0.47	*(hh-cwa)*
Zinc in ug/L		81	81	81	26000		17000		*62*		410	6600	4	81	*(ma-wac)*
Conventionals and Other Metals															
pH in pH units		7.0< pH <8.5												6.2[‡]< pH <8.5	*see note*
NH_3 - Ammonia(g) in mg/L		0.035												0.035	*(ma-wac)*
Total Organic Carbon in mg/L															
Cyanide in mg/L		0.0028(h)			16	220							0.005	16	*(hh-cwa)*
Manganese in mg/L					0.1								0.00005	0.1	*(hh-cwa)*
Volatile Organic Compounds															
1,2,4-Trimethylbenzene in ug/L													2		
1,2-Dichlorobenzene in ug/L					1300	17000	4200	*380*		2.3		6.1	0.2	6.1	*(sed)*
1,4-Dichlorobenzene in ug/L					190	2600		*620*		3.1		5	0.2	5	*(sed)*
Acetone in ug/L								*0.58*					20		
Benzene in ug/L	5.0				51	71	23	*62*					0.5	23	*(sw-b)*
Carbon disulfide in ug/L								*46*					0.5		
Chlorobenzene in ug/L					1600	21000	5000	*220*					0.5	1600	*(hh-cwa)*
Ethylbenzene in ug/L					2100	29000	6900	*200*					0.5	2100	*(hh-cwa)*
Isopropylbenzene in ug/L													2		
m,p-Xylenes in ug/L													0.5		
n-Butylbenzene in ug/L													2		
n-Propylbenzene in ug/L													2		
o-Xylene in ug/L								*240*					0.5		
p-Isopropyltoluene (4-Isopropyltoleuene) in ug/L													2		
sec-Butylbenzene in ug/L													2		
Styrene in ug/L								*910*					0.5		
tert-Butylbenzene in ug/L													2		
Toluene in ug/L					15000	200000	19000	*140*					0.5	15000	*(hh-cwa)*
Naphthalene in ug/L	160						4900	*1200*		99		83	0.2	83	*(sed)*
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene in ug/L					990		640	*4900*		16		3.3	0.01	3.3	*(sed)*
Acenaphthylene in ug/L										66			0.01		
Anthracene in ug/L					40000	110000	26000	*23000*		220		9.6	0.01	9.6	*(sed)*
Fluoranthene in ug/L					140	370	90	*49000*		160		3.3	0.01	3.3	*(sed)*
Fluorene in ug/L					5300	14000	3500	*7700*		23		3	0.01	3	*(sed)*
Phenanthrene in ug/L								*16690*		100		6	0.01	6	*(sed)*
Pyrene in ug/L					4000	11000	2600	*68000*		1000		15	0.01	15	*(sed)*
1-Methylnaphthalene in ug/L													0.01		
2-Methylnaphthalene in ug/L								*2478*		38		15	0.01	15	*(sed)*
Naphthalene in ug/L							4900	*1200*		99		83	0.01	83	*(sed)*

TABLE 5-2
GROUNDWATER SITE SCREENING LEVELS FOR CONSTITUENTS DETECTED IN GROUNDWATER
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

ANALYTE (BY GROUP)	MTCA Method A or Natural Background (MTCA -A)	APPLICABLE GROUNDWATER VALUES: Groundwater Protective of Surface Water: Surface Water ARAR - Aquatic Life - Marine/Chronic - Ch. 173-201A WAC (ma-wac)	Surface Water ARAR - Aquatic Life - Marine/Chronic - Clean Water Act §304 (ma-cwa)	Surface Water ARAR - Aquatic Life - Marine/Chronic - National Toxics Rule, 40 CFR 131 (ma-ntr)	Surface Water ARAR - Human Health – Marine – Clean Water Act §304 (hh-cwa)	Surface Water ARAR - Human Health – Marine – National Toxics Rule, 40 CFR 131 (hh-ntr)	Surface Water, Method B, Most-Restrictive, Standard Formula(a) (sw-b)	Groundwater Protective of Sediment(1): Partitioning/Distribution Coefficients(b): Koc (Soil Organic Carbon-Water Partitioning Coefficient) (L/kg)	Kd (Distribution Coefficient for metals) (L/kg)	Marine Sediment Quality Standards: WAC 173-204 Marine SQS (mg/kg organic carbon)	WAC 173-204 Marine SQS (mg/kg dry weight)	**Calculated Porewater Concentration Protective of Marine Sediment(c)** (sed)	**Applicable Practical Quantitation Level (PQL) for RI Analyses(e)** (pql)	**Most Stringent Groundwater Screening Level(f)**	
Total Naphthalenes in ug/L	160														
Benz(a)anthracene in ug/L					0.018	0.031	0.3	*360000*		110		0.31	0.01	0.018	*(hh-cwa)*
Benzo(a)pyrene in ug/L					0.018	0.031	0.03	*970000*		99		0.1	0.01	0.018	*(hh-cwa)*
Benzo(b)fluoranthene in ug/L					0.018	0.031	0.3	*1200000*					0.01	0.018	*(hh-cwa)*
Benzo(k)fluoranthene in ug/L					0.018	0.031	3	*1200000*					0.01	0.018	*(hh-cwa)*
Chrysene in ug/L					0.018	0.031	30	*400000*		110		0.28	0.01	0.018	*(hh-cwa)*
Indeno(1,2,3-cd)pyrene in ug/L					0.018	0.031	0.3	*3500000*		34		0.0097	0.01	0.01	*(pql)*
Total cPAHs TEQ in ug/L	0.1				0.018	0.031	0.03	*970000*		99		0.1		0.018	*(hh-cwa)*
Other Semi-Volatile Organics															
1,4-Dichlorobenzene in ug/L					190	2600		*620*		3.1		5	1	5	*(sed)*
2,3,4,6-Tetrachlorophenol ug/L													1		
2,4,5-Trichlorophenol in ug/L					3600			*1600*					5	3600	*(hh-cwa)*
2,4,6-Trichlorophenol in ug/L					2.4	6.5	3.9	*380*					3	3	*(pql)*
4-Methylphenol in ug/L											0.67		2		
Bis(2-ethylhexyl) phthalate in ug/L					2.2	5.9	3.6	*110000*		47		0.43	3	3	*(pql)*
Carbazole in ug/L								*3400*							
Dibenzofuran in ug/L										15					
Dimethyl phthalate in ug/L					1100000	2900000		*31.59*		53		1700	1	1700	*(sed)*
m,p-Cresol (2:1 ratio) ug/L															
N-Nitrosodiphenylamine in ug/L					6	16	9.7	*1300*		11		8.5	1	6	*(hh-cwa)*
Pentachlorophenol in ug/L		7.9	7.9	7.9	3	8.2	1.5	*590*			0.36		10	10	*(pql)*
Phenol in ug/L					1700000	4600000	560000	*29*	*0.725*		0.42	580	1	580	*(sed)*
Polychlorinated Biphenyls (PCBs)															
Aroclor 1016 in ug/L				0.03			0.003	*110000*					0.01	0.01	*(pql)*
Aroclor 1221 in ug/L													0.01		
Aroclor 1232 in ug/L													0.01		
Aroclor 1242 in ug/L													0.01		
Aroclor 1248 in ug/L													0.01		
Aroclor 1254 in ug/L				0.03			0.0001						0.01	0.01	*(pql)*
Aroclor 1260 in ug/L				0.03				*820000*					0.01	0.03	*(ma-ntr)*
Total PCBs in ug/L	0.1	0.03	0.03	0.03	0.000064	0.00017		*310000*		12		0.039	0.025	0.025	*(pql)*
Radiochemistry															
Gross Beta (mrem/yr)	4.0													4.0 mrem/yr or 50 pCi/L	
Dioxins/Furans															
Total HpCDF in ug/L													0.000025		
Total HxCDD in ug/L													0.000025		
Total HxCDF in ug/L													0.000025		
Total PeCDF in ug/L													0.000025		
Total TCDD in ug/L													0.00001		
1,2,3,4,7,8-HxCDD in ug/L													0.00005		
1,2,3,7,8,9-HxCDD in ug/L													0.00005		
OCDD in ug/L													0.0001		
1,2,3,4,6,7,8-HpCDF in ug/L													0.00005		
1,2,3,4,7,8,9-HpCDF in ug/L													0.00005		
OCDF in ug/L													0.0001		

TABLE 5-2
GROUNDWATER SITE SCREENING LEVELS FOR CONSTITUENTS DETECTED IN GROUNDWATER
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Numerical Criteria Notes:

Blank cells are intentional.

a In accordance with WAC 173-340-730(3)(b)(iii), if sufficiently protective health-based criteria or standards have not been established under applicable state and federal laws, Method B values have been developed. Method B values are most restrictive of carcinogenic or non-carcinogenic values presented in Ecology's Cleanup Levels and Risk Calculation (CLARC) Database and pulled on May 15, 2012.

b Values from Ecology's CLARC Database May 15, 2012; except as noted.

c Calculated assuming equilibrium partitioning: Cw (porewater) = Sediment Quality Standard (SQS; WAC 173-204-320) / Kd.

d For arsenic, state-wide background arsenic concentration of 5 µg/L from WAC 173-340-900 Table 720-1 may be applicable based on site-specific hydrogeology.

e PQL is the lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods. Values are reported from Columbia Analytical Services, Inc. (Kelso, WA) and Analytical Resources, Inc. (Tukwila, WA).

f Most stringent of values protective of marine surface water, sediment, and vapor intrusion.

g Calculated using samples' total ammonia, pH, and temperature with equation from USEPA Gold Book (USEPA 1986).

h The criteria for cyanide is based on the weak acid dissociable method in the 19th Ed. Standard Methods for the Examination of Water and Wastewater.

‡ pH 6.2 is the lower-end of natural background groundwater pH range, calculated from Whatcom County background data, in accordance with WAC 173-340-709(3).

Process Notes:

1 Groundwater concentrations that are protective of sediments are calculated using an equilibration partitioning method. Site-specific data (e.g., distribution coefficient [Kd], soil organic carbon water partitioning coefficient [Koc], etc.) can be used to calculate if porewater is protective of sediments. In this table, the equilibrium partitioning equation is used with default parameters and is defined to achieve sediment concentrations protective of benthic toxicity. Where sediment Screening Levels are set to protect human health through seafood consumption, protective groundwater concentrations may need to be calculated to protect sediment quality for that pathway.

Abbreviations:

ARAR	Applicable or Relevant and Appropriate Requirement.	HxCDD	Hexachlorodibenzo-p-dioxin.	OCDD	Octachlorodibenzo-p-dioxin.	RI	Remedical Investigation
Ch	Chapter.	HxCDF	Hexachlorodibenzofuran.	OCDF	Octachlorodibenzofuran.	SQS	Sediment quality standards.
CFR	Code of Federal Regulations.	Kd	Distribution coefficient.	PAH	Polycyclic aromatic hydrocarbon	TCDD	Tetrachlordibenzo-p-dioxin.
cPAH	Carcinogenic polycyclic aromatic hydrocarbon.	Koc	Soil organic carbon water partitioning coefficient.	PeCDF	Pentachlorodibenzofuran.	TEQ	Toxic equivalent quantity.
HpCDF	Heptachlorodibenzofuran.	MTCA	Model Toxics Control Act	PQL	Practical Quantitation Limit.	WAC	Washington Administrative Code.

This table is adapted from the Harris Avenue Site Baywide Screening Level worksheet developed in cooperation with the Washington State Department of Ecology.

TABLE 5-3
SOIL SITE SCREENING LEVELS FOR CONSTITUENTS DETECTED IN SOIL
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

ANALYTE (BY GROUP)	Groundwater Screening Level (refer to Table 5-2)	APPLICABLE SOIL VALUES: Soil Protective of Groundwater(2,3) — Constants and Coefficients(a): K_{oc} (Soil Organic Carbon-Water Partitioning Coefficient) (L/kg)	K_d (Distribution Coefficient for metals) (L/kg)	Henrys Law Constant (Hcc; unitless)	Calculated Values: **Unsaturated Soil** Concentration Protective of Leachability to Groundwater for **Unrestricted** Land Use (mg/kg)(b) *(gwl-u)*	**Saturated Soil** Concentration Protective of Leachability to Groundwater for **Unrestricted** Land Use (mg/kg)(c) *(gwl-s)*	***Soil Protective of Direct Contact by Humans(d,1)***: Soil, Method A, Unrestricted Land Use, Table Value (mg/kg)(a,e) *(mA)*	Soil, Method B, Most-Restrictive Standard Formula Value, Direct Contact (ingestion only), Unrestricted Land Use (mg/kg)(a,f) *(mB)*	Natural Background Concentration (mg/kg)(g) *(back)*	Applicable Practical Quantitation Level (PQL) for RI Analyses (mg/kg)(h) *(pql)*	***Most Stringent Unrestricted Soil Screening Level (mg/kg)(i)*** (This value may vary for saturated versus unsaturated soil if most stringent value is associated with groundwater intrusion.): **Unsaturated Soil**	**Saturated Soil**
Total Petroleum Hydrocarbons												
Gasoline Range Hydrocarbons	800						100	¥		5	30 *(mA)*	30 *(mA)*
Diesel Range Hydrocarbons	500						2000	¥		25	2000 *(mA)*	2000 *(mA)*
Oil Range Hydrocarbons	500						2000	¥		100	2000 *(mA)*	2000 *(mA)*
Bunker C							2000	¥			2000 *(mA)*	2000 *(mA)*
Heavy Metals												
Cadmium	8.8			*0*				80	1	0.1	80 *(mB)*	80 *(mB)*
Chromium (Total)	50								48	0.5	48 *(back)*	48 *(back)*
Copper	2.4		*22*	*0*	1.1	0.053		3200	36	0.2	36 *(back)*	36 *(back)*
Lead	8.1		*10000*	*0*	1600	81	1000		24	0.1	1000 *(mA)*	81 *(gwl-s)*
Mercury(k)	0.025		*52*	*0.47*	0.026	0.0013	24		0.07	0.025	0.07 *(back)*	0.07 *(back)*
Nickel	8.2		*65*	*0*	11	0.54		1600	48	0.5	48 *(back)*	48 *(back)*
Zinc	81		*62*	*0*	100	5		24000	85	1	100 *(gwl-u)*	5 *(gwl-s)*
Mercury Speciation												
Mercury (elemental)(k)	0.89											
Volatile Organic Compounds												
Ethylbenzene(k)	2100	*200*		*0.32*	18	1		8000		0.005	18 *(gwl-u)*	1 *(gwl-s)*
Toluene(k)	15000	*140*		*0.27*	110	6.4		6400		0.005	110 *(gwl-u)*	6.4 *(gwl-s)*
Xylenes (total)	1000	*230*		*0.28*	9.1	0.52		16000		0.02	9.1 *(gwl-u)*	0.52 *(gwl-s)*
Polycyclic Aromatic Hydrocarbons (PAHs)												
Acenaphthene	3.3	*4900*		*0.0064*	0.34	0.017		4800		0.005	0.34 *(gwl-u)*	0.017 *(gwl-s)*
Acenaphthylene										0.005		
Anthracene	9.6	*23000*		*0.0027*	4.5	0.22		24000		0.005	4.5 *(gwl-u)*	0.22 *(gwl-s)*
Benzo(g,h,i)perylene										0.005		
Fluoranthene	3.3	*49000*		*0.00066*	3.2	0.16		3200		0.005	3.2 *(gwl-u)*	0.16 *(gwl-s)*
Fluorene	3	*7700*		*0.0026*	0.47	0.024		3200		0.005	0.47 *(gwl-u)*	0.024 *(gwl-s)*
Phenanthrene	6									0.005		
Pyrene	15	*68000*		*0.00045*	20	1		2400		0.005	20 *(gwl-u)*	1 *(gwl-s)*
1-Methylnaphthalene								35		0.005	35 *(mB)*	35 *(mB)*
2-Methylnaphthalene	15							320		0.005	320 *(mB)*	320 *(mB)*
Naphthalene(k)	83	*1200*		*0.02*	2.3	0.12		1600		0.005	2.3 *(gwl-u)*	0.12 *(gwl-s)*
Total Naphthalenes												
Benzo(a)anthracene	0.018	*360000*		*0.00014*	0.13	0.0065		1.4		0.005	0.13 *(gwl-u)*	0.0065 *(gwl-s)*
Benzo(a)pyrene	0.018	*970000*		*0.000046*	0.35	0.017		0.14		0.005	0.14 *(mB)*	0.017 *(gwl-s)*
Benzo(b)fluoranthene	0.018	*1200000*		*0.0046*	0.43	0.022		1.4		0.005	0.43 *(gwl-u)*	0.022 *(gwl-s)*
Benzo(k)fluoranthene	0.018	*1200000*		*0.000034*	0.43	0.022		14		0.005	0.43 *(gwl-u)*	0.022 *(gwl-s)*

TABLE 5-3
SOIL SITE SCREENING LEVELS FOR CONSTITUENTS DETECTED IN SOIL
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		APPLICABLE SOIL VALUES										
		Soil Protective of Groundwater(2,3)					***Soil Protective of Direct Contact by Humans(d,1)***				***Most Stringent Unrestricted Soil Screening Level (mg/kg)(i)*** (This value may vary for saturated versus unsaturated soil if most stringent value is associated with groundwater intrusion.)	
		Constants and Coefficients(a)			*Calculated Values*							
ANALYTE (BY GROUP)	Groundwater Screening Level (refer to Table 5-2)	K_{oc} (Soil Organic Carbon-Water Partitioning Coefficient) (L/kg)	K_d (Distribution Coefficient for metals) (L/kg)	Henrys Law Constant (Hcc; unitless)	**Unsaturated Soil** Concentration Protective of Leachability to Groundwater for **Unrestricted** Land Use (mg/kg)(b) *(gwl-u)*	**Saturated Soil** Concentration Protective of Leachability to Groundwater for **Unrestricted** Land Use (mg/kg)(c) *(gwl-s)*	Soil, Method A, Unrestricted Land Use, Table Value (mg/kg)(a,e) *(mA)*	Soil, Method B, Most-Restrictive Standard Formula Value, Direct Contact (ingestion only), Unrestricted Land Use (mg/kg)(a,f) *(mB)*	Natural Background Concentration (mg/kg)(g) *(back)*	Applicable Practical Quantitation Level (PQL) for RI Analyses (mg/kg)(h) *(pql)*	**Unsaturated Soil**	**Saturated Soil**
Chrysene	0.018	*400000*		*0.0039*	0.14	0.0072		140		0.005	0.14 *(gwl-u)*	0.0072 *(gwl-s)*
Dibenzo(a,h)anthracene	0.01	*1800000*		*0.0000006*	0.36	0.018		0.14		0.005	0.14 *(mB)*	0.018 *(gwl-s)*
Indeno(1,2,3-cd)pyrene	0.01	*3500000*		*0.000066*	0.7	0.035		1.4		0.005	0.7 *(gwl-u)*	0.035 *(gwl-s)*
Total cPAHs TEQ	0.018							0.14		0.00076	0.14 *(mB)*	0.14 *(mB)*
Other Semi-Volatile Organics												
2,4,6-Trichlorophenol	3	*380*		*0.00032*	0.035	0.002		80		0.1	0.1 *(pql)*	0.1 *(pql)*
2,4-Dimethylphenol	850	*210*		*0.000082*	7	0.42		1600		0.05	7 *(gwl-u)*	0.42 *(gwl-s)*
4,6-Dinitro-2-methylphenol										0.2		
Benzyl butyl phthalate	1	*14000*		*0.000052*	0.28	0.014		530		0.02	530 *(mB)*	0.014 *(gwl-s)*
Bis(2-ethylhexyl) phthalate	3	*110000*		*0.0000042*	6.6	0.33		71		0.1	6.6 *(gwl-u)*	0.33 *(gwl-s)*
Carbazole		*3400*		*6.3E-07*						0.02		
Dibenzofuran								80		0.02	80 *(mB)*	80 *(mB)*
Dimethyl phthalate	1700									0.02		
Di-n-butyl phthalate	140	*1600*		*3.9E-08*	5	0.26		8000		0.02	5 *(gwl-u)*	0.26 *(gwl-s)*
N-Nitrosodiphenylamine	6	*1300*		*0.00021*	0.18	0.0095		200		0.02	0.18 *(gwl-u)*	0.02 *(pql)*
Pentachlorophenol	10	*590*		*0.000001*	0.16	0.0088		2.5		0.1	0.16 *(gwl-u)*	0.1 *(pql)*
Dioxins/Furans												
Summed Dioxin/Furan TEQ	0.000031							1.10E-05	0.0000052(j)	6.25E-06	1.10E-05 *(mB)*	1.10E-05 *(mB)*

TABLE 5-3
SOIL SITE SCREENING LEVELS FOR CONSTITUENTS DETECTED IN SOIL
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Numerical Criteria Notes:

Blank cells are intentional.

a Values taken from Ecology's CLARC Database May 15, 2012; except as noted.

b Calculated values from 3-phase model, per MTCA Equation 747-1, with groundwater value (Cw) as most stringent value

c Calculated values from 3-phase model, per MTCA Equation 747-1, with groundwater value (Cw) as most stringent value from groundwater screening level process (Table 1), and Dilution Factor = 1.

d Direct contact criteria applicable for soils to 15-foot depth.

e Because groundwater at Harris Avenue Shipyard is not a practicable source of drinking water in accordance with MTCA, many Method A soil cleanup levels are not applicable. Method A unrestricted cleanup levels used only if they are based on background or ARARs, or there are no corresponding Method B direct contact values. Soil leachability to groundwater is addressed separately. Method A values for diesel- and oil-range TPH based on accumulation of free product, not direct contact.

f Method B values are most restrictive of carcinogenic or non-carcinogenic values presented in Ecology's CLARC Database, pulled on May 15, 2012.

g Values are from Ecology's Natural Background Soil Metals Concentrations in Washington State (Ecology 1994).

h PQL is the lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department

i Most stringent of unrestricted direct contact values and leachability value for respective soil type (unsaturated or saturated). **These values depend on many site-specific factors, so numerical values are not displayed for this non-site-specific example.**

j Value from Dave Bradley's Natural Background for Dioxins/Furans in Washington Soils—Technical Memorandum #8 (Ecology 2010).

k Analyte has the potential to contaminate indoor air to unacceptable levels via the vapor intrusion pathway, per Table B-1 (Appendix B) of Ecology's Guidance for Evaluation of Soil Vapor Intrusion (Ecology 2009). Consult with Ecology, as a site-specific vapor intrusion evaluation may be necessary.

¥ Cleanup level can be calculated using volatile petroleum hydrocarbon (VPH) and extractable petroleum hydrocarbon (EPH) data, per WAC 173-340-700(8)(ii).

Process Notes:

1 Appropriate Screening Levels for the protection of human health through direct contact with soil pathway are based on a site's land use category (i.e., unrestricted or industrial). The point of compliance is established from the ground surface to 15 feet below ground surface only. This represents a reasonable estimate of the depth of soil that could be excavated during typical site activities (WAC 173-340-740(6)(d)).

2 Soil concentrations that are protective of groundwater are calculated using either of the methods listed in WAC 173-340-747(3). Concentrations may be derived from either saturated or unsaturated soil. The variable parameter three-phase partitioning model requires at least some site-specific data (e.g., distribution coefficient [K_d], soil bulk density, water-filled soil porosity, air filled soil porosity, or dilution factor) to calculate if soil is protective of groundwater. For this table, the fixed parameter three-phase partitioning model is used with default parameters queried from CLARC on May 15, 2012.

3 Under WAC 173-340-747(3)(e), if empirical site-specific groundwater data are available, they may be used to show that measured soil concentrations are protective of groundwater and will not cause an exceedance of the applicable groundwater cleanup level criteria.

Abbreviations:

cPAH Carcinogenic polycyclic aromatic hydrocarbon.
Kd Distribution coefficient.
Koc Soil organic carbon water partitioning coefficient.
PQL Practical Quantitation Limit.
TEQ Toxic equivalent quantity.

This table is adapted from the Harris Avenue Site Baywide Screening Level worksheet developed in cooperation with the Washington State Department of Ecology.

TABLE 6-1
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SOIL SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

			Phase II Environmental Assessment										
Sample Name	Cornwall Avenue Landfil		AF-MW01-2	AF-MW01-5	AF-MW02-3	AF-MW02-5	AF-MW02-7	AF-SB01-2	AF-SB02-1	AF-SB04-1	AF-SB04-2	AF-SB04-3	AF-SB04-8
Sample Date	Site Screening		7/19/2004	7/19/2004	7/19/2004	7/19/2004	7/19/2004	7/19/2004	7/19/2004	7/22/2004	7/22/2004	7/22/2004	7/22/2004
Sample Top Depth	Levels		2.5	10	5	10	15	4	0	0	4	8	8
Sample Bottom Depth	(unsaturated soil)(a)	(saturated soil)(a)	4	11.5	6.5	11.5	16.5	8	4	4	8	12	12
TOTAL METALS (mg/kg)													
Cadmium	80	80	0.2 U	0.4 U	0.2 U	0.3 U	0.7 U	0.3 U	0.6	0.5 U	NA	0.3	0.2 U
Chromium	48	48	37.7	23	50.2	43.1	19	39.5	38	51	NA	34.4	41.9
Copper	36	36	60.8	29.5	31.7	47.3	70.5	31.4	75.2	56.7	NA	48	44.1
Lead	1000	81	29 J	15 J	5 J	19 J	14 J	89 J	84 J	27	NA	42	44
Mercury	0.07	0.07	0.04	0.1 U	0.04 U	0.06 U	0.07 U	0.08 U	0.07	0.18	NA	0.09	0.08
Nickel	48	48	35	36	55	48	19	31	50	31	NA	29	45
Zinc	100	5	62.9	58	43.3	75.5	46	87	237	64	NA	77.5	76.8
VOLATILES (mg/kg)													
Ethylbenzene	18	1	0.026 U	0.092 U	0.41 U	0.031 U	0.038 U	0.032 U	0.028 U	NA	0.82	0.093	NA
Toluene	110	6.4	0.026 U	0.092 U	0.42	0.031 U	0.038 U	0.032 U	0.028 U	NA	0.028 U	0.029 U	NA
Total Xylenes	9.1	0.52	0.039 U	0.136 U	0.39	0.0465 U	0.0565 U	0.0485 U	0.042 U	NA	0.222	0.0815	NA
PAHs (mg/kg)													
1-Methylnaphthalene	35	35	0.018	0.015 U	81	7.1	0.16	NA	0.12	NA	52	120	73
2-Methylnaphthalene	320	320	0.032	0.015 U	150	12	0.26	NA	0.11	NA	96	240	140
Acenaphthene	100	5.1	0.049	0.015 U	4.4	0.42	0.011	NA	0.0094 U	NA	2.6	4.3	2.5
Acenaphthylene	---	---	0.0072 U	0.015 U	0.74	0.1	0.0098 U	NA	0.016	NA	0.66	1.1	0.62
Anthracene	4.5	0.22	0.051	0.015 U	0.87	0.12	0.012	NA	0.024	NA	0.65 J	1.2 J	0.75 J
Benzo(a)anthracene	0.13	0.0065	0.051	0.015 U	NA	0.021 U	0.0098 U	NA	0.18	NA	0.36	0.38	0.22
Benzo(a)pyrene	0.14	0.017	0.022	0.015 U	NA	0.021 U	0.0098 U	NA	0.28	NA	0.32	0.18	0.12
Benzo(b)fluoranthene	0.43	0.022	0.032	0.015 U	NA	0.021 U	0.0098 U	NA	0.19	NA	0.36	0.16	0.1
Benzo(g,h,i)perylene	---	---	0.011	0.015 U	NA	0.021 U	0.0098 U	NA	0.11	NA	0.21	0.07	0.061
Benzo(k)fluoranthene	0.43	0.022	0.025	0.015 U	NA	0.021 U	0.0098 U	NA	0.22	NA	0.29	0.15	0.12
Chrysene	0.14	0.0072	0.052	0.015 U	0.21	0.029	0.0098 U	NA	0.25	NA	0.49	0.58	0.35
Dibenz(a,h)anthracene	0.14	0.018	0.0072 U	0.015 U	NA	0.021 U	0.0098 U	NA	0.036	NA	0.057	0.06 U	0.038 U
Fluoranthene	3.2	0.16	0.28	0.015 U	0.6	0.065	0.013	NA	0.24	NA	0.87	1.5	0.85
Fluorene	0.47	0.024	0.063	0.015 U	4.6	0.49	0.02	NA	0.014	NA	3.7	7.5	3.5
Indeno(1,2,3-cd)pyrene	0.7	0.035	0.0087	0.015 U	NA	0.021 U	0.0098 U	NA	0.1	NA	0.18	0.06 U	0.041
Naphthalene	2.3	0.12	0.0072 U	0.015 U	0.87	0.021 U	0.017	NA	0.063	NA	2	15	9.2
Phenanthrene	---	---	0.31	0.015 U	12	1.1	0.042	NA	0.13	NA	10	20	12
Pyrene	20	1	0.2	0.015 U	1.2	0.12	0.017	NA	0.34	NA	1.5	2.5	1.5
Total Naphthalenes	---	---	0.0536	0.0225 U	NA	19.1	0.437	NA	0.293	NA	150	375	222
Total cPAHs (TEQ)	0.14	0.14	0.0356	0.0136 U	0.173	0.0192	0.00887 U	NA	0.366	NA	0.467	0.27	0.179
SEMIVOLATILES (mg/kg)													
Bis(2-ethylhexyl) phthalate	6.6	0.33	0.1	0.15 U	0.28 U	0.11	0.098 U	NA	0.094 U	NA	0.22	0.1 U	0.079 U
Carbazole	---	---	0.072 U	0.15 U	0.28 U	0.091 U	0.098 U	NA	0.094 U	NA	0.16	0.1 U	0.079 U
Dibenzofuran	80	80	0.072 U	0.15 U	2	0.091 U	0.098 U	NA	0.094 U	NA	0.084 J	0.1 U	0.85
Dimethyl phthalate	---	---	0.072 U	0.15 U	0.28 U	0.091 U	0.098 U	NA	0.094 U	NA	0.68	0.1 U	0.079 U
Di-n-butyl phthalate	5	0.26	0.072 U	0.15 U	0.28 U	0.091 U	0.098 U	NA	0.094 U	NA	0.48	0.1 U	0.079 U
Pentachlorophenol	0.16	0.1	0.36 U	0.74 U	1.4 U	0.45 U	0.49 U	NA	0.47 U	NA	0.4 U	0.61 J	0.65 J
N-Nitrosodiphenylamine	0.18	0.02	0.072 U	0.15 U	0.28 U	0.41	0.098 U	NA	0.094 U	NA	0.08 U	0.1 U	0.079 U
2,4,6-Trichlorophenol	0.1	0.1	0.36 U	0.74 U	1.4 U	0.45 U	0.49 U	NA	0.47 U	NA	0.4 U	0.51 U	0.4 U
2,4-Dimethylphenol	7	0.42	0.22 U	0.44 U	0.84 U	0.27 U	0.29 U	NA	0.28 U	NA	0.24 U	0.31 U	0.24 U
4,6-Dinitro-2-Methylphenol	---	---	0.72 U	1.5 U	2.8 U	0.91 U	0.98 U	NA	0.94 U	NA	0.8 U	1 U	0.79 U
Butyl benzyl phthalate	530	27	0.072 U	0.15 U	0.28 U	0.091 U	0.098 U	NA	0.094 U	NA	0.08 U	0.1 U	0.079 U
TOTAL PETROLEUM HYDROCARBONS (mg/kg)													
Gasoline-Range Hydrocarbons	100	100	5.2 U	18 U	500	80	7.5 U	6.5 U	5.6 U	NA	490	170	NA
Bunker C	2000	2000	NA	230 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	2000	2000	10 J	NA	7100	270	160	19 J	200	55	1700	4200	2500
Oil-Range Hydrocarbons	2000	2000	43 J	NA	310	22	76	120 J	150	300	940	1700	1100

TABLE 6-1
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SOIL SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

R.G. Haley Investigations 2004-2012

Sample Name	Cornwall Avenue Landfil		CL-MW-1D	CL-MW-1D	CL-MW-101	CL-MW-102	CL-MW-103	CL-MW-103	CL-MW-103	CL-SB-101	CL-SB-101	CL-SB-102	CL-SB-102	CL-SB-102	CL-SB-103	CL-SB-103	CL-SB-103
Sample Date	Site Screening		6/17/2004	6/17/2004	6/29/2012	6/29/2012	7/10/2012	7/10/2012	7/10/2012	6/25/2012	6/25/2012	6/25/2012	6/25/2012	6/25/2012	6/25/2012	6/25/2012	6/25/2012
Sample Top Depth	Levels		8	12	6	6	5	10	12.5	4.3	6.3	4.3	9.3	13.3	4.3	8	14
Sample Bottom Depth	(unsaturated soil)(a)	(saturated soil)(a)	10	13	7	7	6.5	11.5	14	5	7	5	10	14	5	8.7	14.7
TOTAL METALS (mg/kg)																	
Cadmium	80	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	48	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	36	36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1000	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	48	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	100	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (mg/kg)																	
Ethylbenzene	18	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	110	6.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	9.1	0.52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (mg/kg)																	
1-Methylnaphthalene	35	35	NA	NA	3.8	22	180	18	2.4	12	2.1	51	450	0.02	1.7	300	0.029
2-Methylnaphthalene	320	320	666	NA	0.86	19	260	25	3.3	13	0.93	83	750	0.037	2.8	520	0.047
Acenaphthene	100	5.1	16.2	NA	0.21	2.8	9.7	1.2	0.11	1.9	0.45	2.8	13	0.0052 U	0.13	16	0.011
Acenaphthylene	---	---	4.65	NA	0.12	0.4	1.9	0.27	0.027	0.41	0.1	0.59	0.26 U	0.0052 U	0.04	3.1	0.014
Anthracene	4.5	0.22	5.55	NA	0.057	0.13 U	0.032 U	0.12	0.0078	0.12 U	0.45	2.2	0.26 U	0.0052 U	0.046	0.54 U	0.026
Benzo(a)anthracene	0.13	0.0065	1.81 U	NA	0.25	0.082	0.27	0.32	0.007	0.046	0.0047 U	0.1	0.37	0.0094	0.016	0.47	0.039
Benzo(a)pyrene	0.14	0.017	1.81 U	NA	0.320	0.033	0.093	0.93	0.015	0.06	0.0047 U	0.063	0.22	0.0061	0.02	0.23	0.037
Benzo(b)fluoranthene	0.43	0.022	1.81 U	NA	0.36	0.046	0.16	0.23	0.012	0.069	0.0047 U	0.098	0.36	0.0073	0.03	0.37	0.041
Benzo(g,h,i)perylene	---	---	1.81 U	NA	0.26	0.019	0.072	0.23	0.01	0.029	0.0047 U	0.045	0.3	0.0052 U	0.017	0.26	0.017
Benzo(k)fluoranthene	0.43	0.022	1.81 U	NA	0.12	0.013	0.057	0.12	0.0054	0.03	0.0047 U	0.031	0.12	0.0052 U	0.011	0.12	0.016
Chrysene	0.14	0.0072	1.81 U	NA	0.30	0.092	0.46	0.49	0.017	0.046	0.0052	0.18	0.75	0.0059	0.022	0.36	0.034
Dibenz(a,h)anthracene	0.14	0.018	1.81 U	NA	0.064	0.0077	0.032 U	0.083	0.0044 U	0.011	0.0047 U	0.012	0.01 U	0.0052 U	0.005 U	0.06	0.0054
Fluoranthene	3.2	0.16	1.82	NA	0.33	0.3	1.3	0.11	0.0081	0.18	0.021	0.49	2.6	0.014	0.041	1.5	0.079
Fluorene	0.47	0.024	21.2	NA	0.110	1.9	11	1.4	0.12	2.1	0.6	3.4	14	0.0052 U	0.16	17	0.018
Indeno(1,2,3-cd)pyrene	0.7	0.035	1.81 U	NA	0.28	0.021	0.043	0.19	0.0053	0.039	0.0047 U	0.048	0.28	0.0052 U	0.02	0.28	0.021
Naphthalene	2.3	0.12	54.6	NA	0.26	1.3	4.2	1.4	0.39	0.13	0.029	5	15	0.0052 U	0.14	7	0.0078
Phenanthrene	---	---	49.3	NA	0.25	5.2	34	2	0.16	8.1	1.9	9.4	54	0.0086	0.41	52	0.044
Pyrene	20	1	4.05	NA	0.37	0.62	3.7	0.66	0.0018	0.35	0.049	1	4.5	0.013	0.066	6.3	0.065
Total Naphthalenes	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total cPAHs (TEQ)	0.14	0.14	1.366	NA	0.4304 T	0.05089 T	0.1522 T	1.0292 T	0.01836 T	0.07996 T	0.003577 T	0.0937 T	0.341 T	0.008609 T	0.02817 T	0.3636 T	0.04958 T
SEMIVOLATILES (mg/kg)																	
Bis(2-ethylhexyl) phthalate	6.6	0.33	NA	NA	0.25 U	0.13 U	13	1.3 U	0.32	0.12 U	0.12 U	0.13 U	0.26 U	0.026 U	0.13 U	0.54 U	0.026 U
Carbazole	---	---	NA	NA	0.25 U	0.13 U	0.8 U	1.3 U	0.11 U	0.12 U	0.12 U	0.13 U	0.26 U	0.026 U	0.13 U	0.54 U	0.026 U
Dibenzofuran	80	80	8.09	NA	0.13 U	0.066 U	0.4 U	0.64 U	0.055 U	0.058 U	0.13	0.063 U	0.13 U	0.013 U	0.063 U	0.27 U	0.013 U
Dimethyl phthalate	---	---	NA	NA	0.25 U	0.13 U	0.8 U	1.3 U	0.11 U	0.12 U	0.12 U	0.13 U	0.26 U	0.026 U	0.13 U	0.54 U	0.026 U
Di-n-butyl phthalate	5	0.26	NA	NA	0.25 U	0.13 U	0.8 U	1.3 U	0.11 U	0.12 U	0.12 U	0.13 U	0.26 U	0.026 U	0.13 U	0.54 U	0.026 U
Pentachlorophenol	0.16	0.1	4.76	NA	0.0056	0.076	0.83	0.079	0.011	0.25	0.1	0.19	0.73	0.0012 U	0.26	0.43	0.0012 U
N-Nitrosodiphenylamine	0.18	0.02	22.5	NA	0.13 U	0.066 U	0.4 U	0.64 U	0.055 U	0.058 U	0.059 U	0.063 U	0.13 U	0.013 U	0.063 U	0.27 U	0.013 U
2,4,6-Trichlorophenol	0.1	0.1	1.81 U	NA	0.023 U	0.0025 U	0.0059 U	0.024 U	0.002 U	0.0022 U	0.0022 U	0.0024 U	0.0049 U	0.0024 U	0.0024 U	0.0037	0.0024 U
2,4-Dimethylpheno	7	0.42	NA	NA	0.13 U	0.068	0.4 U	0.64 U	0.055 U	0.058 U	0.059 U	0.063 U	0.13 U	0.013 U	0.063 U	0.27 U	0.013 U
4,6-Dinitro-2-Methylpheno	---	---	NA	NA	1.3 U	0.66 U	26	6.4 U	0.55 U	0.58 U	0.59 U	0.63 U	1.3 U	0.13 U	0.63 U	2.7 U	0.13 U
Butyl benzyl phthalate	530	27	NA	NA	0.13 U	0.066 U	0.4 U	0.65	0.055 U	0.058 U	0.059 U	0.063 U	0.13 U	0.013 U	0.063 U	0.27 U	0.013 U
TOTAL PETROLEUM HYDROCARBONS (mg/kg)																	
Gasoline-Range Hydrocarbons	100	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bunker C	2000	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	2000	2000	NA	1270	100 J	3900	13000	3000 J	820 J	630	440	5100	29000	11	17	31000	27
Oil-Range Hydrocarbons	2000	2000	NA	2910	600	200	1700 J	21000	4700	16 UI	12 U	260 UI	2800 J	41	39	1400 J	43

TABLE 6-1
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SOIL SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

--- = Water Quality Standard or other criteria not established.

mg/kg = milligrams per kilogram

(a) Unsaturated soil is considered to be less than 5.5 ft below ground surface; saturated soil is considered to be greater than 5.5 ft below ground surface.

Box = Exceedance of screening level.

U = Indicates the compound was undetected at the reported concentration.

J = The reported sample detection limit is an estimate.

NA = Not analyzed or results not available.

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		Ecology Investigation (Seep Samples)				Expanded Site Investigation (Seep Samples)			Focused RI				
Sample ID:		E-1	E-2	E-3	E-4	S-1	S-2	S-3	MW-1	MW-5	S-1	S-2	S-3
Sample Number:		92 198040	92 198041	92 198043	92 198044	CL-SW-1	CL-SW-2	CL-SW-3					
Sample Date :		5/6/1992	5/6/1992	5/6/1992	5/6/1992	9/24/1996	9/24/1996	9/24/1996	7/13/1998	7/13/1998	7/13/1998	7/13/1998	7/13/1998
Lab ID:	Cornwall Ave LF Site Screening Level (a)					Q243D	Q243E	Q243F	07-066-06	07-066-01	07-066-04	07-066-03	07-066-05
TOTAL METALS (µg/L)													
Arsenic	5.0	11	2.1 P	2.2 P	1.5 U	1	1	1 U	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	9	5 U	6	NA	NA	NA	NA	NA
Copper	2.4	4950	5.1 P	9.7 P	16	2 U	8	105	17	NA	2.3	1.1 U	11
Lead (b)	8.1	220	11.2 N	14.2 N	2.8 PN	2	15	53	6.6	NA	1.9	1.1 U	13
Mercury	0.025	0.209 PB	0.074 PB	0.242 PB	0.05 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA
Nickel	8.2	18	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	NA	NA
Selenium	71	4 UN	2.2 PN	2 UN	2 UN	1 U	5 U	1 U	NA	NA	NA	NA	NA
Thallium	0.47	NA	NA	NA	NA	1	1 U	1 U	NA	NA	NA	NA	NA
Zinc	81	280 E	29 E	230 E	46 E	8	24	135	19	NA	14	3.7	17
DISSOLVED METALS (µg/L)													
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA	7.2	NA	3.4	2.0 U	12
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	8.1	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	1.0 U	1.0 U	9.9
Manganese	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA	3.0 U	NA	8.6	3.0 U	12
PAHs (µg/L)													
Naphthalene	83	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	2.2	5.3	NA	NA	NA
2-Methylnaphthalene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	41 E	22 E	NA	NA	NA
1-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	0.42	0.050 U	NA	NA	NA
Acenaphthene	990	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.6	0.58	NA	NA	NA
Fluorene	3	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	2.0	0.46	NA	NA	NA
Phenanthrene	6	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	3.5	0.050 U	NA	NA	NA
Anthracene	9.6	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	4.1	0.36	NA	NA	NA
Fluoranthene	3.3	NA	NA	NA	NA	NA	NA	NA	0.050 U	0.050 U	NA	NA	NA
Pyrene	15	NA	NA	NA	NA	NA	NA	NA	0.050 U	0.050 U	NA	NA	NA
Dibenzofuran	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.018	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	0.050 U	0.050 U	NA	NA	NA
Benzo(a)anthracene	0.018	NA	NA	NA	NA	NA	NA	NA	0.050 U	0.050 U	NA	NA	NA
Benzo(b)fluoranthene	0.018	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	0.050 U	0.050 U	NA	NA	NA
Benzo(k)fluoranthene	0.018	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	0.050 U	0.050 U	NA	NA	NA
Chrysene	0.018	NA	NA	NA	NA	NA	NA	NA	0.050 U	0.050 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.01	NA	NA	NA	NA	NA	NA	NA	0.050 U	0.050 U	NA	NA	NA
Total cPAHs (TEQ)	0.018	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA
SEMIVOLATILES (µg/L)													
Naphthalene	83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	3	NA	NA	NA	NA	1.0 U	1.2	1.0 U	NA	NA	NA	NA	NA
Total Phenols	580	2	2	2 U	2 U	2.0 U	2.0 U	2.0 U	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	1.4 J	1 U	1 U	1 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
4-Methylphenol	---	5.5	1 U	1 U	1 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Pentachlorophenol	10	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NA	NA	NA
N-Nitrosodiphenylamine	6	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Dimethlyphthalate	1,700	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Formaldehyde	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,5-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	3	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	NA	NA	NA	NA	NA
2,3,5,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	3,600	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	NA	NA	NA	NA	NA
m,p-Cresol	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		Ecology Investigation (Seep Samples)				Expanded Site Investigation (Seep Samples)			Focused RI				
Sample ID:		E-1	E-2	E-3	E-4	S-1	S-2	S-3	MW-1	MW-5	S-1	S-2	S-3
Sample Number:		92 198040	92 198041	92 198043	92 198044	CL-SW-1	CL-SW-2	CL-SW-3					
Sample Date :		5/6/1992	5/6/1992	5/6/1992	5/6/1992	9/24/1996	9/24/1996	9/24/1996	7/13/1998	7/13/1998	7/13/1998	7/13/1998	7/13/1998
Lab ID:	Cornwall Ave LF Site Screening Level (a)					Q243D	Q243E	Q243F	07-066-06	07-066-01	07-066-04	07-066-03	07-066-05
TOTAL PETROLEUM HYDROCARBONS (µg/L)													
NWTPH-HCID													
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	10000 U	10000 U	10000 U	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	NA	NA	NA	NA	10000 U	10000 U	10000 U	NA	NA	NA	NA	NA
Oil-Range Hydrocarbons	500	NA	NA	NA	NA	25000 U	25000 U	25000 U	NA	NA	NA	NA	NA
TPH (µg/L)													
TPH-418	---	2000	1000 U	1000 U	1000 U	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	2800	650	NA	NA	NA
Oil-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	520	500 U	NA	NA	NA
VOLATILES (µg/L)													
Acetone	---	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	NA	NA	NA	NA	NA
Carbon Disulfide	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Benzene	23	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Toluene	15,000	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Chlorobenzene	1,600	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Ethylbenzene	2,100	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Styrene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
m,p-Xylene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
o-Xylene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	6.1	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Isopropylbenzene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
tert-Butylbenzene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
sec-Butylbenzene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
4-Isopropyltoluene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
n-Butylbenzene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Naphthalene	83	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	NA	NA	NA	NA	NA
n-Propylbenzene	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
PCBs (µg/L)													
Aroclor 1016	0.01	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Aroclor 1242	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Aroclor 1248	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Aroclor 1254	0.01	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Aroclor 1260	0.03	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Aroclor 1221	---	NA	NA	NA	NA	2.0 U	2.0 U	2.0 U	NA	NA	NA	NA	NA
Aroclor 1232	---	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Total PCBs	0.025	NA	NA	NA	NA	2.0 U	2.0 U	2.0 U	NA	NA	NA	NA	NA
ORGANOCHLORINE PESTICIDES (µg/L)													
METHOD SW8081B	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HERBICIDES (µg/L)													
METHOD SW8151	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TANNINS & LIGNINS (mg/L)													
Tannins & Lignins	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RADIOCHEMISTRY													
Gross Beta (pCi/L)	50	NA	NA	NA	NA	32.9	218	25.4	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		Ecology Investigation (Seep Samples)				Expanded Site Investigation (Seep Samples)			Focused RI				
Sample ID:		E-1	E-2	E-3	E-4	S-1	S-2	S-3	MW-1	MW-5	S-1	S-2	S-3
Sample Number:		92 198040	92 198041	92 198043	92 198044	CL-SW-1	CL-SW-2	CL-SW-3					
Sample Date :		5/6/1992	5/6/1992	5/6/1992	5/6/1992	9/24/1996	9/24/1996	9/24/1996	7/13/1998	7/13/1998	7/13/1998	7/13/1998	7/13/1998
Lab ID:	Cornwall Ave LF Site Screening Level (a)					Q243D	Q243E	Q243F	07-066-06	07-066-01	07-066-04	07-066-03	07-066-05
DIOXINS/FURANS (pg/L)													
1,2,3,7,8,9-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dioxin/Furan TEQ (ND=0.5DL) - Human/Mammal	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS (mg/L unless indicated otherwise)													
Alkalinity (mg/L CaCO3)	---	NA	NA	NA	NA	490	770	280	NA	NA	NA	NA	NA
Bicarbonate (mg/L CaCO3)	---	NA	NA	NA	NA	490	770	280	NA	NA	NA	NA	NA
Color (Pt-Co)	---	NA	NA	NA	NA	220	35	190	NA	NA	NA	NA	NA
Conductivity (umhos/cm)	---	NA	NA	NA	NA	2600	25000	2400	NA	NA	NA	NA	NA
Total Dissolved Solids	---	NA	NA	NA	NA	1500	14000	1200	NA	NA	NA	NA	NA
Salinity (g/kg)	---	NA	NA	NA	NA	1.1	16	1.0	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	NA	NA	NA	120	76	22	65	NA	12	57	14
Calcium	---	NA	NA	NA	NA	77.1	202	47.0	NA	NA	NA	NA	NA
Iron	---	52.4 E	6.6 E	16.7 E	6.4 E	23.0	1.53	8.74	NA	NA	NA	NA	NA
Magnesium	---	NA	NA	NA	NA	59.2	469	45.2	NA	NA	NA	NA	NA
Manganese	0.1	NA	NA	NA	NA	0.494	0.084	0.281	NA	NA	NA	NA	NA
Potassium	---	NA	NA	NA	NA	29.0	196	19.8	NA	NA	NA	NA	NA
Sodium	---	NA	NA	NA	NA	407	4320	351	NA	NA	NA	NA	NA
Bromide	---	NA	NA	NA	NA	0.37	19	0.10 U	NA	NA	NA	NA	NA
Fluoride	---	NA	NA	NA	NA	0.15	0.37	0.20	NA	NA	NA	NA	NA
Chloride	---	NA	NA	NA	NA	500	7200	620	NA	NA	NA	NA	NA
Total Cyanide	16	0.01	0.004	0.002	0.006	0.004 U	0.071	0.004 U	0.004 UJ	NA	0.004 UJ	0.004 UJ	0.004 UJ
N-Nitrate (mg-N/L)	---	NA	NA	NA	NA	0.010 U	0.011	0.010 U	NA	NA	NA	NA	NA
N-Nitrite (mg-N/L)	---	NA	NA	NA	NA	0.010	0.010 U	0.010	NA	NA	NA	NA	NA
Nitrate + Nitrite (mg-N/L)	---	NA	NA	NA	NA	0.016	0.011	0.010 U	NA	NA	NA	NA	NA
Ortho-Phosphorous (mg-P/L)	---	NA	NA	NA	NA	0.008 U	0.33	0.012	NA	NA	NA	NA	NA
Sulfate	---	NA	NA	NA	NA	44	670	46	NA	NA	NA	NA	NA
Sulfite	---	NA	NA	NA	NA	0.1 U	4.9	0.1 U	NA	NA	NA	NA	NA
Fecal Coliform (CFU/100 mL)	14	NA	NA	NA	NA	46	3 U	300	10	NA	190	80	230
Sulfur	---	2 J	NA	NA	2,500 J	NA	NA	NA	NA	NA	NA	NA	NA
Total suspended solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NH_3-Ammonia (mg NH_3/L) (c)	0.035	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total organic carbon	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	---	3,500 J	10 J	1,100 J	5.2	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biological Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FIELD PARAMETERS													
pH	6.2< pH <8.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Temperature (C)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (uS)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved oxygen (mg/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORP (mV)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ferrous Iron (mg/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		Supplemental RI															
Sample ID:		MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	RIS-1	RIS-1	RIS-2	RIS-2	RIS-3	RIS-3
Sample Number:																	
Sample Date :		7/17/2002	7/16/2002	7/16/2002	7/17/2002	7/16/2002	7/16/2002	7/17/2002	7/16/2002	7/17/2002	7/17/2002	7/10/2002	8/8/2002	7/10/2002	8/8/2002	7/10/2002	8/8/2002
Lab ID:	Cornwall Ave LF Site Screening Level (a)	EO60A	EO60B	EO60C	EO60D	EO60E	EO60F	EO60G	EO60H	EO60I	EO60J	EN82A	EQ21A	EN82B	EQ21B	EN82C	EQ21C
TOTAL METALS (µg/L)																	
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	5	2 U	7	2 U	5
Lead (b)	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	1 U	1 U	2	1 U	2
Mercury	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6 U	10 U	6 U	10 U	6 U	10 U
DISSOLVED METALS (µg/L)																	
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	4 U	2 U	5	2 U	4 U
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	1	2 U	1 U	2 U	2
Manganese	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6 U	10 U	8	10 U	6 U	10 U
PAHs (µg/L)																	
Naphthalene	83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total cPAHs (TEQ)	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (µg/L)																	
Naphthalene	83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Phenols	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethlyphthalate	1,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,5-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,5,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	3,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		Supplemental RI															
Sample ID:		MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	RIS-1	RIS-1	RIS-2	RIS-2	RIS-3	RIS-3
Sample Number:																	
Sample Date :		7/17/2002	7/16/2002	7/16/2002	7/17/2002	7/16/2002	7/16/2002	7/17/2002	7/16/2002	7/17/2002	7/17/2002	7/10/2002	8/8/2002	7/10/2002	8/8/2002	7/10/2002	8/8/2002
Lab ID:	Cornwall Ave LF Site Screening Level (a)	EO60A	EO60B	EO60C	EO60D	EO60E	EO60F	EO60G	EO60H	EO60I	EO60J	EN82A	EQ21A	EN82B	EQ21B	EN82C	EQ21C
TOTAL PETROLEUM HYDROCARBONS (µg/L)																	
NWTPH-HCID																	
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oil-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH (µg/L)																	
TPH-418	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	250 U	NA	250 U	NA	250 U	830	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	NA	NA
Oil-Range Hydrocarbons	500	500 U	NA	500 U	NA	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	NA	NA
VOLATILES (µg/L)																	
Acetone	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	23	1.0 U	NA	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA
Toluene	15,000	1.0 U	NA	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA
Chlorobenzene	1,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2,100	1.0 U	NA	1.0 U	NA	1.4	1.7	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA
Styrene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	---	1.0 U	NA	1.0 U	NA	1.0 U	1.8	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA
o-Xylene	---	1.0 U	NA	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	6.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs (µg/L)																	
Aroclor 1016	0.01	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	NA	0.050 U	0.050 U	0.050 U	0.050 U	0.077 U	0.050 U	0.082 U	0.050 U	0.050 U	0.050 U
Aroclor 1242	---	0.050 U	0.12 U	0.16 U	0.050 U	0.050 U	NA	0.050 U	0.12 U	0.050 U	0.080 U	0.050 U	0.14	0.050 U	0.16	0.050 U	0.050 U
Aroclor 1248	---	0.050 U	0.050 U	0.050 U	0.050 U	0.13 U	NA	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	0.050 U
Aroclor 1254	0.01	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	NA	0.053	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
Aroclor 1260	0.03	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	NA	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	0.050 U
Aroclor 1221	---	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.19 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U
Aroclor 1232	---	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	NA	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.062 U	0.050 U
Total PCBs	0.025	0.10 U	0.12 U	0.16 U	0.10 U	0.13 U	NA	0.053	0.12 U	0.10 U	0.10 U	0.19 U	0.14	0.20 U	0.16	0.10 U	0.10 U
ORGANOCHLORINE PESTICIDES (µg/L)																	
METHOD SW8081B	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HERBICIDES (µg/L)																	
METHOD SW8151	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TANNINS & LIGNINS (mg/L)																	
Tannins & Lignins	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RADIOCHEMISTRY																	
Gross Beta (pCi/L)	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		Supplemental RI															
Sample ID:		MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	RIS-1	RIS-1	RIS-2	RIS-2	RIS-3	RIS-3
Sample Number:																	
Sample Date :		7/17/2002	7/16/2002	7/16/2002	7/17/2002	7/16/2002	7/16/2002	7/17/2002	7/16/2002	7/17/2002	7/17/2002	7/10/2002	8/8/2002	7/10/2002	8/8/2002	7/10/2002	8/8/2002
Lab ID:	Cornwall Ave LF Site Screening Level (a)	EO60A	EO60B	EO60C	EO60D	EO60E	EO60F	EO60G	EO60H	EO60I	EO60J	EN82A	EQ21A	EN82B	EQ21B	EN82C	EQ21C
DIOXINS/FURANS (pg/L)																	
1,2,3,7,8,9-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dioxin/Furan TEQ (ND=0.5DL) - Human/Mammal	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS (mg/L unless indicated otherwise)																	
Alkalinity (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Color (Pt-Co)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (umhos/cm)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Salinity (g/kg)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4	2.4	12	39	26	2.1
Calcium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.025 UJ	0.005 U	0.005 U	0.005 U	0.008	0.005 U
N-Nitrate (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrite (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphorous (mg-P/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfite	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fecal Coliform (CFU/100 mL)	14	1 U	14	14	820	19000	1 U	1 U	2 U	1	41	1 U	1 U	1 U	1 U	1 U	1 U
Sulfur	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total suspended solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.8	6.6	5.0	6.3	4.2	5.2
N-Ammonia (mg N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.3	6.9	6.4	6.3	1.3	1.1
NH_3-Ammonia (mg NH_3/L) (c)	0.035	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.036	0.060	0.015	0.018	0.059	0.053
Total organic carbon	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.8	4.6	3.4	4.4	2.1	1.5 U
Carbon disulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biological Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FIELD PARAMETERS																	
pH	6.2< pH <8.5	7.37	6.72	6.65	6.63	6.52	6.40	6.93	6.45	6.88	6.58	7.21	7.49	6.82	6.94	8.05	8.15
Temperature (C)	---	13.5	11.6	13.3	10.2	14.3	14.4	13.5	14.6	14.2	11.9	14.6	15.4	18.5	17.2	20.8	18.5
Conductivity (uS)	---	245	489	584	199	330	145	524	591	235	533	26700	28525	24000	24400	23825	29300
Dissolved oxygen (mg/L)	---	0.1 U	0.1 U	0.1 U	0.1 U	0.36	0.23	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Turbidity (NTU)	---	25	12	12	5	2	16	50	62	551	13	1 U	1 U	1 U	1 U	1 U	1 U
ORP (mV)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ferrous Iron (mg/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		2004 Phase II Investigation		2004 R.G Haley RI Investigation										
Sample ID:		AF-MW-01	AF-MW-02	CL-MW-1	CL-MW-1H					CL-MW-1S				
Sample Number:				(MW-1)										
Sample Date :		7/26/2004	7/26/2004	6/24/2004	6/24/2004	9/24/2004	12/9/2004	3/31/2005	9/15/2005	6/22/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005
Lab ID:	Cornwall Ave LF Site Screening Level (a)													
TOTAL METALS (µg/L)														
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (b)	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (µg/L)														
Arsenic	5.0	0.7	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	---	2660	7940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	8.1	2 U	2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	100	1050	1400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	1	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	10 U	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (µg/L)														
Naphthalene	83	0.10 U	1.6	NA	2.68	NA	1.16	0.01 U	2.44	47.1 JD	NA	3.87	1.91 D	0.1 DU
2-Methylnaphthalene	---	0.10 U	97	NA	3.63	NA	1.37	1.42	9.78	770 JD	NA	205	364 D	552 D
1-Methylnaphthalene	---	0.51	120	NA	NA	NA	NA	NA	NA	4.23 J	NA	NA	NA	NA
Acenaphthylene	---	0.10 U	0.10 U	NA	1.38	NA	0.1 U	0.01 U	0.01 U	NA	NA	0.1 U	2.68	0.1 U
Acenaphthene	990	0.14	4	NA	6.94	NA	6.41	6.85	5.46 E	16.2 JD	NA	4.55	13.3 D	40.2
Fluorene	3	0.10 U	2.9	NA	7.08	NA	5.54	3.42	7.58	19.7 JD	NA	4.61	12.3 D	18.3 D
Phenanthrene	6	0.10 U	2.8	NA	0.959	NA	1.36	0.689	0.883	41.5 JD	NA	5.31	16.3 D	40 D
Anthracene	9.6	0.10 U	0.10 U	NA	0.268	NA	0.92	0.01 U	0.01 U	0.1 UJ	NA	0.1 U	0.1 U	0.1 U
Fluoranthene	3.3	0.10 U	0.10 U	NA	0.26	NA	0.417	0.263	0.313	1.59 J	NA	0.1 U	0.1 U	0.1 U
Pyrene	15	0.10 U	0.12	NA	0.582	NA	0.713	0.687	0.476	3.01 J	NA	0.1 U	1.63	6.54
Dibenzofuran	---	1.0 U	1.0 U	NA	3.2	NA	2.03	0.816	1.71	3.18 J	NA	0.1 U	4.76	0.1 U
Benzo(a)pyrene	0.018	0.10 U	0.10 U	NA	0.0112	NA	0.1 U	0.0122	0.01 U	0.1 UJ	NA	0.1 U	0.1 U	0.1 U
Benzo(a)anthracene	0.018	0.10 U	0.10 U	NA	0.0187	NA	0.1 U	0.0315	0.01 U	0.293 J	NA	0.1 U	0.1 U	0.1 U
Benzo(b)fluoranthene	0.018	0.10 U	0.10 U	NA	0.0156	NA	0.1 U	0.0174	0.0296	0.1 UJ	NA	0.1 U	0.1 U	0.1 U
Benzo(k)fluoranthene	0.018	0.10 U	0.10 U	NA	0.0133	NA	0.1 U	0.0138	0.0547	0.1 UJ	NA	0.1 U	0.1 U	0.1 U
Chrysene	0.018	0.10 U	0.10 U	NA	0.072	NA	0.141	0.076	0.01 U	0.623 J	NA	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	0.01	0.10 U	0.10 U	NA	0.01 U	NA	0.1 U	0.01 U	0.01 U	0.1 U	NA	0.1 U	0.398	0.1 U
Total cPAHs (TEQ)	0.018	ND	ND	NA	0.00259	NA	0.00141	0.00391	NA	0.00623	NA	ND	0.04	ND
SEMIVOLATILES (µg/L)														
Naphthalene	83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Phenols	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	10	NA	NA	NA	1.64 J	NA	0.5 UJ	1.67 J	0.05 U	3.1 J	NA	0.5 UJ	0.5 U	0.5 U
N-Nitrosodiphenylamine	6	NA	NA	NA	1.74	NA	0.2 UJ	0.02 U	0.02 U	0.2 UJD	NA	0.2 UJ	4.17 J	0.2 DU
Dimethlyphthalate	1,700	1.0 U	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	---	89 JB	6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,5-Tetrachlorophenol	---	NA	NA	NA	0.5 U	NA	5 U	0.5 U	0.5 U	5 UJ	NA	5 U	5 U	5 U
2,4,6-Trichlorophenol	3	5.0 U	5.0 U	NA	0.0835	NA	0.5 U	0.05 U	0.05 U	0.5 UJ	NA	0.5 U	0.5 U	0.5 U
2,3,5,6-Tetrachlorophenol	---	NA	NA	NA	0.5 U	NA	5 U	0.5 U	0.5 U	5 UJ	NA	5 U	5 U	NA
2,4,5-Trichlorophenol	3,600	5.0 U	5.0 U	NA	0.05 U	NA	0.5 U	0.05 U	0.05 U	1 UJ	NA	0.5 U	0.5 U	NA
m,p-Cresol	---	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	---	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:		2004 Phase II Investigation		2004 R.G Haley RI Investigation										
		AF-MW-01	AF-MW-02	CL-MW-1	CL-MW-1H					CL-MW-1S				
Sample Number:				(MW-1)										
Sample Date :		7/26/2004	7/26/2004	6/24/2004	6/24/2004	9/24/2004	12/9/2004	3/31/2005	9/15/2005	6/22/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005
Lab ID:	Cornwall Ave LF Site Screening Level (a)													
TOTAL PETROLEUM HYDROCARBONS (µg/L)														
NWTPH-HCID														
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oil-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH (µg/L)														
TPH-418	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline-Range Hydrocarbons	800	250 U	770 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	250 U	760 J	250 U	2020	1290	3130	3120	1860	1720	21200	27300	41500	250 U
Oil-Range Hydrocarbons	500	NA	NA	500 U	500 U	500 U	500 U	500 U	500 U	1160	22500	24000	104000	500 U
VOLATILES (µg/L)														
Acetone	---	5.0 U	5.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	---	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	23	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	15,000	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	1,600	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2,100	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	---	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	---	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	---	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	6.1	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	---	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	---	1.0 U	6.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	---	1.0 U	1.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	---	1.0 U	4.4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	---	3.4	1.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	---	1.0 U	3.0 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	83	5.0 U	5.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	---	1.0 U	5.8 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs (µg/L)														
Aroclor 1016	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORGANOCHLORINE PESTICIDES (µg/L)														
METHOD SW8081B	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HERBICIDES (µg/L)														
METHOD SW8151	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TANNINS & LIGNINS (mg/L)														
Tannins & Lignins	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RADIOCHEMISTRY														
Gross Beta (pCi/L)	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		2004 Phase II Investigation		2004 R.G Haley RI Investigation										
Sample ID:		AF-MW-01	AF-MW-02	CL-MW-1	CL-MW-1H					CL-MW-1S				
Sample Number:				(MW-1)										
Sample Date :		7/26/2004	7/26/2004	6/24/2004	6/24/2004	9/24/2004	12/9/2004	3/31/2005	9/15/2005	6/22/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005
Lab ID:	Cornwall Ave LF Site Screening Level (a)													
DIOXINS/FURANS (pg/L)														
1,2,3,7,8,9-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dioxin/Furan TEQ (ND=0.5DL) - Human/Mammal	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS (mg/L unless indicated otherwise)														
Alkalinity (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Color (Pt-Co)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (umhos/cm)	---	4320	1047	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Salinity (g/kg)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrate (mg-N/L)	---	0.010 U	0.010 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrite (mg-N/L)	---	0.010 U	0.010 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite (mg-N/L)	---	0.010 U	0.010 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphorous (mg-P/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	---	7.4	19.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfite	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fecal Coliform (CFU/100 mL)	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfur	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total suspended solids	---	4.4	41.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NH_3-Ammonia (mg NH_3/L) (c)	0.035	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total organic carbon	---	NA	NA	48.4	9.24	NA	NA	NA	NA	32.2	NA	NA	NA	NA
Carbon disulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biological Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FIELD PARAMETERS														
pH	6.2< pH <8.5	6.7	6.52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Temperature (C)	---	15.18	16.57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (uS)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved oxygen (mg/L)	---	1.04	1.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	9.48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORP (mV)	---	-95.6	-95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ferrous Iron (mg/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:		2004 R.G Haley RI Investigation														
		CL-MW-1D					MW-6					MW-7				
Sample Number:																
Sample Date :		6/22/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005	6/24/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005	6/24/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005
Lab ID:	Cornwall Ave LF Site Screening Level (a)															
TOTAL METALS (µg/L)																
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (b)	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (µg/L)																
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (µg/L)																
Naphthalene	83	NA	NA	NA	NA	NA	12.5 D	NA	3.95	9.66 D	904 D	0.405	NA	0.546	0.537	0.809 D
2-Methylnaphthalene	---	NA	NA	NA	NA	NA	37 D	NA	7.80	32.2 D	10,400 D	32.8 D	NA	8.39	30.9 D	8.19 D
1-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	---	NA	NA	NA	NA	NA	1.1	NA	0.1 U	1.1	5 U	0.0698	NA	0.1 U	0.127	0.2 U
Acenaphthene	990	NA	NA	NA	NA	NA	7.74 D	NA	3.03	6.19 D	731 D	0.62	NA	0.383	0.938	0.605 D
Fluorene	3	NA	NA	NA	NA	NA	7.17 D	NA	3.08	5.67 D	805 D	0.0165	NA	0.385	0.551	0.886
Phenanthrene	6	NA	NA	NA	NA	NA	5.33 D	NA	1.97	5.32 D	2390 D	0.253	NA	0.3	0.442	0.283 D
Anthracene	9.6	NA	NA	NA	NA	NA	0.419	NA	0.1 U	0.01 U	5 U	0.01 U	NA	0.1 U	0.057	0.2 U
Fluoranthene	3.3	NA	NA	NA	NA	NA	0.0627	NA	0.1 U	0.0681	78.7	0.0442	NA	0.1 U	0.0603	0.0788
Pyrene	15	NA	NA	NA	NA	NA	0.198	NA	0.1 U	0.191	239	0.0375	NA	0.1 U	0.0415	0.2 U
Dibenzofuran	---	NA	NA	NA	NA	NA	1.92	NA	0.1 U	1.85	339	0.146	NA	0.107	0.181	0.2 U
Benzo(a)pyrene	0.018	NA	NA	NA	NA	NA	0.01 U	NA	0.1 U	0.01 U	5 U	0.01 U	NA	0.1 U	0.01 U	0.2 U
Benzo(a)anthracene	0.018	NA	NA	NA	NA	NA	0.01 U	NA	0.1 U	0.01 U	15.3	0.01 U	NA	0.1 U	0.01 U	0.2 U
Benzo(b)fluoranthene	0.018	NA	NA	NA	NA	NA	0.01 U	NA	0.1 U	0.01 U	5 U	0.01 U	NA	0.1 U	0.01 U	0.2 U
Benzo(k)fluoranthene	0.018	NA	NA	NA	NA	NA	0.01 U	NA	0.1 U	0.01 U	5 U	0.01 U	NA	0.1 U	0.01 U	0.2 U
Chrysene	0.018	NA	NA	NA	NA	NA	0.01 U	NA	0.1 U	0.01 U	27.4	0.01 U	NA	0.1 U	0.01 U	0.2 U
Indeno(1,2,3-cd)pyrene	0.01	NA	NA	NA	NA	NA	0.01 U	NA	0.1 U	0.01 U	5 U	0.01 U	NA	0.1 U	0.01 U	0.01 U
Total cPAHs (TEQ)	0.018	NA	NA	NA	NA	NA	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND
SEMIVOLATILES (µg/L)																
Naphthalene	83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Phenols	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	10	NA	NA	NA	NA	NA	78.5 J	NA	0.5 UJ	7.37	25 U	0.05 U	NA	0.5 UJ	0.59	0.05 UJ
N-Nitrosodiphenylamine	6	NA	NA	NA	NA	NA	0.02 U	NA	0.2 UJ	1.06	10 DU	0.407	NA	0.41 J	0.457	0.469 D
Dimethlyphthalate	1,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,5-Tetrachlorophenol	---	NA	NA	NA	NA	NA	0.5 U	NA	5 U	1.04	250 U	0.5 U	NA	5 U	0.5 U	10 U
2,4,6-Trichlorophenol	3	NA	NA	NA	NA	NA	0.721	NA	0.5 U	NA	25 U	0.05 U	NA	0.5 U	0.0526	1 U
2,3,5,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	1.87	NA	5 U	10 U	250 U	0.5 U	NA	5 U	0.5 U	10 U
2,4,5-Trichlorophenol	3,600	NA	NA	NA	NA	NA	0.192	NA	0.5 U	1.18	25 U	0.05 U	NA	0.5 U	0.05 U	1 U
m,p-Cresol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:		2004 R.G Haley RI Investigation														
		CL-MW-1D					MW-6					MW-7				
Sample Number:																
Sample Date :		6/22/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005	6/24/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005	6/24/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005
Lab ID:	Cornwall Ave LF Site Screening Level (a)															
TOTAL PETROLEUM HYDROCARBONS (µg/L)																
NWTPH-HCID																
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oil-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH (µg/L)																
TPH-418	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	1680	1870	2080	1370	250 U	287	1510	1290	974	202000	279	409	341	250 U	250 U
Oil-Range Hydrocarbons	500	581	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	50000 U	500 U	500 U	500 U	500 U	500 U
VOLATILES (µg/L)																
Acetone	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	15,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	1,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	6.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs (µg/L)																
Aroclor 1016	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORGANOCHLORINE PESTICIDES (µg/L)																
METHOD SW8081B	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HERBICIDES (µg/L)																
METHOD SW8151	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TANNINS & LIGNINS (mg/L)																
Tannins & Lignins	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RADIOCHEMISTRY																
Gross Beta (pCi/L)	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:		2004 R.G Haley RI Investigation														
		CL-MW-1D					MW-6					MW-7				
Sample Number:																
Sample Date :		6/22/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005	6/24/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005	6/24/2004	9/24/2004	12/9/2004	3/31/2005	9/14/2005
Lab ID:	Cornwall Ave LF Site Screening Level (a)															
DIOXINS/FURANS (pg/L)																
1,2,3,7,8,9-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dioxin/Furan TEQ (ND=0.5DL) - Human/Mammal	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS (mg/L unless indicated otherwise)																
Alkalinity (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Color (Pt-Co)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (umhos/cm)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Salinity (g/kg)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrate (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrite (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphorous (mg-P/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfite	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fecal Coliform (CFU/100 mL)	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfur	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total suspended solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NH_3-Ammonia (mg NH_3/L) (c)	0.035	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total organic carbon	---	16.1	NA	NA	NA	NA	12.1	NA	NA	NA	NA	31.8	NA	NA	NA	NA
Carbon disulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biological Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FIELD PARAMETERS																
pH	6.2< pH <8.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Temperature (C)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (uS)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved oxygen (mg/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORP (mV)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ferrous Iron (mg/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		2012 Supplemental RI Groundwater Investigation												
Sample ID:		MW-11S	MW-11S	MW-11D	MW-11D	MW-12S	MW-12S	MW-12D	MW-12D	MW-13S	MW-13S	MW-13D	MW-13D	MW-13D (a)
Sample Number:														
Sample Date :		7/31/2012	09/24/2012	7/31/2012	09/24/2012	7/31/2012	09/24/2012	7/31/2012	09/24/2012	7/30/2012	09/24/2012	7/30/2012	09/24/2012	09/24/2012
Lab ID:	Cornwall Ave LF Site Screening Level (a)	VE38E/ VE43F	VK65I/ VK75I	VE38C/ VE3C	VK65K/ VK75K	VE38D/ VE43D	VK65H/ VK75H	VE38B/ VE43B	VK65J/ VK75J	VE22E/ VE24E	VK65G/ VK75G	VE22G/ VE24G	VK65L/ VK75L/ VL48G	VK65O
TOTAL METALS (µg/L)														
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (b)	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (µg/L)														
Arsenic	5.0	1.3	0.5 U	0.4	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.9	0.5 U	NA
Copper	2.4	2.6	0.9	0.7	0.5	1 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	8.1	1	0.2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA
Manganese	100	1430	858	84	72	680	600	163	205	704	724	257	244	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	26	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	NA
PAHs (µg/L)														
Naphthalene	83	0.027	0.10 U	0.01 U	0.10 U	0.062	0.10 U	0.046	0.10 U	0.14	3.0	0.31	0.24	0.27
2-Methylnaphthalene	---	0.052	0.10 U	0.01 U	0.10 U	0.025	0.10 U	0.034	0.10 U	0.12	0.25	0.48	0.32	0.33
1-Methylnaphthalene	---	0.082	0.10 U	0.01 U	0.10 U	0.082	0.14	0.053	0.16	0.27	0.32	0.66	0.54	0.56
Acenaphthylene	---	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.011	0.10 U	0.10 U
Acenaphthene	990	0.042	0.10 U	0.01 U	0.10 U	0.078	0.10 U	0.025	0.10 U	0.16	0.17	0.091	0.14	0.11
Fluorene	3	0.036	0.10 U	0.01 U	0.10 U	0.069	0.10 U	0.023	0.10 U	0.12	0.11	0.16	0.12	0.13
Phenanthrene	6	0.065	0.10 U	0.01 U	0.10 U	0.062	0.10 U	0.04	0.10 U	0.11	0.12	0.18	0.16	0.18
Anthracene	9.6	0.01	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.015	0.10 U	0.018	0.10 U	0.10 U
Fluoranthene	3.3	0.01 U	0.10 U	0.01 U	0.10 U	0.029	0.10 U	0.01 U	0.10 U	0.02	0.10 U	0.028	0.10 U	0.10 U
Pyrene	15	0.01 U	0.10 U	0.01 U	0.10 U	0.019	0.10 U	0.01 U	0.10 U	0.018	0.10 U	0.025	0.10 U	0.10 U
Dibenzofuran	---	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.024	0.10 U	0.10 U
Benzo(a)pyrene	0.018	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.10 U
Benzo(a)anthracene	0.018	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.10 U
Benzo(b)fluoranthene	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.018	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.10 U
Indeno(1,2,3-cd)pyrene	0.01	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U	0.10 U
Total cPAHs (TEQ)	0.018	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMIVOLATILES (µg/L)														
Naphthalene	83	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	3.0	1 U	1.0 U	1.0 U
2-Methylnaphthalene	15	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U
1-Methylnaphthalene	---	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U
Acenaphthene	990	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U
Fluorene	3	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U
Phenanthrene	---	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U
bis(2-Ethylhexyl)phthalate	3	1.2	3.0 U	1.7	3.0 U	1.8	3.0 U	1.4	3.0 U	2.5	3.0 U	2.1	3.0 U	3.0 U
Total Phenols	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U
4-Methylphenol	---	1 U	2.0 U	1 U	2.0 U	1 U	2.0 U	1 U	2.0 U	1 U	2.0 U	1 U	2.0 U	2.0 U
Pentachlorophenol	10	5 U	10 U	5 U	10 U	5 U	10 U	5 U	10 U	5 U	10 U	5 U	10 U	10 U
N-Nitrosodiphenylamine	6	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U
Dimethlyphthalate	1,700	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U
Formaldehyde	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,5-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	3	5 U	3.0 U	5 U	3.0 U	5 U	3.0 U	5 U	3.0 U	5 U	3.0 U	5 U	3.0 U	3.0 U
2,3,5,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	3,600	5 U	5.0 U	5 U	5.0 U	5 U	5.0 U	5 U	5.0 U	5 U	5.0 U	5 U	5.0 U	5.0 U
m,p-Cresol	---	1 U	2.0 U	1 U	2.0 U	1 U	2.0 U	1 U	2.0 U	1 U	2.0 U	1 U	2.0 U	2.0 U
2,3,4,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	---	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1 U	1.0 U	1.0 U

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:		2012 Supplemental RI Groundwater Investigation												
Sample Number:		MW-11S	MW-11S	MW-11D	MW-11D	MW-12S	MW-12S	MW-12D	MW-12D	MW-13S	MW-13S	MW-13D	MW-13D	MW-13D (a)
Sample Date :		7/31/2012	09/24/2012	7/31/2012	09/24/2012	7/31/2012	09/24/2012	7/31/2012	09/24/2012	7/30/2012	09/24/2012	7/30/2012	09/24/2012	09/24/2012
Lab ID:	Cornwall Ave LF Site Screening Level (a)	VE38E/ VE43F	VK65I/ VK75I	VE38C/ VE3C	VK65K/ VK75K	VE38D/ VE43D	VK65H/ VK75H	VE38B/ VE43B	VK65J/ VK75J	VE22E/ VE24E	VK65G/ VK75G	VE22G/ VE24G	VK65L/ VK75L/ VL48G	VK65O
TOTAL PETROLEUM HYDROCARBONS (µg/L)														
NWTPH-HCID														
Gasoline-Range Hydrocarbons	800	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	> 250	NA
Diesel-Range Hydrocarbons	500	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	> 500	NA
Oil-Range Hydrocarbons	500	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	> 500	NA
TPH (µg/L)														
TPH-418	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	330	NA
Diesel-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 U	NA
Oil-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200 U	NA
VOLATILES (µg/L)														
Acetone	---	5.0 U	5.0 U	5.0 U	5.0 U	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NA
Carbon Disulfide	---	0.2 U	0.20 U	0.2 U	0.76	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	NA
Benzene	23	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20	NA
Toluene	15,000	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2	0.20 U	NA
Chlorobenzene	1,600	0.2 U	0.20 U	0.2 U	0.20 U	2.6	3.4	0.44	1.2	1.6	1.3	0.3	0.73	NA
Ethylbenzene	2,100	0.2 U	0.20 U	0.2 U	0.20 U	0.46	3.1	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	NA
Styrene	---	0.2 U	0.20 U	0.2 U	0.20 U	0.82	0.26	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	NA
m,p-Xylene	---	0.4 U	0.40 U	0.4 U	0.40 U	0.42	0.68	0.4 U	0.40 U	0.4 U	0.40 U	0.4 U	0.40 U	NA
o-Xylene	---	0.2 U	0.20 U	0.2 U	0.20 U	0.31	0.43	0.2 U	0.20 U	0.25	0.26	0.31	0.37	NA
1,2-Dichlorobenzene	6.1	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2	0.20 U	0.2 U	0.20 U	NA
1,4-Dichlorobenzene	5	0.2 U	0.20 U	0.2 U	0.20 U	0.86	1.1	0.2 U	0.20 U	0.73	0.90	0.24	0.39	NA
1,2,4-Trimethylbenzene	---	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	NA
Isopropylbenzene	---	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.29	0.2 U	0.20 U	0.2 U	0.20 U	0.4	0.58	NA
tert-Butylbenzene	---	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.22	NA
sec-Butylbenzene	---	0.2 U	0.20 U	0.2 U	0.20 U	0.25	0.35	0.2 U	0.20 U	0.35	0.40	0.66	0.86	NA
4-Isopropyltoluene	---	0.86	0.35	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	NA
n-Butylbenzene	---	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.25 U	0.21	0.33 U	0.41	NA
Naphthalene	83	0.5 U	0.50 U	0.5 U	0.50 U	0.5 U	0.50 U	0.5 U	0.50 U	0.5	19	0.66	0.71	NA
n-Propylbenzene	---	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U	NA
PCBs (µg/L)														
Aroclor 1016	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORGANOCHLORINE PESTICIDES (µg/L)														
METHOD SW8081B	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HERBICIDES (µg/L)														
METHOD SW8151	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TANNINS & LIGNINS (mg/L)														
Tannins & Lignins	---	1.90	1.580	29.90	37.90	7.830	1.010	9.540	12.20	1.070	0.953	1.120	6.450	NA
RADIOCHEMISTRY														
Gross Beta (pCi/L)	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		2012 Supplemental RI Groundwater Investigation												
Sample ID:		MW-11S	MW-11S	MW-11D	MW-11D	MW-12S	MW-12S	MW-12D	MW-12D	MW-13S	MW-13S	MW-13D	MW-13D	MW-13D (a)
Sample Number:														
Sample Date :		7/31/2012	09/24/2012	7/31/2012	09/24/2012	7/31/2012	09/24/2012	7/31/2012	09/24/2012	7/30/2012	09/24/2012	7/30/2012	09/24/2012	09/24/2012
Lab ID:	Cornwall Ave LF Site Screening Level (a)	VE38E/ VE43F	VK65I/ VK75I	VE38C/ VE3C	VK65K/ VK75K	VE38D/ VE43D	VK65H/ VK75H	VE38B/ VE43B	VK65J/ VK75J	VE22E/ VE24E	VK65G/ VK75G	VE22G/ VE24G	VK65L/ VK75L/ VL48G	VK65O
DIOXINS/FURANS (pg/L)														
1,2,3,7,8,9-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dioxin/Furan TEQ (ND=0.5DL) - Human/Mammal	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS (mg/L unless indicated otherwise)														
Alkalinity (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Color (Pt-Co)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (umhos/cm)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Salinity (g/kg)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	16	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 UJ	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA
N-Nitrate (mg-N/L)	---	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5	NA
N-Nitrite (mg-N/L)	---	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA
Nitrate + Nitrite (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphorous (mg-P/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	---	1.2	2.8	3	9.6	0.7	0.1	6.6	37.6	0.8	2.5	1.2	34.8	NA
Sulfite	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fecal Coliform (CFU/100 mL)	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfur	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total suspended solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg N/L)	---	4.52	4.79	4.23	4.19	18	17.7	12	12.4	17.6	15.8	19.7	22.5	NA
NH_3-Ammonia (mg NH_3/L) (c)	0.035	0.146	0.005	0.132	0.001	0.048	0.089	0.005	0.286	0.230	0.118	0.105	0.062	NA
Total organic carbon	---	22.4	20.3	21.5	33.8	13.9	14.7	26.5	25.1	11.2	11.7	11.8	13.7	NA
Carbon disulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	---	0.087	0.059	0.868	105	0.321	0.050 U	0.834	5.97	0.118	0.050 U	0.201	0.902	NA
Chemical Oxygen Demand	---	61.6	57.9	236	277	43.4	46.4	108	101	31.6	37.8	33.2	50.9	NA
Biological Oxygen Demand	---	14.5	16.0	85.4	25.0	15.1	12.0 U	15.7	27.0	18.7 J	12.0 U	13.9 J	24.0	NA
FIELD PARAMETERS														
pH	6.2< pH <8.5	8.08	6.62	8.08	6.03	7.04	7.32	6.26	8.01	7.68	7.46	7.32	7.44	NA
Temperature (C)	---	15.27	14.17	14.81	12.64	13.52	13.36	13.63	12.80	15.20	14.41	14.24	12.42	NA
Conductivity (uS)	---	2332	472	1670	2719	2694	2208	3273	2608	2406	1608	3168	2124	NA
Dissolved oxygen (mg/L)	---	0.60	0.31	1.17	5.46	1.90	0.53	1.24	0.97	0.21	0.71	0.14	0.85	NA
Turbidity (NTU)	---	2.78	11.11	3.16	5.34	4.52	0.64	12.84	5.82	9.15	1.65	13.18	84.78	NA
ORP (mV)	---	-194.3	-81.4	-311.4	-317.8	-184.3	-115.3	-266.3	-242.8	-89.4	-11.59	-84	-153.8	NA
Ferrous Iron (mg/L)	---	NA	2.4	NA	0.6	NA	1.5	NA	3.0	NA	2.6	NA	1.8	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:		2012 Additional Groundwater Investigation														
Sample Number:		MW-14S	MW-14S	MW-14D	MW-DUP Dup of MW-14D	MW-14D	MW-15S	MW-15S	MW-15S (a)	MW-15D	MW-15D	MW-DUP Dup of MW-15D	MW-16S	MW-16S	MW-16D	MW-16D
Sample Date :		7/30/2012	09/24/2012	7/30/2012	7/30/2012	09/24/2012	7/30/2012	09/24/2012	09/24/2012	7/30/2012	09/24/2012	09/24/2012	7/30/2012	09/24/2012	7/31/2012	09/24/2012
Lab ID:	Cornwall Ave LF Site Screening Level (a)	VE22D/ VE24D	VK65F/ VK75F/ VL48F	VE22F/ VE24F	VE22H/ VE24H	VK65C/ VK75C/ VL48C	VE22C/ VE24C	VK65D/ VK75D/ VL48D	VL65N	VE22A/ VE24A	VK65A/ VK75A/ VL48A	VK65M/ VK75M/ VL48H	VE22B/ VE24B	VK65E/ VK75E/ VL48E	VE38A/ VE43A/ VE90A	VK65B/ VK75B/ VL48B
TOTAL METALS (µg/L)																
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (b)	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (µg/L)																
Arsenic	5.0	0.8	0.8	0.7	0.5 U	2	0.7	0.9	NA	0.8	0.5 U	0.5 U	0.8	0.5	1 U	0.7
Copper	2.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	8.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U
Manganese	100	584	498	1440	1430	1340	529	375	NA	182	189	172	380	328	540	391
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	81	4 U	4 U	4 U	4 U	4 U	4 U	4 U	NA	4 U	4 U	4 U	5	27	40 J	50
PAHs (µg/L)																
Naphthalene	83	0.084	0.10 U	0.12	0.12	0.28	3.9	3.7	3.4	0.17	0.11	0.12	0.14	0.10 U	0.032	0.10 U
2-Methylnaphthalene	---	0.32	0.25	0.13	0.13	0.12	3.3	1.5	1.4	0.21	0.17	0.14	0.016	0.10 U	0.026	0.10 U
1-Methylnaphthalene	---	0.56	0.64	0.21	0.22	0.23	2.5	1.6	1.4	0.4	0.32	0.32	0.049	0.10 U	0.36	0.16
Acenaphthylene	---	0.01 U	0.10 U	0.01 U	0.01 U	0.10 U	0.038	0.10 U	0.10 U	0.01 U	0.10 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U
Acenaphthene	990	0.18	0.30	0.18	0.2	0.17	1.4	0.76	0.64	0.1	0.11	0.13	0.19	0.29	0.29	0.52
Fluorene	3	0.14	0.15	0.12	0.14	0.12	1.4	0.58	0.53	0.1	0.10 U	0.10 U	0.07	0.10 U	0.082	0.13
Phenanthrene	6	0.12	0.17	0.14	0.16	0.13	1.5	0.63	0.58	0.11	0.10	0.10 U	0.017	0.10 U	0.11	0.11
Anthracene	9.6	0.01 U	0.10 U	0.014	0.018	0.10 U	0.14	0.10 U	0.10 U	0.011	0.10 U	0.10 U	0.01 U	0.10 U	0.013	0.10 U
Fluoranthene	3.3	0.024	0.10 U	0.026	0.03	0.10 U	0.18	0.10 U	0.10 U	0.017	0.10 U	0.10 U	0.01 U	0.10 U	0.053	0.10 U
Pyrene	15	0.03	0.10 U	0.02	0.024	0.10 U	0.11	0.10 U	0.10 U	0.015	0.10 U	0.10 U	0.01 U	0.10 U	0.039	0.10 U
Dibenzofuran	---	0.01 U	0.10 U	0.019	0.021	0.10 U	0.54	0.23	0.20	0.016	0.10 U	0.10 U	0.01 U	0.10 U	0.012	0.10 U
Benzo(a)pyrene	0.018	0.01 U	0.10 U	0.01 U	0.01 U	0.10 U	0.01 U	0.10 U	0.10 U	0.01 U	0.10 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U
Benzo(a)anthracene	0.018	0.01 U	0.10 U	0.01 U	0.01 U	0.10 U	0.01 U	0.10 U	0.10 U	0.01 U	0.10 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U
Benzo(b)fluoranthene	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.018	0.01 U	0.10 U	0.01 U	0.01 U	0.10 U	0.01 U	0.10 U	0.10 U	0.01 U	0.10 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U
Indeno(1,2,3-cd)pyrene	0.01	0.01 U	0.10 U	0.01 U	0.01 U	0.10 U	0.01 U	0.10 U	0.10 U	0.01 U	0.10 U	0.10 U	0.01 U	0.10 U	0.01 U	0.10 U
Total cPAHs (TEQ)	0.018	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMIVOLATILES (µg/L)																
Naphthalene	83	1 U	1.0 U	1 U	1 U	1.0 U	3.4	4.0	5.2	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U
2-Methylnaphthalene	15	1 U	1.0 U	1 U	1 U	1.0 U	2.5	1.4	1.8	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U
1-Methylnaphthalene	---	1 U	1.0 U	1 U	1 U	1.0 U	2.8	1.8	2.4	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U
Acenaphthene	990	1 U	1.0 U	1 U	1 U	1.0 U	1.2	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U
Fluorene	3	1 U	1.0 U	1 U	1 U	1.0 U	1.1	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U
Phenanthrene	---	1 U	1.0 U	1 U	1 U	1.0 U	1.4	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U
bis(2-Ethylhexyl)phthalate	3	2.2	3.0 U	2.2	1.9	3.0 U	3	3.0 U	3.0 U	2.5	3.0 U	3.0 U	2.4	3.0 U	1.3	3.0 U
Total Phenols	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	1 U	1.0	1 U	1 U	1.0 U	1.4	1.0 U	1.2	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U
4-Methylphenol	---	1 U	2.0 U	1 U	1 U	2.0 U	1 U	2.0 U	2.0 U	1 U	2.0 U	2.0 U	1 U	2.0 U	1 U	2.0 U
Pentachlorophenol	10	5 U	10 U	5 U	5 U	10 U	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	5 U	10 U
N-Nitrosodiphenylamine	6	1 U	1.0 U	1 U	1 U	1.0	1 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U
Dimethlyphthalate	1,700	1 U	1.0 U	1 U	1 U	1.0 U	1 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U
Formaldehyde	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,5-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	3	5 U	3.0 U	5 U	5 U	3.0 U	5 U	3.0 U	3.0 U	5 U	3.0 U	3.0 U	5 U	3.0 U	5 U	3.0 U
2,3,5,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	3,600	5 U	5.0 U	5 U	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5.0 U	5 U	5.0 U
m,p-Cresol	---	1 U	2.0 U	1 U	1 U	2.0 U	1 U	2.0 U	2.0 U	1 U	2.0 U	2.0 U	1 U	2.0 U	1 U	2.0 U
2,3,4,6-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	---	1 U	1.0 U	1 U	1 U	1.0 U	1 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1 U	1.0 U	1 U	1.0 U

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:		2012 Additional Groundwater Investigation													
Sample Number:		MW-14S	MW-14S	MW-14D	MW-DUP Dup of MW-14D	MW-14D	MW-15S	MW-15S	MW-15S (a)	MW-15D	MW-15D	MW-DUP Dup of MW-15D	MW-16S	MW-16S	MW-16D	MW-16D
Sample Date :		7/30/2012	09/24/2012	7/30/2012	7/30/2012	09/24/2012	7/30/2012	09/24/2012	09/24/2012	7/30/2012	09/24/2012	09/24/2012	7/30/2012	09/24/2012	7/31/2012	09/24/2012
Lab ID:	Cornwall Ave LF Site Screening Level (a)	VE22D/ VE24D	VK65F/ VK75F/ VL48F	VE22F/ VE24F	VE22H/ VE24H	VK65C/ VK75C/ VL48C	VE22C/ VE24C	VK65D/ VK75D/ VL48D	VL65N	VE22A/ VE24A	VK65A/ VK75A/ VL48A	VK65M/ VK75M/ VL48H	VE22B/ VE24B	VK65E/ VK75E/ VL48E	VE38A/ VE43A/ VE90A	VK65B/ VK75B/ VL48B
TOTAL PETROLEUM HYDROCARBONS (µg/L)																
NWTPH-HCID																
Gasoline-Range Hydrocarbons	800	250 U	250 U	250 U	250 U	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Diesel-Range Hydrocarbons	500	> 500	> 500	500 U	500 U	> 500	> 500	> 500	NA	> 500	> 500	> 500	> 500	> 500	> 500	> 500
Oil-Range Hydrocarbons	500	500 U	500 U	500 U	500 U	> 500	500 U	500 U	NA	500 U	500 U	500 U	500 U	500 U	500 U	500 U
TPH (µg/L)																
TPH-418	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	100 U	100 UJ	NA	NA	100 UJ	200	100 UJ	NA	100 U	100 UJ	100 U	100 U	100 UJ	100 U	100 UJ
Oil-Range Hydrocarbons	500	200 U	200 UJ	NA	NA	200 UJ	200 U	200 UJ	NA	200 U	200 UJ	200 U	200 U	200 UJ	200 U	200 UJ
VOLATILES (µg/L)																
Acetone	---	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Disulfide	---	0.2 U	0.20 U	0.2 U	0.2 U	0.20 U	0.2 U	0.20 U	NA	0.2 U	0.20 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U
Benzene	23	0.22	0.22	0.2 U	0.2 U	0.20 U	0.51	0.44	NA	0.2 U	0.20 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U
Toluene	15,000	0.2 U	0.20 U	0.2 U	0.2 U	0.20 U	0.2 U	0.38	NA	0.2 U	0.20 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U
Chlorobenzene	1,600	4.2	4.6	3.6	3.4	4.2	10	6.7	NA	0.64	0.67 J	1.0 J	0.2 U	0.60	0.2 U	0.69
Ethylbenzene	2,100	0.2 U	0.20 U	0.2 U	0.2 U	0.20 U	0.2 U	0.49	NA	0.2 U	0.20 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U
Styrene	---	0.2 U	0.20 U	0.2 U	0.2 U	0.20 U	0.2 U	0.20 U	NA	0.2 U	0.20 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U
m,p-Xylene	---	0.4 U	0.40 U	1.1	1.1	0.96	0.4 U	0.40 U	NA	0.4 U	0.40 U	0.40 U	0.4 U	0.40 U	0.4 U	0.40 U
o-Xylene	---	0.23	0.29	0.5	0.52	0.60	0.28	0.32	NA	0.2 U	0.20	0.24	0.2 U	0.20 U	0.2 U	0.20 U
1,2-Dichlorobenzene	6.1	0.24	0.28	0.2 U	0.2 U	0.20 U	0.32	0.36	NA	0.2 U	0.20 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U
1,4-Dichlorobenzene	5	1.9	2.2	0.38	0.38	0.41	3.2	2.1	NA	0.36	0.32	0.49	0.2 U	0.23	0.2 U	0.20 U
1,2,4-Trimethylbenzene	---	0.2 U	0.20 U	0.2 U	0.2 U	0.20 U	0.26	0.39	NA	0.2 U	0.20 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U
Isopropylbenzene	---	0.23	0.28	0.2 U	0.2 U	0.20 U	0.69	0.70	NA	0.41	0.42	0.59	0.2 U	0.20 U	0.2 U	0.20 U
tert-Butylbenzene	---	0.22	0.25	0.2 U	0.2 U	0.20 U	0.22	0.23	NA	0.2 U	0.20 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U
sec-Butylbenzene	---	0.96	1.1	0.42	0.46	0.39	1.1	0.99	NA	0.83	0.74 J	1.2 J	0.2 U	0.20 U	0.2 U	0.20 U
4-Isopropyltoluene	---	0.2 U	0.20 U	0.2 U	0.2 U	0.36	0.2 U	0.38	NA	1.4	1.7 J	2.8 J	0.2 U	0.20 U	0.2 U	0.20 U
n-Butylbenzene	---	0.38 U	0.49	0.2 U	0.2 U	0.20 U	0.5 U	0.44	NA	0.26	0.26	0.41	0.2 U	0.20 U	0.2 U	0.20 U
Naphthalene	83	0.5 U	0.50 U	0.5 U	0.5 U	0.93	7.6	12	NA	0.5 U	0.50 U	0.50 U	0.5 U	0.50 U	0.5 U	0.50 U
n-Propylbenzene	---	0.2 U	0.20 U	0.2 U	0.2 U	0.20 U	0.2 U	0.20 U	NA	0.2 U	0.20 U	0.20 U	0.2 U	0.20 U	0.2 U	0.20 U
PCBs (µg/L)																
Aroclor 1016	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORGANOCHLORINE PESTICIDES (µg/L)																
METHOD SW8081B	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HERBICIDES (µg/L)																
METHOD SW8151	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TANNINS & LIGNINS (mg/L)																
Tannins & Lignins	---	1.190	3.140	1.240	NA	3.830	1.950	1.540	NA	1.460	1.350	1.380	1.460	1.310	1.220	1.310
RADIOCHEMISTRY																
Gross Beta (pCi/L)	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:		2012 Additional Groundwater Investigation														
Sample Number:		MW-14S	MW-14S	MW-14D	MW-DUP Dup of MW-14D	MW-14D	MW-15S	MW-15S	MW-15S (a)	MW-15D	MW-15D	MW-DUP Dup of MW-15D	MW-16S	MW-16S	MW-16D	MW-16D
Sample Date :		7/30/2012	09/24/2012	7/30/2012	7/30/2012	09/24/2012	7/30/2012	09/24/2012	09/24/2012	7/30/2012	09/24/2012	09/24/2012	7/30/2012	09/24/2012	7/31/2012	09/24/2012
Lab ID:	Cornwall Ave LF Site Screening Level (a)	VE22D/ VE24D	VK65F/ VK75F/ VL48F	VE22F/ VE24F	VE22H/ VE24H	VK65C/ VK75C/ VL48C	VE22C/ VE24C	VK65D/ VK75D/ VL48D	VL65N	VE22A/ VE24A	VK65A/ VK75A/ VL48A	VK65M/ VK75M/ VL48H	VE22B/ VE24B	VK65E/ VK75E/ VL48E	VE38A/ VE43A/ VE90A	VK65B/ VK75B/ VL48B
DIOXINS/FURANS (pg/L)																
1,2,3,7,8,9-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dioxin/Furan TEQ (ND=0.5DL) - Human/Mammal	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS (mg/L unless indicated otherwise)																
Alkalinity (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Color (Pt-Co)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (umhos/cm)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Salinity (g/kg)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	16	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
N-Nitrate (mg-N/L)	---	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
N-Nitrite (mg-N/L)	---	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U
Nitrate + Nitrite (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphorous (mg-P/L)	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	---	1.6	3.0	0.8 J	1.2 J	1.5	1.1	0.9	NA	2	1.8 J	1.9 J	3.2	3.2	3.0 J	1.4
Sulfite	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fecal Coliform (CFU/100 mL)	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfur	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total suspended solids	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg N/L)	---	21.3	21.9	13.4	14.2	14.1	22.2	28.7	NA	29.7	29.2	29.2	16.9	18.8	14.2	19.2
NH_3-Ammonia (mg NH_3/L) (c)	0.035	0.015	0.026	0.007	0.008	0.054	0.013	0.025	NA	0.013	0.012	0.012	0.636	0.080	0.010	0.115
Total organic carbon	---	16.1	14.7	13.2	12.3	15.8	16.2	17.0	NA	13.8	14.9	14.9	20.9	18.2	17.1	19.3
Carbon disulfide	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	---	0.084	0.050 U	0.132	0.123	0.447	0.091	0.054	NA	0.153	0.050 U	0.050 U	0.076	0.050 U	0.187	0.050 U
Chemical Oxygen Demand	---	183	46.7	42.7	43.7	63.6	50.5	53.7	NA	42.4	44.5	49.3	59	53.1	52.2	60.8
Biological Oxygen Demand	---	19.6 J	17.0	17.9 J	15.2 J	24.0	14.9 J	20.0 U	NA	19.5 J	15.0	21.0	12.9 J	12.0 U	7.5	20.0 U
FIELD PARAMETERS																
pH	6.2< pH <8.5	6.43	6.59	6.35	6.35	7.22	6.37	6.52	NA	6.22	6.25	6.25	8.19	7.25	6.50	7.43
Temperature (C)	---	14.64	16.60	13.63	13.63	12.93	14.24	14.69	NA	14.43	13.09	13.09	13.97	13.37	12.46	12.36
Conductivity (uS)	---	3128	4147	3822	3822	3135	2196	2877	NA	2250	2883	2883	4127	2309	5094	2611
Dissolved oxygen (mg/L)	---	0.36	0.34	0.25	0.25	0.69	0.32	0.33	NA	0.32	0.48	0.48	0.19	0.75	0.45	0.70
Turbidity (NTU)	---	6.96	2.41	7.17	7.17	46.04	7.46	32.42	NA	4.32	4.64	4.64	4.44	4.07	6.95	5.30
ORP (mV)	---	-90.2	-85.6	-76.5	-76.5	-99.9	-106.9	-83.8	NA	-96.3	-66.5	-66.5	-90.1	-88.4	-131.5	-98.0
Ferrous Iron (mg/L)	---	NA	3.2	NA	NA	2.8	NA	2.0	NA	NA	2.4	2.4	NA	1.3	NA	2.2

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		2012 R.G. Haley Site Investigation						
Sample ID:		CL-MW-1	CL-MW-101	CL-MW-102	CL-MW-103	CL-MW-1H	CL-MW-6	CL-MW-9
Sample Number:		(MW-1)					(MW-6)	(MW-9)
Sample Date :		5/9/2012	7/18/2012	7/18/2012	7/18/2012	5/9/2012	5/9/2012	5/9/2012
Lab ID:	Cornwall Ave LF Site Screening Level (a)							
TOTAL METALS (µg/L)								
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA
Lead (b)	8.1	NA	NA	NA	NA	NA	NA	NA
Mercury	0.025	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA
Selenium	71	NA	NA	NA	NA	NA	NA	NA
Thallium	0.47	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (µg/L)								
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA
Iron	---	NA	NA	NA	NA	NA	NA	NA
Lead	8.1	NA	NA	NA	NA	NA	NA	NA
Manganese	100	NA	NA	NA	NA	NA	NA	NA
Nickel	8.2	NA	NA	NA	NA	NA	NA	NA
Zinc	81	NA	NA	NA	NA	NA	NA	NA
PAHs (µg/L)								
Naphthalene	83	0.026 U	1.1	4.9	12	1.9	1.2	0.013 U
2-Methylnaphthalene	---	0.011 U	1.8	12	190	0.0095 U	180	0.033 U
1-Methylnaphthalene	---	0.12 U	95	31	170	43	240	0.042 U
Acenaphthylene	---	0.0095 U	0.66	0.24	0.76	1.3	2.3	0.0096 U
Acenaphthene	990	0.14	4.4	1.6	5	9.4	14	0.015
Fluorene	3	0.098	3.1	1.1	4.3	9.4	14	0.0096 U
Phenanthrene	6	0.022	2.3	1.1	3.6	5.3	15	0.018
Anthracene	9.6	0.011	0.085	0.088	0.15	5	0.67	0.025
Fluoranthene	3.3	0.013	0.085	0.048 U	0.048 U	0.13	0.14	0.0096 U
Pyrene	15	0.02	0.055	0.051	0.11	0.3	0.39	0.0096 U
Dibenzofuran	---	0.95 U	0.95 U	0.95 U	1.7	3.3	6.1	0.96 U
Benzo(a)pyrene	0.018	0.0095 U	0.0095 U	0.048 U	0.048 U	0.0095 U	0.048 U	0.0096 U
Benzo(a)anthracene	0.018	0.031	0.01	0.048 U	0.048 U	0.016	0.048	0.0096 U
Benzo(b)fluoranthene	0.018	0.0095 U	0.0095 U	0.048 U	0.048 U	0.0095 U	0.048 U	0.0096 U
Benzo(k)fluoranthene	0.018	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.018	0.0095 U	0.0095 U	0.048 U	0.048 U	0.017	0.048 U	0.0096 U
Indeno(1,2,3-cd)pyrene	0.01	0.0095 U	0.0095 U	0.048 U	0.048 U	0.0095 U	0.048 U	0.0096 U
Total cPAHs (TEQ)	0.018	0.0031	0.001	ND	ND	0.00177	0.0048	ND
SEMIVOLATILES (µg/L)								
Naphthalene	83	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	15	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	990	NA	NA	NA	NA	NA	NA	NA
Fluorene	3	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	---	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	3	0.98	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.96 U
Total Phenols	580	0.95 U	1.3	0.95 U	0.95 U	0.95 U	0.95 U	0.96 U
1,4-Dichlorobenzene	5	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	---	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	10	0.0092 U	0.011	0.037	0.7	0.75	100	0.014
N-Nitrosodiphenylamine	6	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.96 U
Dimethlyphthalate	1,700	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	---	NA	NA	NA	NA	NA	NA	NA
2,3,4,5-Tetrachlorophenol	---	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	3	0.018 U	0.018 U	0.018 U	0.018 U	0.039	0.6	0.018 U
2,3,5,6-Tetrachlorophenol	---	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	10	0.96 U
2,4,5-Trichlorophenol	3,600	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.96 U
m,p-Cresol	---	0.95 U	43	0.95 U	0.95 U	0.95 U	0.95 U	0.96 U
2,3,4,6-Tetrachlorophenol	---	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	22	0.96 U
Carbazole	---	0.95 U	0.95 U	0.95 U	1.6	0.95 U	0.95 U	0.96 U

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:		2012 R.G. Haley Site Investigation						
Sample Number:		CL-MW-1 (MW-1)	CL-MW-101	CL-MW-102	CL-MW-103	CL-MW-1H	CL-MW-6 (MW-6)	CL-MW-9 (MW-9)
Sample Date :		5/9/2012	7/18/2012	7/18/2012	7/18/2012	5/9/2012	5/9/2012	5/9/2012
Lab ID:	Cornwall Ave LF Site Screening Level (a)							
TOTAL PETROLEUM HYDROCARBONS (µg/L)								
NWTPH-HCID								
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA
Oil-Range Hydrocarbons	500	NA	NA	NA	NA	NA	NA	NA
TPH (µg/L)								
TPH-418	---	NA	NA	NA	NA	NA	NA	NA
Gasoline-Range Hydrocarbons	800	NA	NA	NA	NA	NA	NA	NA
Diesel-Range Hydrocarbons	500	270 U	1200 J	740 J	1700 J	1800	3800	260 U
Oil-Range Hydrocarbons	500	440 U	410 U	410 U	500	410 U	410 U	410 U
VOLATILES (µg/L)								
Acetone	---	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	---	NA	NA	NA	NA	NA	NA	NA
Benzene	23	NA	NA	NA	NA	NA	NA	NA
Toluene	15,000	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	1,600	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2,100	NA	NA	NA	NA	NA	NA	NA
Styrene	---	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	---	NA	NA	NA	NA	NA	NA	NA
o-Xylene	---	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	6.1	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	5	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	---	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	---	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	---	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	---	NA	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	---	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	---	NA	NA	NA	NA	NA	NA	NA
Naphthalene	83	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	---	NA	NA	NA	NA	NA	NA	NA
PCBs (µg/L)								
Aroclor 1016	0.01	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	---	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	---	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	0.01	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	0.03	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	---	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	---	NA	NA	NA	NA	NA	NA	NA
Total PCBs	0.025	NA	NA	NA	NA	NA	NA	NA
ORGANOCHLORINE PESTICIDES (µg/L)								
METHOD SW8081B	---	NA	NA	NA	NA	NA	NA	NA
HERBICIDES (µg/L)								
METHOD SW8151	---	NA	NA	NA	NA	NA	NA	NA
TANNINS & LIGNINS (mg/L)								
Tannins & Lignins	---	NA	NA	NA	NA	NA	NA	NA
RADIOCHEMISTRY								
Gross Beta (pCi/L)	50	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AND SEEP WATER SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		2012 R.G. Haley Site Investigation						
Sample ID:		CL-MW-1	CL-MW-101	CL-MW-102	CL-MW-103	CL-MW-1H	CL-MW-6	CL-MW-9
Sample Number:		(MW-1)					(MW-6)	(MW-9)
Sample Date :		5/9/2012	7/18/2012	7/18/2012	7/18/2012	5/9/2012	5/9/2012	5/9/2012
Lab ID:	Cornwall Ave LF Site Screening Level (a)							
DIOXINS/FURANS (pg/L)								
1,2,3,7,8,9-HxCDD	---	NA	1.94 J	NA	NA	NA	NA	NA
Total PeCDF	---	NA	2.14	NA	NA	NA	NA	NA
OCDD	---	NA	2450	NA	NA	NA	NA	NA
Total HxCDD	---	NA	4.94	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	---	NA	120	NA	NA	NA	NA	NA
Total HpCDD	---	NA	289	NA	NA	NA	NA	NA
Total HpCDF	---	NA	31.7	NA	NA	NA	NA	NA
OCDF	---	NA	61.9 J	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	---	NA	0.808 J	NA	NA	NA	NA	NA
Total TCDD	---	NA	0.302	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	---	NA	0.93 J	NA	NA	NA	NA	NA
Total HxCDF	---	NA	8.06	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	---	NA	8.26 J	NA	NA	NA	NA	NA
Total Dioxin/Furan TEQ (ND=0.5DL) - Human/Mammal	---	NA	3.99864 JT	NA	NA	NA	NA	NA
CONVENTIONALS (mg/L unless indicated otherwise)								
Alkalinity (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA
Bicarbonate (mg/L CaCO3)	---	NA	NA	NA	NA	NA	NA	NA
Color (Pt-Co)	---	NA	NA	NA	NA	NA	NA	NA
Conductivity (umhos/cm)	---	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	---	NA	NA	NA	NA	NA	NA	NA
Salinity (g/kg)	---	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	NA	NA	NA	NA	NA	NA	NA
Calcium	---	NA	NA	NA	NA	NA	NA	NA
Iron	---	NA	NA	NA	NA	NA	NA	NA
Magnesium	---	NA	NA	NA	NA	NA	NA	NA
Manganese	0.1	NA	NA	NA	NA	NA	NA	NA
Potassium	---	NA	NA	NA	NA	NA	NA	NA
Sodium	---	NA	NA	NA	NA	NA	NA	NA
Bromide	---	NA	NA	NA	NA	NA	NA	NA
Fluoride	---	NA	NA	NA	NA	NA	NA	NA
Chloride	---	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	16	NA	NA	NA	NA	NA	NA	NA
N-Nitrate (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA
N-Nitrite (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite (mg-N/L)	---	NA	NA	NA	NA	NA	NA	NA
Ortho-Phosphorous (mg-P/L)	---	NA	NA	NA	NA	NA	NA	NA
Sulfate	---	NA	NA	NA	NA	NA	NA	NA
Sulfite	---	NA	NA	NA	NA	NA	NA	NA
Fecal Coliform (CFU/100 mL)	14	NA	NA	NA	NA	NA	NA	NA
Sulfur	---	NA	NA	NA	NA	NA	NA	NA
Total suspended solids	---	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg N/L)	---	NA	NA	NA	NA	NA	NA	NA
NH_3-Ammonia (mg NH_3/L) (c)	0.035	NA	NA	NA	NA	NA	NA	NA
Total organic carbon	---	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	---	NA	NA	NA	NA	NA	NA	NA
Sulfide	---	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA
Biological Oxygen Demand	---	NA	NA	NA	NA	NA	NA	NA
FIELD PARAMETERS								
pH	6.2< pH <8.5	NA	NA	NA	NA	NA	NA	NA
Temperature (C)	---	NA	NA	NA	NA	NA	NA	NA
Conductivity (uS)	---	NA	NA	NA	NA	NA	NA	NA
Dissolved oxygen (mg/L)	---	NA	NA	NA	NA	NA	NA	NA
Turbidity (NTU)	---	25.00	7.20	8.20	23.20	2.00	9.00	8.30
ORP (mV)	---	NA	NA	NA	NA	NA	NA	NA
Ferrous Iron (mg/L)	---	NA	NA	NA	NA	NA	NA	NA

Box indicates exceedance of site screening level.
µg/L = micrograms per liter
mg/L = milligrams per liter
pg/L = picograms per liter
ND = Not detected
NA = Not analyzed or result not available
-- = Water Quality Standard or other criteria not established.
B = Analyte was also found in the analytical method blank indicating the sample may have been contaminated.
E = Reported result is an estimate because of the presence of interference.
J = The analyte was positively identified. The associated numerical result is an estimate.
N = For metals analytes, the spike sample recovery is not within control limits.
P = The analyte was detected above the instrument detection limit but below the established minimum quantitation limit.
U = The analyte was not detected at or above the value shown
UJ = The analyte was not detected in the sample; the reported sample reporting lim is an estimate.
(a) Screening level based on the lower of state and federal chronic aquatic water quality criteria, MTCA Method B surface water criteria, or federal human health criteria for consumption of organisms, except as noted otherwise; see Table 5-2 for complete listing of water quality criteria.
(b) Two analytical results were reported by the laboratory for lead in Ecology samples collected in 1992. The higher results are presented in this table
(c) NH_3-Ammonia calculated using samples' total ammonia, pH, and temperature with equation from Emerson et al 1975.

TABLE 6-3
SUMMARY OF UNDERWATER SURVEY
SUPPLEMENTAL RI
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Transect and Data Point	Depth (ft, MLLW)	Substrate	Refuse Cover (%)	Wood Present
Transect T1				
T1-1	-12.8	mud	0	
T1-2	-6.8	mud	0	
T1-3	-4.8	mud/sand	0	scattered bark
T1-4	-0.8	sand	0	
Transect T2				
T2-1	-13.7	mud	0	
T2-2	-4.7	sand/mud	0	bark >20%
T2-3	-4.7	sand/mud	0	
T2-4	-3.7	sand	0	
T2-5	-0.7	sand/gravel	0	
Transect T3				
T3-1	-18.4	mud	0	
T3-2	-14.4	mud	10	
T3-3	-4.4	mud	0	chip >20%
T3-4	-3.4	sand	0	wood <20%
T3-5	-2.4	sand	50	boards >50%
Transect T4				
T4-1	-17.8	mud	0	
T4-2	-16.8	mud/debris	50	
T4-3	-13.8	glass	75	
Transect T5				
T5-1	-17.1	mud	0	scattered logs
T5-2	-12.1	mud/debris	50	
T5-3	-11.1	mud/debris	75	
Transect T6				
T6-1	-16.0	mud	0	sparse logs
T6-2	-16.0	mud	0	logs 20-50%
T6-3	-8.0	mud with refuse	50	
Transect T7				
T7-1	-15.6	mud	0	logs 20-50%
T7-2	-13.6	mud	0	logs >50%
T7-3	-11.6	mud/debris	50	
T7-4	-8.6	mud/landfill	75	
Transect T8				
T8-1	-14.7	mud	0	scattered logs
T8-2	-8.7	mud with cobble	50	
Transect T9				
T9-1	-15.3	mud	0	
T9-2	-9.3	mud with refuse	50	
Transect T10				
T10-1	-13.8	mud	0	
T10-2	-0.8	sand	0	
T10-3	0.8	cobbles with refuse	50	
T10-4	4.2	cobbles with refuse	50	

ft = feet

MLLW = Mean Lower Low Water

TABLE 6-4
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SURFACE SEDIMENT SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

				Ecology Investigation		Expanded Site Investigation			Whatcom Waterway RI/FS				Supplemental RI					
Sample ID:			Human	E-2	E-4	S-1	S-2	S-3	HC-SS-19 (a)	HC-SS-20 (a)	HC-SS-21 (a)	HC-SS-28 (a)	SRI-SED-1	SRI-SED-2	SRI-SED-3	SRI-SED-4	SRI-SED-5	SRI-SED-6
Sample Number:			Health	92 198042	92 198045	CL-MS-1	CL-MS-2	CL-MS-3										
Sample Date			Screening	5/6/1992	5/6/1992	9/24/1996	9/24/1996	9/24/1996					6/10/2002	6/10/2002	6/10/2002	6/10/2002	6/10/2002	6/10/2002
Lab ID:	SQS (b)	CSL (c)	Level			Q243A	Q243B	Q243C					EL51A	EL51B	EL51C	EL51D	EL51E	EL51F
TOTAL METALS (mg/kg-dry)																		
Antimony	---	---	---	NA	NA	0.5 J	3.3 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	57	93	11	3.08 N	1.74 N	5.7	4.6	5.1	11	11	11	10	NA	NA	NA	NA	NA	NA
Cadmium	5.1	6.7	---	4.2 N	1 UN	0.7 J	0.3 U	0.7 J	1.4 U	1.4 U	1.4 U	1.7	NA	NA	NA	NA	NA	NA
Chromium	260	270	---	152 N	82.4 N	25.9 J	35.0 J	34.3 J	67	72	66	84	NA	NA	NA	NA	NA	NA
Copper	390	390	---	756 E	378 E	84.9 J	398 J	57.3 J	52	61	56	83	88.3	68.9	63.2	104	69.9	126
Iron	---	---	---	75,300	23,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	450	530	---	431	887	115 J	649 J	248 J	15	22	19	43	51	30	22	56	33	57
Mercury	0.41	0.59	0.41	0.34	0.071	0.1 J	0.136 J	0.098 J	0.62	0.44	1.2	0.47	NA	NA	0.4	NA	0.7	NA
Nickel	---	---	---	87.3	26.8	18 J	25 J	26 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	---	---	---	0.39 N	0.2 UN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	6.1	6.1	---	2.7 PN	1.5 UN	12 J	0.5 J	0.9 J	1.4 U	1.4 U	1.4 U	1.5 U	0.9	0.8 U	0.7 U	0.8	0.8 U	0.8 U
Zinc	410	960	---	2,140 E	313 E	189 J	242 J	220 J	95	110	100	160	156	142	126	215	151	175
ORGANICS (µg/kg-dry)																		
Methylene chloride	---	---	---	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenols	420	1,200	---	190	60	19 U	19 U	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	---	---	---	25	8 U	1.9 U	1.9 U	2.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	---	---	---	31 N	8 U	1.9 U	1.9 U	1.9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexadecanoic acid	---	---	---	1,500 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PETROLEUM HYDROCARBONS (mg/kg-dry)																		
Diesel-range Hydrocarbons	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil-range Hydrocarbons	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORGANICS (µg/kg-dry)																		
LPAH (d)																		
Naphthalene	2,100	2,100	---	NA	NA	19 U	19 U	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	1,500	1,500	---	44 J	68 U	110	19 U	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	960	960	---	NA	NA	25	19 U	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	670	670	---	NA	NA	30	19 U	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total LPAH (e,f)	5,200	5,200	---	NA	NA	135	19 U	62	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HPAH (g)																		
Fluoranthene	1,700	2,500	---	99	68 U	120	29	54	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	2,600	3,300	---	96	68 U	180	30	69	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1,300	1,600	---	53 J	68 U	73	19 U	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1,400	2,800	---	66 J	68 U	86	23	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b,k)fluoranthene	3,200	3,600	---	120	68 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzofluoranthenes (h)	3,200	3,600	---	NA	NA	104	19 U	28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1,600	1,600	---	NA	NA	64	19 U	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	600	690	---	NA	NA	35	19 U	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	670	720	---	NA	NA	50	19 U	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HPAH (f,i)	12,000	17,000	---	NA	NA	712	82	267	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs (µg/kg-dry)																		
Aroclor 1242/1016	---	---	---	160	80 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	---	---	---	NA	NA	19 U	19 U	19 U	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1242	---	---	6	NA	NA	19 U	27	620	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1248	---	---	6	ND	ND	27 U	23 U	250 U	NA	NA	NA	NA	130	32 U	31 U	75	46 U	150 U
Aroclor 1254	---	---	6	160	80 U	22	20	66	NA	NA	NA	NA	130	31 J	28	84	46	110
Aroclor 1260	---	---	6	ND	ND	19 U	28	30	NA	NA	NA	NA	42 U	20 U	20 U	32 U	21 U	32 U
Aroclor 1221	---	---	---	ND	ND	39 U	38 U	280 U	NA	NA	NA	NA	39 U	39 U	39 U	40 U	39 U	39 U
Aroclor 1232	---	---	---	ND	ND	19 U	19 U	19 U	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
Total PCBs (j)	130	1,000	---	320	80 U	22	75	716	NA	NA	NA	NA	260	31	28	159	46	110
OTHER (µg/kg-dry)																		
Dimethylphthalate	71	160	---	NA	NA	920	19 U	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	200	1,200	---	NA	NA	19 U	19 U	57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl)phthalate	1,300	3,100	---	1,300	42 J	90	1000	220	NA	NA	NA	NA	220	160	160	390	290	300
Di-n-Octyl phthalate	6,200	6,200	---	NA	NA	19 U	140	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	1,400	5,100	---	67 J	39 J	19 U	19 U	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS																		
Total Solids (percent)	---	---	---	NA	NA	77.2	75.6	64.9	NA	NA	NA	NA	38.9	36.9	39.5	38.6	37.8	40.1
Total Volatile Solids (mg/kg)	---	---	---	NA	NA	97000	36000	87000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (mg/kg)	---	---	---	0.52 E	0.07 E	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide (mg/kg)	---	---	---	NA	NA	1.0	0.72	0.67	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg-N/kg)	---	---	---	NA	NA	7.0 J	3.9 J	3.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide (mg/kg)	---	---	---	NA	NA	1.0	11	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon (percent)	---	---	---			2.0	1.3	4.3	2.6	3.4	3.7	3.8	3.1	3.1	2.9	3.6	3.7	4.2

TABLE 6-4
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SURFACE SEDIMENT SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID:			Human	Boulevard Park 2008 Sampling						
Sample Number:			Health	BLVD-SS-09	BLVD-SC-09-0-2'	BLVD-SC-09-2-3'	BLVD-SC-09-3-4'	BLVD-SC-09-4-6'	BLVD-SC-09-6-8'	BLVD-SC-09-8.5-9.7'
Sample Date			Screening	9/19/2008	9/23/2008	9/23/2008	9/23/2008	9/23/2008	9/23/2008	9/23/2008
Lab ID:	SQS (b)	CSL (c)	Level							
TOTAL METALS (mg/kg-dry)										
Antimony	---	---	---	NA	NA	NA	NA	NA	NA	NA
Arsenic	57	93	11	20	10	20 U	10	10 U	10 U	NA
Cadmium	5.1	6.7	---	1.1	1.2	1.8	2.6	2.5	1.7	NA
Chromium	260	270	---	70	74	86	110	89	65	NA
Copper	390	390	---	66.3	74.4	121	126	94.8	71.3	NA
Iron	---	---	---	NA	NA	NA	NA	NA	NA	NA
Lead	450	530	---	27	52	143	142	120	42	NA
Mercury	0.41	0.59	0.41	0.4	0.8	1.7	3.8	1.5	0.77	0.4 J
Nickel	---	---	---	97	NA	NA	NA	NA	NA	NA
Selenium	---	---	---	NA	NA	NA	NA	NA	NA	NA
Silver	6.1	6.1	---	0.7 U	0.8 U	1 U	0.9	1.5	0.6 U	NA
Zinc	410	960	---	124	148	280	328	353	151	NA
ORGANICS (µg/kg-dry)										
Methylene chloride	---	---	---	NA	NA	NA	NA	NA	NA	NA
Phenols	420	1,200	---	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	---	---	---	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	---	---	---	NA	NA	NA	NA	NA	NA	NA
Hexadecanoic acid	---	---	---	NA	NA	NA	NA	NA	NA	NA
TOTAL PETROLEUM HYDROCARBONS (mg/kg-dry)										
Diesel-range Hydrocarbons	---	---	---	14 U	45	80	110	210	60	NA
Motor Oil-range Hydrocarbons	---	---	---	28 U	110	270	210	640	170	NA
ORGANICS (µg/kg-dry)										
LPAH (d)										
Naphthalene	2,100	2,100	---	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	1,500	1,500	---	NA	NA	NA	NA	NA	NA	NA
Anthracene	960	960	---	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	670	670	---	NA	NA	NA	NA	NA	NA	NA
Total LPAH (e,f)	5,200	5,200	---	NA	NA	NA	NA	NA	NA	NA
HPAH (g)										
Fluoranthene	1,700	2,500	---	NA	NA	NA	NA	NA	NA	NA
Pyrene	2,600	3,300	---	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1,300	1,600	---	NA	NA	NA	NA	NA	NA	NA
Chrysene	1,400	2,800	---	NA	NA	NA	NA	NA	NA	NA
Benzo(b,k)fluoranthene	3,200	3,600	---	NA	NA	NA	NA	NA	NA	NA
Benzofluoranthenes (h)	3,200	3,600	---	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1,600	1,600	---	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	600	690	---	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	670	720	---	NA	NA	NA	NA	NA	NA	NA
Total HPAH (f,i)	12,000	17,000	---	NA	NA	NA	NA	NA	NA	NA
PCBs (µg/kg-dry)										
Aroclor 1242/1016	---	---	---	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	---	---	---	71	20 U	59 U	98 U	NA	NA	NA
Aroclor 1242	---	---	6	19 U	20 U	59 U	98 U	NA	NA	NA
Aroclor 1248	---	---	6	19 U	55	250	290	NA	NA	NA
Aroclor 1254	---	---	6	19 U	49	270	410	NA	NA	NA
Aroclor 1260	---	---	6	66	20 U	59 U	98 U	NA	NA	NA
Aroclor 1221	---	---	---	19 U	20 U	59 U	98 U	NA	NA	NA
Aroclor 1232	---	---	---	19 U	20 U	59 U	98 U	NA	NA	NA
Total PCBs (j)	130	1,000	---	137	104	520	700	NA	NA	NA
OTHER (µg/kg-dry)										
Dimethylphthalate	71	160	---	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	200	1,200	---	NA	NA	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl)phthalate	1,300	3,100	---	NA	NA	NA	NA	NA	NA	NA
Di-n-Octyl phthalate	6,200	6,200	---	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	1,400	5,100	---	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS										
Total Solids (percent)	---	---	---	37.2	NA	NA	NA	NA	NA	NA
Total Volatile Solids (mg/kg)	---	---	---	NA	NA	NA	NA	NA	NA	NA
Cyanide (mg/kg)	---	---	---	NA	NA	NA	NA	NA	NA	NA
Total Cyanide (mg/kg)	---	---	---	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg-N/kg)	---	---	---	13.5	NA	NA	NA	NA	NA	NA
Sulfide (mg/kg)	---	---	---	543	NA	NA	NA	NA	NA	NA
Total Organic Carbon (percent)	---	---	---	3.26	NA	NA	NA	NA	NA	NA

Boxed value indicates an exceedance of the SQS.
Boxed and shaded value indicates an exceedance of the CSL and SQS.
mg/kg = milligram per kilogram
µg/kg = microgram per kilogram
NA = Not analyzed or results not available.
ND = Not detected.
--- = SQS or CSL criteria not established.
E = Reported result is an estimate because of the presence of interference.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N = For metals analytes the spike sample recovery is not within control limits.
P = The analyte was detected above the instrument detection limit but below the established minimum quantitation limit.
U = The analyte was not detected at or above the reported result.

(a) This information has not been validated and does not represent final data. Data provided by Hart Crowser for Georgia-Pacific West, Inc. O metals analyses were provided for these samples.
(b) Sediment Quality Standard Dry Weight Equivalent Lowest Apparent Effects Threshold (LAET) criteria (Chapter 173-204 WAC).
(c) Cleanup Screening Level Dry Weight Equivalent Lowest Apparent Effects Threshold (LAET) criteria (Chapter 173-204 WAC).
(d) Low molecular weight polycyclic aromatic hydrocarbons.
(e) The State Sediment Management Standards LPAH criterion represents the sum of the following "low molecular weight polycyclic aromatic hydrocarbon" compounds: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, and Anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds listed.
(f) Where chemical criteria in this table represent the sum of individual compounds or isomers, the following methods are applied:
  (i) Where chemical analyses identify an undetected value for every individual compound/isomer, then the single highest detection limit shall represent the sum of the respective compounds/isomers.
  (ii) Where chemical analyses detect one or more individual compounds/isomers, only the detected concentrations will be added to represent the group sum.
(g) High molecular weight polycyclic aromatic hydrocarbons.
(h) The total benzofluoranthenes criterion for the State Standards represents the sum of the concentrations of the "B", "J", and "K" isomers.
(i) The SMS HPAH criterion represents the sum of the following "high molecular weight polycyclic aromatic hydrocarbon" compounds: Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzofluoranthenes, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene.
(j) For the purposes of this RI, a PCB detection is assumed to be a PQL SL exceedance. PQL for PCBs in sediment is based on Ecology's Sediment Sampling and Analysis Plan Appendix (Ecology 2008) is 0.006 mg/kg dry weight (6 µg/kg).

TABLE 6-5
CARBON NORMALIZED ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SURFACE SEDIMENT SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

				Ecology Investigation		Expanded Site Investigation			Whatcom Waterway RI/FS				Supplemental RI					
Sample ID:			Human	E-2	E-4	S-1	S-2	S-3	HC-SS-19 (a)	HC-SS-20 (a)	HC-SS-21 (a)	HC-SS-28 (a)	SRI-SED-1	SRI-SED-2	SRI-SED-3	SRI-SED-4	SRI-SED-5	SRI-SED-6
Sample Number:			Health	92 198042	92 198045	CL-MS-1	CL-MS-2	CL-MS-3										
Sample Date			Screening	5/6/1992	5/6/1992	9/24/1996	9/24/1996	9/24/1996					6/10/2002	6/10/2002	6/10/2002	6/10/2002	6/10/2002	6/10/2002
Lab ID:	SQS (b)	CSL (c)	Level			Q243A	Q243B	Q243C					EL51A	EL51B	EL51C	EL51D	EL51E	EL51F
TOTAL METALS (mg/kg-dry)																		
Antimony	---	---	---	NA	NA	0.5 J	3.3 J	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	57	93	11	3.08 N	1.74 N	5.7	4.6	5.1	11	11	11	10	NA	NA	NA	NA	NA	NA
Cadmium	5.1	6.7	---	4.2 N	1 UN	0.7 J	0.3 U	0.7 J	1.4 U	1.4 U	1.4 U	1.7	NA	NA	NA	NA	NA	NA
Chromium	260	270	---	152 N	82.4 N	25.9 J	35.0 J	34.3 J	67	72	66	84	NA	NA	NA	NA	NA	NA
Copper	390	390	---	756 E	378 E	84.9 J	398 J	57.3 J	52	61	56	83	88.3	68.9	63.2	104	69.9	126
Iron	---	---	---	75,300	23,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	450	530	---	431	887	115 J	649 J	248 J	15	22	19	43	51	30	22	56	33	57
Mercury	0.41	0.59	0.41	0.34	0.071	0.1 J	0.136 J	0.098 J	0.62	0.44	1.2	0.47	NA	NA	0.4	NA	0.7	NA
Nickel	---	---	---	87.3	26.8	18 J	25 J	26 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	---	---	---	0.39 N	0.2 UN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	6.1	6.1	---	2.7 PN	1.5 UN	12 J	0.5 J	0.9 J	1.4 U	1.4 U	1.4 U	1.5 U	0.9	0.8 U	0.7 U	0.8	0.8 U	0.8 U
Zinc	410	960	---	2,140 E	313 E	189 J	242 J	220 J	95	110	100	160	156	142	126	215	151	175
ORGANICS (µg/kg-dry)																		
Methylene chloride	---	---	---	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenols	420	1,200	---	190	60	19 U	19 U	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	---	---	---	25	8 U	1.9 U	1.9 U	2.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	---	---	---	31 N	8 U	1.9 U	1.9 U	1.9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexadecanoic acid	---	---	---	1,500 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PETROLEUM HYDROCARBONS (mg/kg-dry)																		
Diesel-range Hydrocarbons	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil-range Hydrocarbons	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORGANICS (mg/kg TOC) (d)																		
LPAH (e)																		
Naphthalene	99	170	---	NA	NA	1.0 U	1.5 U	0.93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	480	---	3.38 J	1.58 U	5.5	1.5 U	0.51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	220	1,200	---	NA	NA	1.3	1.5 U	0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	38	64	---	NA	NA	1.5	1.5 U	0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total LPAH (f,g)	370	780	---	NA	NA	6.8	1.5	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HPAH (h)																		
Fluoranthene	160	1,200	---	7.62	1.58 U	6.0	2.2	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1,000	1,400	---	7.38	1.58 U	9.0	2.3	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	110	270	---	4.08 J	1.58 U	3.7	1.5 U	0.51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	110	460	---	5.08 J	1.58 U	4.3	1.8	0.60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b,k)fluoranthene	230	450	---	9.23	1.58 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzofluoranthenes (i)	230	450	---	NA	NA	5.2	1.5 U	0.65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	99	210	---	NA	NA	3.2	1.5 U	0.58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	34	88	---	NA	NA	1.8	1.5 U	0.51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	31	78	---	NA	NA	2.5	1.5 U	0.49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HPAH (g,j)	960	5,300	---	NA	NA	36	6.3	6.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs (mg/kg TOC) (d)																		
Aroclor 1242/1016	---	---	---	16	8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	---	---	---	NA	NA	0.95 U	1.5 U	0.44 U	NA	NA	NA	NA	0.65 U	0.65 U	0.69 U	0.56 U	0.54 U	0.48 U
Aroclor 1242	---	---	0.21	NA	NA	0.95 U	2.1	14	NA	NA	NA	NA	0.65 U	0.65 U	0.69 U	0.56 U	0.54 U	0.48 U
Aroclor 1248	---	---	0.21	ND	ND	1.35 U	1.8 U	5.8 U	NA	NA	NA	NA	4.19	1.03 U	1.07 U	2.08	1.24 U	3.57 U
Aroclor 1254	---	---	0.21	16	8 U	1.1	1.5	1.5	NA	NA	NA	NA	4.19	1.00 J	0.97	2.33	1.24	2.62
Aroclor 1260	---	---	0.21	ND	ND	0.95 U	2.2	0.70	NA	NA	NA	NA	1.35 U	0.65 U	0.69 U	0.89 U	0.57 U	0.76 U
Aroclor 1221	---	---	---	ND	ND	1.95 U	2.9 U	6.5 U	NA	NA	NA	NA	1.26 U	1.26 U	1.34 U	1.11 U	1.05 U	0.93 U
Aroclor 1232	---	---	---	ND	ND	0.95 U	1.5 U	0.44 U	NA	NA	NA	NA	0.65 U	0.65 U	0.69 U	0.56 U	0.54 U	0.48 U
Total PCBs (l)	12	65	---	32	16 U	1.1	5.8	16.2	NA	NA	NA	NA	8.39	1.00	0.97	4.42	1.24	2.62
OTHER (mg/kg TOC) (d)																		
Dimethylphthalate	53	53	---	NA	NA	46	1.5 U	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	61	110	---	NA	NA	1.0 U	1.5 U	0.63	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl)phthalate	47	78	---	100	0.98 J	4.5	77	5.1	NA	NA	NA	NA	7.1	5.2	5.5	10.8	7.8	7.1
Di-n-Octyl phthalate	58	4,500	---	NA	NA	1.0 U	11	0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	220	1,700	---	5.15 J	0.91 J	1.0 U	1.5 U	0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS																		
Total Solids (percent)	---	---	---	NA	NA	77.2	75.6	64.9	NA	NA	NA	NA	38.9	36.9	39.5	38.6	37.8	40.1
Total Volatile Solids (mg/kg)	---	---	---	NA	NA	97000	36000	87000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (mg/kg)	---	---	---	0.52 E	0.07 E	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide (mg/kg)	---	---	---	NA	NA	1.0	0.72	0.67	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg-N/kg)	---	---	---	NA	NA	7.0 J	3.9 J	3.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide (mg/kg)	---	---	---	NA	NA	1.0	11	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon (percent)	---	---	---	1.3	2.15	2.0	1.3	4.3 (m)	2.6	3.4	3.7	3.8	3.1	3.1	2.9	3.6 (m)	3.7 (m)	4.2 (m)

TABLE 6-5
CARBON NORMALIZED ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SURFACE SEDIMENT SAMPLES
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

				Boulevard Park 2008 Sampling						
Sample ID:			Human	BLVD-SS-09	BLVD-SC-09-0-2'	BLVD-SC-09-2-3'	BLVD-SC-09-3-4'	BLVD-SC-09-4-6'	BLVD-SC-09-6-8'	BLVD-SC-09-8.5-9.7'
Sample Number:			Health							
Sample Date			Screening	9/19/2008	9/23/2008	9/23/2008	9/23/2008	9/23/2008	9/23/2008	9/23/2008
Lab ID:	SQS (b)	CSL (c)	Level							
TOTAL METALS (mg/kg-dry)										
Antimony	---	---	---	NA	NA	NA	NA	NA	NA	NA
Arsenic	57	93	11	20	10	20 U	10	10 U	10 U	NA
Cadmium	5.1	6.7	---	1.1	1.2	1.8	2.6	2.5	1.7	NA
Chromium	260	270	---	70	74	86	110	89	65	NA
Copper	390	390	---	66.3	74.4	121	126	94.8	71.3	NA
Iron	---	---	---	NA	NA	NA	NA	NA	NA	NA
Lead	450	530	---	27	52	143	142	120	42	NA
Mercury	0.41	0.59	0.41	0.4	0.8	1.7	3.8	1.5	0.77	0.4 J
Nickel	---	---	---	97	NA	NA	NA	NA	NA	NA
Selenium	---	---	---	NA	NA	NA	NA	NA	NA	NA
Silver	6.1	6.1	---	0.7 U	0.8 U	1 U	0.9	1.5	0.6 U	NA
Zinc	410	960	---	124	148	280	328	353	151	NA
ORGANICS (µg/kg-dry)										
Methylene chloride	---	---	---	NA	NA	NA	NA	NA	NA	NA
Phenols	420	1,200	---	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	---	---	---	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	---	---	---	NA	NA	NA	NA	NA	NA	NA
Hexadecanoic acid	---	---	---	NA	NA	NA	NA	NA	NA	NA
TOTAL PETROLEUM HYDROCARBONS (mg/kg-dry)										
Diesel-range Hydrocarbons	---	---	---	14 U	45	80	110	210	60	NA
Motor Oil-range Hydrocarbons	---	---	---	28 U	110	270	210	640	170	NA
ORGANICS (mg/kg TOC) (d)										
LPAH (e)										
Naphthalene	99	170	---	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	480	---	NA	NA	NA	NA	NA	NA	NA
Anthracene	220	1,200	---	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	38	64	---	NA	NA	NA	NA	NA	NA	NA
Total LPAH (f,g)	370	780	---	NA	NA	NA	NA	NA	NA	NA
HPAH (h)										
Fluoranthene	160	1,200	---	NA	NA	NA	NA	NA	NA	NA
Pyrene	1,000	1,400	---	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	110	270	---	NA	NA	NA	NA	NA	NA	NA
Chrysene	110	460	---	NA	NA	NA	NA	NA	NA	NA
Benzo(b,k)fluoranthene	230	450	---	NA	NA	NA	NA	NA	NA	NA
Benzofluoranthenes (i)	230	450	---	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	99	210	---	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	34	88	---	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	31	78	---	NA	NA	NA	NA	NA	NA	NA
Total HPAH (g,j)	960	5,300	---	NA	NA	NA	NA	NA	NA	NA
PCBs (mg/kg TOC) (d)										
Aroclor 1242/1016	---	---	---	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	---	---	---	2.32	1.81 U	3.01 U	NA	NA	NA	NA
Aroclor 1242	---	---	0.21	0.61 U	1.81 U	3.01 U	NA	NA	NA	NA
Aroclor 1248	---	---	0.21	0.61 U	7.67	8.90	NA	NA	NA	NA
Aroclor 1254	---	---	0.21	0.61 U	8.28	12.58	NA	NA	NA	NA
Aroclor 1260	---	---	0.21	2.15	1.81 U	3.01 U	NA	NA	NA	NA
Aroclor 1221	---	---	---	0.61 U	1.81 U	3.01 U	NA	NA	NA	NA
Aroclor 1232	---	---	---	0.61 U	1.81 U	3.01 U	NA	NA	NA	NA
Total PCBs (l)	12	65	---	4.47	3.2 (k)	15.9 (k)	21.47 (k)	NA	NA	NA
OTHER (mg/kg TOC) (d)										
Dimethylphthalate	53	53	---	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	61	110	---	NA	NA	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl)phthalate	47	78	---	NA	NA	NA	NA	NA	NA	NA
Di-n-Octyl phthalate	58	4,500	---	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	220	1,700	---	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS										
Total Solids (percent)	---	---	---	37.2	NA	NA	NA	NA	NA	NA
Total Volatile Solids (mg/kg)	---	---	---	NA	NA	NA	NA	NA	NA	NA
Cyanide (mg/kg)	---	---	---	NA	NA	NA	NA	NA	NA	NA
Total Cyanide (mg/kg)	---	---	---	NA	NA	NA	NA	NA	NA	NA
N-Ammonia (mg-N/kg)	---	---	---	13.5	NA	NA	NA	NA	NA	NA
Sulfide (mg/kg)	---	---	---	543	NA	NA	NA	NA	NA	NA
Total Organic Carbon (percent)	---	---	---	3.26	NA	NA	NA	NA	NA	NA

Boxed value indicates an exceedance of the SQS.
Boxed and shaded value indicates an exceedance of the CSL and SQS.
mg/kg = milligram per kilogram
µg/kg = microgram per kilogram
NA = Not analyzed or results not available.
ND = Not detected.
-- = SQS or CSL criteria not established.
E = Reported result is an estimate because of the presence of interference.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N = For metals analytes the spike sample recovery is not within control limits.
P = The analyte was detected above the instrument detection limit but below the established minimum quantitation limit.
U = The analyte was not detected at or above the reported result.
(a) This information has not been validated and does not represent final data. Data provided by Hart Crowser for Georgia-Pacific West, Inc. Only metals analyses were provided for these samples.
(b) Sediment Quality Standard chemical criteria (Chapter 173-204 WAC); applies to samples with total organic carbon concentrations of 0.5% to 3.5%.
(c) Cleanup Screening Level chemical criteria (Chapter 173-204 WAC); applies to samples with total organic carbon concentrations of 0.5% to 3.5%.
(d) Data are normalized to total organic carbon; this involves dividing the dry weight concentration of the constituent by the fraction of total organic carbon present.
(e) Low molecular weight polycyclic aromatic hydrocarbons.
(f) The State Sediment Management Standards LPAH criterion represents the sum of the following "low molecular weight polycyclic aromatic hydrocarbon" compounds: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, and Anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds listed.
(g) Where chemical criteria in this table represent the sum of individual compounds or isomers, the following methods are applied:
(i) Where chemical analyses identify an undetected value for every individual compound/isomer, then the single highest detection limit shall represent the sum of the respective compounds/isomers.
(ii) Where chemical analyses detect one or more individual compounds/isomers, only the detected concentrations will be added to represent the group sum.
(h) High molecular weight polycyclic aromatic hydrocarbons.
(i) The total benzofluoranthenes criterion for the State Standards represents the sum of the concentrations of the "B", "J", and "K" isomers.
(j) The SMS HPAH criterion represents the sum of the following "high molecular weight polycyclic aromatic hydrocarbon" compounds: Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzofluoranthenes, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene.
(k) Carbon normalized based on 3.26% total organic carbon from surface sediment sample.
(l) PCB SL based on the PQL requires the carbon normalization of the PQL value to determine the numerical value, which varies from sample to sample. For the purposes of this RI, a PCB detection is assumed to be a PQL SL exceedance. PQL for PCBs in sediment is based on Ecology's Sediment Sampling and Analysis Plan Appendix (Ecology 2008) is 6 mg/kg dry weight, and has been adjusted by the average total organic carbon value for this site of approximately 2.8%, resulting in the carbon-normalized PQL of 0.21 mg/kg.
(m) Sample results containing total organic carbon concentrations <0.5% or >3.5% should be compared to the dry weight equivalent screening levels shown in Table 6-4.

TABLE 6-6
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SOIL AT THE R.G. HALEY SITE NEAR THE OVERLAP AREA
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample Name	Cornwall Avenue Landfill		HS-DP-1	HS-DP-1	HS-DP-1	HS-MW-3	HS-MW-7	HS-MW-10	HS-MW-11DA	HS-MW-11DA	HS-MW-11DA	HS-MW-19	HS-MW-19	HS-MW-19	TL-B-3	TL-B-4
Sample Date	Site Screening		6/15/2004	6/15/2004	6/15/2004	4/4/2000	4/5/2000	6/16/2004	6/16/2004	6/16/2004	6/16/2004	7/10/2012	7/10/2012	7/10/2012	4/5/2000	4/5/2000
Sample Top Depth	Levels		4	8	12	6.5	9	12	4	8	12	1.5	10	12.5	9	6.5
Sample Bottom Depth	(unsaturated soil)	(saturated soil)	6	10	14	6.5	9	13	8	12	16	2.5	11.5	14	9	6.5
TOTAL METALS (mg/kg)																
Method SW6020																
Arsenic	---	---	4.35	7.39	7.67	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	48	48	36.7	41.4	68.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.1	0.2	30.8	1030	65	NA	NA	NA	NA	NA	NA	NA	82 J	NA	NA	NA
EPH (mg/kg)																
Method NWEPH																
C12-C16 Aromatics	---	---	NA	NA	NA	NA	NA	240 U	NA	NA	NA	NA	NA	NA	NA	NA
C16-C21 Aliphatics	---	---	NA	NA	NA	NA	NA	1670	NA	NA	NA	NA	NA	NA	NA	NA
C16-C21 Aromatics	---	---	NA	NA	NA	NA	NA	1300	NA	NA	NA	NA	NA	NA	NA	NA
C21-C34 Aliphatics	---	---	NA	NA	NA	NA	NA	9390	NA	NA	NA	NA	NA	NA	NA	NA
C21-C34 Aromatics	---	---	NA	NA	NA	NA	NA	9340	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (mg/kg)																
Method SW8270/SW8270SIM																
1-Methylnaphthalene	35	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	29	0.97	NA	NA
2-Methylnaphthalene	320	320	NA	442	275	NA	NA	17.6 J	133	129	5.76	NA	39	1.1	NA	NA
Acenaphthene	100	5.1	NA	14.7	0.827	1.16	1.85	0.653	3.24	4.07	0.169	NA	2.4	0.086	24.9	0.25 U
Acenaphthylene	---	---	NA	0.33 U	0.33 U	0.05 U	0.05 U	0.135	0.896	1.1	0.0332 U	NA	0.69	0.02	9.41	0.25 U
Anthracene	4.5	0.22	NA	3.05	0.33 U	0.928	1.77	0.828	1.12	1	0.0484	NA	0.56	0.012	15.6	0.25 U
Benzo(a)anthracene	0.13	0.0065	NA	0.599	0.33 U	0.05 U	0.05 U	1.24	0.33 U	0.748 U	0.0332 U	NA	0.034	0.03	0.631	0.25 U
Benzo(a)pyrene	0.14	0.017	NA	0.33 U	0.33 U	0.05 U	0.05 U	0.549	0.33 U	0.748 U	0.0396	NA	0.031 U	0.0091	0.379	0.25 U
Benzo(b)fluoranthene	0.43	0.022	NA	0.33 U	0.33 U	0.05 U	0.05 U	0.525	0.33 U	0.748 U	0.0332 U	NA	0.036	0.013	0.442	0.25 U
Benzo(ghi)perylene	---	---	NA	0.33 U	0.33 U	0.0509	0.05 U	0.398	0.33 U	0.748 U	0.0332 U	NA	0.042	0.021	0.274	0.25 U
Benzo(k)fluoranthene	0.43	0.022	NA	0.33 U	0.33 U	0.05 U	0.05 U	0.7	0.33 U	0.748 U	0.0332 U	NA	0.031 U	0.0074 U	0.25 U	0.25 U
Chrysene	0.14	0.0072	NA	0.857	0.33 U	0.05 U	0.071	1.32	0.33 U	0.748 U	0.0682	NA	0.052	0.016	0.968	0.25 U
Dibenzo(a,h)anthracene	0.14	0.018	NA	0.33 U	0.33 U	0.05 U	0.05 U	0.509	0.33 U	0.748 U	0.0332 U	NA	0.031 U	0.0074 U	0.25 U	0.25 U
Fluoranthene	3.2	0.16	NA	2.21	0.33 U	0.247	0.246	0.127	0.428	0.748 U	0.0418	NA	0.15	0.014	2.8	0.25 U
Fluorene	0.47	0.024	NA	19.6	1.12	0.166	2.83	0.677	4.11	5.23	0.213	NA	2.8	0.11	33.3	0.25 U
Indeno(1,2,3-cd)pyrene	0.7	0.035	NA	0.33 U	0.33 U	0.05 U	0.05 U	0.31	0.33 U	0.748 U	0.0332 U	NA	0.031 U	0.0081	0.25 U	0.25 U
Naphthalene	2.3	0.12	NA	48.7	0.794	3.81	2.34	5.49	7.87	6.4	0.389	NA	0.87	0.11	116	0.25 U
Phenanthrene	---	---	NA	43.8	2.36	4.73	8.04	0.804	9.64	13.1	0.444	NA	5.3	0.13	82	0.317
Pyrene	20	1	NA	4.81	0.33 U	0.411	0.489	0.963 J	1.01	1.34	0.0528	NA	0.37	0.034	5.6	0.25 U
Total cPAH TEQ (ND=0.5RL)	0.14	0.14	NA	0.29947	0.24915	0.03775	0.03821	0.8906	0.24915	0.56474	0.048582	NA	0.02767 T	0.01511 T	0.53348	0.18875
SEMIVOLATILES (mg/kg)																
Method SW8270/SW8270SIM																
Bis(2-Ethylhexyl) Phthalate	6.6	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.84	0.21	NA	NA
Dibenzofuran	80	80	NA	0.33 U	0.33 U	NA	NA	3.97 U	1.62	0.748 U	1.1 U	NA	0.38 U	0.093 U	NA	NA
Pentachlorophenol	0.16	0.1	NA	2.99	0.844	5.69	0.209	1.7 J	1.03	1.39	0.166 U	NA	0.15	0.016	2.82	0.5 U
N-Nitrosodiphenylamine	0.18	0.02	NA	0.33 U	0.33 U	NA	NA	3.97 U	4.76	4.44	1.1 U	NA	0.38 U	0.093 U	NA	NA
2,4,6-Trichlorophenol	80	80	NA	0.33 U	0.33 U	0.5 U	0.05 U	3.97 U	0.33 U	0.748 U	1.1 U	NA	0.0029 U	0.0035 U	2.5 U	0.5 U
TOTAL PETROLEUM HYDROCARBONS (mg/kg)																
NWTPH-Dx																
Diesel-Range Hydrocarbons	2000	2000	NA	4220	180	1060	1430	2640	986	905	61.2	NA	1600	180 J	27000	137
Oil-Range Hydrocarbons	2000	2000	NA	189	44	231	39.8	5390	246	140	83.1 U	NA	610	770	2530 U	440
DIOXINS/FURANS (ng/kg)																
Method SW8290																
Total Dioxin/Furan TEQ (ND=0.5DL) - Human/Mammal	11 (a)	11 (a)	NA	NA	NA	290.38 T	NA	NA	NA	NA	NA	98550.65 JT	NA	NA	NA	NA
CONVENTIONALS																
Dry Weight (PSEP-PS; %)	---	---	84.5	57.8	50.8	85.1	79.8	41.6	84.6	44.1	30.1	NA	NA	NA	79.2	84.2
Total Organic Carbon (%; SW9060)	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon (mg/kg; SW9060)	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6-6
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SOIL AT THE R.G. HALEY SITE NEAR THE OVERLAP AREA
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample Name	Cornwall Avenue Landfill		TL-B-5	TL-HA-1	TL-HA-2	TL-MW-10	TL-MW-10	TL-MW-10	TL-MW-10	TL-MW-10	TL-MW-13	TL-MW-13	TL-MW-13	TL-MW-13	TL-MW-13
Sample Date	Site Screening		4/5/2000	6/14/2004	6/14/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	7/3/2012	7/3/2012	7/3/2012	7/3/2012	7/3/2012
Sample Top Depth	Levels		5	0	0	5.5	8	12	16	20	11	18	23	33	43
Sample Bottom Depth	(unsaturated soil)	(saturated soil)	5	1	1	8	12	13	18	22	12	19	24	34	44
TOTAL METALS (mg/kg)															
Method SW6020															
Arsenic	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	48	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH (mg/kg)															
Method NWEPH															
C12-C16 Aromatics	---	---	NA	NA	NA	NA	NA	1980	NA	NA	NA	NA	NA	NA	NA
C16-C21 Aliphatics	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C16-C21 Aromatics	---	---	NA	NA	NA	NA	NA	5210	NA	NA	NA	NA	NA	NA	NA
C21-C34 Aliphatics	---	---	NA	NA	NA	NA	NA	16800	NA	NA	NA	NA	NA	NA	NA
C21-C34 Aromatics	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (mg/kg)															
Method SW8270/SW8270SIM															
1-Methylnaphthalene	35	35	NA	NA	NA	NA	NA	NA	NA	NA	870	0.13	5.9	0.012	0.092
2-Methylnaphthalene	320	320	NA	0.0277	0.136	NA	NA	74.5	NA	NA	1200	0.18	7.5	0.021	0.15
Acenaphthene	100	5.1	0.5 U	0.01 U	0.01 U	NA	NA	18 J	NA	NA	53	0.02	0.63	0.0049 U	0.013
Acenaphthylene	---	---	0.5 U	0.01 U	0.01 U	NA	NA	4.87 J	NA	NA	20 U	0.014	0.21	0.0049 U	0.0052 U
Anthracene	4.5	0.22	0.5 U	0.01 U	0.0165	NA	NA	25.1 J	NA	NA	20 U	0.012	0.21	0.0049 U	0.0052 U
Benzo(a)anthracene	0.13	0.0065	0.5 U	0.01 U	0.042	NA	NA	4.87	NA	NA	1.4	0.02	0.088	0.0049 U	0.0052 U
Benzo(a)pyrene	0.14	0.017	0.5 U	0.01 U	0.033	NA	NA	0.637 J	NA	NA	0.7	0.018	0.083	0.0049 U	0.0052 U
Benzo(b)fluoranthene	0.43	0.022	0.5 U	0.01 U	0.0248	NA	NA	0.813 J	NA	NA	1.1	0.025	0.1	0.0049 U	0.0052 U
Benzo(ghi)perylene	---	---	0.5 U	0.01 U	0.0143	NA	NA	1.06 U	NA	NA	0.53	0.016	0.068	0.0049 U	0.0052 U
Benzo(k)fluoranthene	0.43	0.022	0.5 U	0.01 U	0.033	NA	NA	1.09 J	NA	NA	0.35	0.0084 U	0.041 U	0.0049 U	0.0052 U
Chrysene	0.14	0.0072	0.5 U	0.0106	0.042	NA	NA	4.68 J	NA	NA	2.1	0.018	0.081	0.0049 U	0.0052 U
Dibenzo(a,h)anthracene	0.14	0.018	0.5 U	0.01 U	0.01 U	NA	NA	0.196 J	NA	NA	0.091	0.0084 U	0.041 U	0.0049 U	0.0052 U
Fluoranthene	3.2	0.16	0.5 U	0.01 U	0.0773	NA	NA	2.43	NA	NA	20 U	0.038	0.22	0.0049 U	0.0052 U
Fluorene	0.47	0.024	0.5 U	0.01 U	0.01 U	NA	NA	17.7 J	NA	NA	60	0.02	0.6	0.0049 U	0.014
Indeno(1,2,3-cd)pyrene	0.7	0.035	0.5 U	0.01 U	0.0165	NA	NA	0.194 J	NA	NA	0.32	0.0096	0.043	0.0049 U	0.0052 U
Naphthalene	2.3	0.12	0.5 U	0.01 U	0.0593	NA	NA	8.25 J	NA	NA	78	0.028	0.35	0.0049 U	0.0093
Phenanthrene	---	---	0.5 U	0.01 U	0.0495	NA	NA	38.2	NA	NA	140	0.043	1.5	0.0049 U	0.023
Pyrene	20	1	0.5 U	0.0114	0.0736	NA	NA	6	NA	NA	20 U	0.034	0.32	0.0049 U	0.0052 U
Total cPAH TEQ (ND=0.5RL)	0.14	0.14	0.3775	0.007606	0.04555	NA	NA	1.4	NA	NA	1.047 T	0.02448 T	0.111 T	0.0036995 UT	0.003926 UT
SEMIVOLATILES (mg/kg)															
Method SW8270/SW8270SIM															
Bis(2-Ethylhexyl) Phthalate	6.6	0.33	NA	NA	NA	NA	NA	NA	NA	NA	20 U	0.073	0.4	0.024 U	0.071
Dibenzofuran	80	80	NA	0.33 U	0.33 U	NA	NA	1.51	NA	NA	10 U	0.021 U	0.1 U	0.012 U	0.013 U
Pentachlorophenol	0.16	0.1	1.73	1.03	0.707	NA	NA	5.48	NA	NA	0.29	0.011	0.019	0.0012 U	0.0012 U
N-Nitrosodiphenylamine	0.18	0.02	NA	0.33 U	0.33 U	NA	NA	1.06 U	NA	NA	10 U	0.021 U	0.1 U	0.012 U	0.013 U
2,4,6-Trichlorophenol	80	80	0.5 U	0.33 U	0.33 U	NA	NA	1.06 U	NA	NA	0.0046	0.0039 U	0.0038 U	0.0023 U	0.0024 U
TOTAL PETROLEUM HYDROCARBONS (mg/kg)															
NWTPH-Dx															
Diesel-Range Hydrocarbons	2000	2000	139	10 U	18	1550	2490	17400	27.2	NA	41000	26	710	2.4 U	4.5
Oil-Range Hydrocarbons	2000	2000	378	25 U	25 U	125 U	648	24300	25 U	NA	2300	45	290	9.8 U	10 U
DIOXINS/FURANS (ng/kg)															
Method SW8290															
Total Dioxin/Furan TEQ (ND=0.5DL) - Human/Mammal	11 (a)	11 (a)	NA	704.175 T	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS															
Dry Weight (PSEP-PS; %)	---	---	88.7	92.4	88.8	74.7	62.1	31	78	29.2	NA	NA	NA	NA	NA
Total Organic Carbon (%; SW9060)	---	---	NA	NA	NA	NA	NA	NA	NA	34.1	NA	NA	NA	NA	NA
Total Organic Carbon (mg/kg; SW9060)	---	---	NA	NA	NA	NA	NA	NA	NA	341000	NA	NA	NA	NA	NA

TABLE 6-6
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN SOIL AT THE R.G. HALEY SITE NEAR THE OVERLAP AREA
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Boxed cells indicate an exceedance of a screening level.
mg/kg = milligrams per kilogram (ppm).
ng/kg = nanogram per kilogram (pptr)
U = Indicates the compound was undetected at the reported concentration.
J = The reported sample detection limit is an estimate.
NA = Not analyzed or results not available.
TEQ = Toxicity equivalent.
(a) TEQ for dioxins/furans is presented in Table 5-3 in units of mg/kg. (1.10E-05 mg/kg = 11 µg/kg)

TABLE 6-7
2007 A-LAYER SEDIMENT SAMPLE AND 2012 INTERIM PLACEMENT MATERIAL ANALYTICAL RESULTS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		DMMU POB 1		DMMU POB 2		DMMU POB 3		CA-LF-IPA1-0201112A	CA-LF-IPA1-021512B	CA-LF-IPA1-021512C	CA-LF-IPA2-022412D	CA-LF-IPA2-022412E
	Soil Screening Levels	Gate3-CMP1 KQ93A/KR14A 3/8/2007	Gate3-Core1 KQ93B 3/8/2007	Gate3-CMP2 KQ93C/KR14B 3/8/2007	Gate3-Core5 KQ93D 3/8/2007	Gate3-CMP3 KQ93F/KR14C 3/9/2007	Gate3-Core9 KQ93E 3/9/2007	IPA 1, Sample 1 2/1/2012	IPA 1, Sample 2 2/15/2012	IPA 1, Sample 3 2/15/2012	IPA 2, Sample 1 2/24/2012	IPA 2, Sample 2 2/24/2012
TOTAL METALS												
EPA Methods 6010B/7470A/7740 (mg/kg)												
Cadmium	80	0.4	NA	0.4	NA	0.4	NA	NA	NA	NA	NA	NA
Chromium	48	73.9	NA	75.1	NA	74.5	NA	NA	NA	NA	NA	NA
Copper	36	57.0	NA	53.7	NA	62.4	NA	NA	NA	NA	NA	NA
Lead	1,000	11	NA	9	NA	10	NA	NA	NA	NA	NA	NA
Mercury	0.07	0.20	NA	0.11	NA	0.15	NA	NA	NA	NA	NA	NA
Nickel	48	116	NA	123	NA	118	NA	NA	NA	NA	NA	NA
Selenium	---	0.6	NA	0.3 U	NA	0.5	NA	NA	NA	NA	NA	NA
Zinc	100	105	NA	104	NA	116	NA	NA	NA	NA	NA	NA
PAHs Method 8270 (mg/kg)												
Phenanthrene	---	0.082	NA	0.062 U	NA	0.086	NA	NA	NA	NA	NA	NA
Fluoranthene	3.2	0.510	NA	0.110	NA	0.270	NA	NA	NA	NA	NA	NA
Pyrene	20	0.630	NA	0.087	NA	0.200	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.13	0.160	NA	0.062 U	NA	0.062 U	NA	NA	NA	NA	NA	NA
Chrysene	0.14	0.200	NA	0.062 U	NA	0.120	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.43	0.140	NA	0.062 U	NA	0.063	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.43	0.110	NA	0.062 U	NA	0.100	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.14	0.076	NA	0.062 U	NA	0.062 U	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.14	0.0098	NA	0.0062 U	NA	0.0068	NA	NA	NA	NA	NA	NA
cPAH TEQ	0.14	0.120	NA	ND	NA	0.180	NA	NA	NA	NA	NA	NA
SEMIVOLATILES												
EPA Method 8270B (mg/kg)												
bis(2-Ethylhexyl)phthalate	6.6	0.061 U	NA	0.062 U	NA	0.078	NA	NA	NA	NA	NA	NA

TABLE 6-7
2007 A-LAYER SEDIMENT SAMPLE AND 2012 INTERIM PLACEMENT MATERIAL ANALYTICAL RESULTS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

		DMMU POB 1		DMMU POB 2		DMMU POB 3		CA-LF-IPA1-0201112A	CA-LF-IPA1-021512B	CA-LF-IPA1-021512C	CA-LF-IPA2-022412D	CA-LF-IPA2-022412E
	Soil Screening Levels	Gate3-CMP1 KQ93A/KR14A 3/8/2007	Gate3-Core1 KQ93B 3/8/2007	Gate3-CMP2 KQ93C/KR14B 3/8/2007	Gate3-Core5 KQ93D 3/8/2007	Gate3-CMP3 KQ93F/KR14C 3/9/2007	Gate3-Core9 KQ93E 3/9/2007	IPA 1, Sample 1 2/1/2012	IPA 1, Sample 2 2/15/2012	IPA 1, Sample 3 2/15/2012	IPA 2, Sample 1 2/24/2012	IPA 2, Sample 2 2/24/2012
CONVENTIONAL CHEMISTRY PARAMETERS (mg/kg, unless noted)												
Total Solids (%, Method 160.3)	---	56.00	NA	56.80	NA	54.10	NA	NA	NA	NA	NA	NA
Total Volatile Solids (%, Method 160.4)	---	5.55	NA	5.43	NA	5.74	NA	NA	NA	NA	NA	NA
Preserved Total Solids (%, Method 160.3)	---	NA	53.10	NA	53.60	NA	52.70	NA	NA	NA	NA	NA
Total Organic Carbon (%, PLUMB81TC)	---	1.65	NA	1.27	NA	1.12	NA	NA	NA	NA	NA	NA
Ammonia (NH3) as Nitrogen (N) (Method 350.1)	---	24.0 J	NA	24.2 J	NA	16.0	NA	NA	NA	NA	NA	NA
Sulfide (Method 376.2)	---	NA	1,980	NA	1,850	NA	1,350	NA	NA	NA	NA	NA
CHLORINATED DIOXINS (ng/kg) Method 8290/1613B												
2,3,7,8-TCDD	---	0.270	NA	0.178	NA	0.385	NA	0.269 UJ	0.312 UJ	0.405 UJ	0.248 UJ	0.201 UJ
1,2,3,7,8-PeCDD	---	1.60	NA	0.882	NA	3.85	NA	1.83	3.87	3.43 UJ	2.42	1.67
1,2,3,4,7,8-HxCDD	---	3.90	NA	2.65	NA	10.6	NA	3.24	5.72	6.24 J	4.17	2.84
1,2,3,6,7,8-HxCDD	---	14.7	NA	8.31	NA	42.1	NA	13.2	31.7	24.6	17.4	13.2
1,2,3,7,8,9-HxCDD	---	8.05	NA	4.36	NA	23.3	NA	7.23	15.3	15.6	9.94	7.02
1,2,3,4,6,7,8-HpCDD	---	349	NA	205	NA	954	NA	355	735	695	459	348
OCDD	---	2,390	NA	1,910	NA	6,670	NA	3220	6330	6550	4280	3380
Total TCDD	---	51.2	NA	50.4	NA	58.0	NA	22.5	22.8	24.9	23.6	15.2
Total PeCDD	---	41.4	NA	36.8	NA	56.2	NA	27.9	34.6	38.8	31.6	22.6
Total HxCDD	---	212	NA	128	NA	370	NA	120	1660	258	166	114
Total HpCDD	---	1,040	NA	599	NA	2,320	NA	836	223	1810	1190	922
CHLORINATED FURANS (ng/kg) Method 8290/1613B												
2,3,7,8-TCDF	---	2.04	NA	1.52	NA	2.79	NA	1.51	2.17	1.70	1.53	1.16
1,2,3,7,8-PeCDF	---	1.05	NA	0.581	NA	2.92	NA	0.828 UJ	2.36	1.07 J	0.813 J	0.634 J
2,3,4,7,8-PeCDF	---	1.13	NA	0.493	NA	1.85	NA	1.08	2.24	1.04 UJ	0.900 UJ	0.670 UJ
1,2,3,4,7,8-HxCDF	---	3.45	NA	1.99	NA	7.47	NA	3.32	6.31	4.75 J	3.22	2.49
1,2,3,6,7,8-HxCDF	---	1.50	NA	0.951	NA	3.91	NA	1.42 J	2.85	1.95 UJ	1.72 J	1.27 UJ
2,3,4,6,7,8-HxCDF	---	2.39	NA	1.38	NA	5.54	NA	2.19	4.40	3.33 UJ	1.06 UJ	1.06 J
1,2,3,7,8,9-HxCDF	---	1.30	NA	0.757	NA	3.13	NA	1.23 UJ	3.21	1.70 J	1.37 J	0.921 J
1,2,3,4,6,7,8-HpCDF	---	34.8	NA	17.1	NA	87.3	NA	35.7	76.4	80.4	42.3	35.5
1,2,3,4,7,8,9-HpCDF	---	2.08	NA	1.27	NA	3.68	NA	2.12 U	3.68	3.63 UJ	2.38	2.05
OCDF	---	98.0	NA	49.6	NA	181	NA	83.9	142	230	103	94.1
Total TCDF	---	14.7 J	NA	9.49 J	NA	18.4 J	NA	6.31	9.23	6.37	8.93	4.23
Total PeCDF	---	30.5 J	NA	15.2 J	NA	80.2 J	NA	21.8	58.8	30.4	24.7	19.5
Total HxCDF	---	87.3 J	NA	47.0	NA	248 J	NA	68.0	173	114	77.1	60.8
Total HpCDF	---	131	NA	67.4	NA	291	NA	118	256	260	139	120
TEQ (ND=1/2 DL) (a)	11 (c)	10.6	NA	6.2	NA	27.3	NA	10.5	22.0	17.6	13.0	9.72
TEQ (ND=0) (b)	11 (c)	10.6	NA	6.2	NA	27.3	NA	10.3	21.9	15.3	12.7	9.46

TABLE 6-7
2007 A-LAYER SEDIMENT SAMPLE AND 2012 INTERIM PLACEMENT MATERIAL ANALYTICAL RESULTS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

µg/kg = micrograms per kilogram (ppb).
mg/kg = milligrams per kilogram (ppm).
µg/L = micrograms per liter (ppb).
ng/kg = nanogram per kilogram (pptr)
--- = Indicates no criteria established for this compound.
Boxed cells indicate an exceedance of a screening level.
U = Indicates the compound was not detected at the given reporting limit.
UJ = Indicates the compound was not detected; the given reporting limit is an estimate.
J = Indicates the compound was detected; the given concentration is an estimate.
ND = Not detected.
TEQ = Toxicity equivalent.
(a) TEQ calculated using 2005 World Health Organization (WHO) toxicity equivalency factors (TEFs) and one half the detection limit for non-detects.
(b) TEQ calculated using 2005 World Health Organization (WHO) toxicity equivalency factors (TEFs) and zero for non-detects.
(c) TEQ for dioxins/furans is presented in Table 5-3 in units of mg/kg. (1.10E-05 mg/kg = 11 ng/kg)

TABLE 6-8
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AT THE R.G. HALEY SITE NEAR THE OVERLAP AREA
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID: / Sample Date :	2012 Cornwall Ave LF Site Screening Level	HS-MW-2 4/14/2000	HS-MW-3 4/13/2000	HS-MW-7 4/14/2000	HS-MW-7 5/9/2012	HS-MW-10 6/23/2004	HS-MW-10 9/23/2004	HS-MW-10 12/9/2004	HS-MW-10 3/31/2005	HS-MW-10 9/15/2005	HS-MW-11 6/23/2004	HS-MW-11 9/23/2004	HS-MW-11 12/9/2004	HS-MW-11 4/1/2005	HS-MW-11 9/15/2005	HS-MW-19 7/17/2012
TOTAL METALS (ug/L)																
Method SW6020																
Arsenic	5.0	NA	NA	NA	NA	2.28	NA	NA	NA	NA	2.83	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	2.98	NA	NA	NA	NA	5.04	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	57.6	NA	NA	NA	NA	4.82	NA	NA	NA	NA	NA
DISSOLVED METALS (ug/L)																
Method SW6020																
Arsenic	5.0	NA	NA	NA	NA	1.32	NA	NA	NA	NA	2.47	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	1 U	NA	NA	NA	NA	1.63	NA	NA	NA	NA	NA
PAHs (ug/L)																
Method SW8270																
Naphthalene	83	182	116	26.2	2.4	17.4	NA	0.1 U	1.52	1.31	25.9	NA	11.7	36.6	8.5	20
2-Methylnaphthalene	---	NA	NA	NA	380	97.9	NA	887	70.5	64.8	575	NA	658	798	492	220
1-Methylnaphthalene	---	NA	NA	NA	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200
Acenaphthylene	---	0.958	1.5	1.04	1.5	0.772	NA	0.1 U	1.19	0.2 U	1.4	NA	0.1 U	4.59	0.5 U	1.2
Acenaphthene	990	4.19	7.45	4.79	10	4.28	NA	5.41 J	6.41	6.59	5.29	NA	9.58	20.2	25.7	8.2
Fluorene	3	4.37	8.72	4.33	8	3.48	NA	4.75	6.14	5.37	2.36	NA	8.84	16.5	16.5	6.8
Phenanthrene	---	5.87	8.63	3.78	5.7	0.466	NA	5.19 J	6.38	2.81	0.01 U	NA	9.32	29.9	28	4.2
Anthracene	9.6	4.71	0.762	0.153	0.26	0.0472	NA	0.1 UJ	0.2 U	0.2 U	0.01 U	NA	0.1 U	0.1 U	0.5 U	0.19
Fluoranthene	3.3	0.1 U	0.1 U	0.1 U	0.059	0.01 U	NA	0.1 UJ	0.2 U	0.2 U	0.246	NA	0.176	1.51	1.94	0.047 U
Pyrene	15	0.1 U	0.1 U	0.1 U	0.09	0.01 U	NA	0.1 UJ	0.446	0.2 U	0.01 U	NA	0.238	2.01	4.05	0.076
Dibenzofuran	---	NA	NA	NA	2.9	1.29	NA	0.1 U	0.783	2.33	1.7	NA	3.33	2.39	6.21	2.2
Benzo(a)pyrene	0.018	0.1 U	0.1 U	0.1 U	0.048 U	0.01 U	NA	0.1 U	0.2 U	0.2 U	0.01 U	NA	0.1 U	0.259	0.5 U	0.047 U
Benzo(a)anthracene	0.018	0.1 U	0.1 U	0.1 U	0.048 U	0.01 U	NA	0.1 UJ	0.2 U	0.2 U	0.01 U	NA	0.1 U	0.259	0.5 U	0.047 U
Benzo(b)fluoranthene	0.018	0.1 U	0.1 U	0.1 U	0.048 U	0.01 U	NA	0.1 U	0.2 U	0.2 U	0.01 U	NA	0.1 U	0.183	0.5 U	0.047 U
Benzo(k)fluoranthene	0.018	0.1 U	0.1 U	0.1 U	0.048 U	0.01 U	NA	0.1 U	0.2 U	0.2 U	0.01 U	NA	0.1 U	0.233	0.5 U	0.047 U
Chrysene	0.018	0.1 U	0.1 U	0.1 U	0.048 U	0.01 U	NA	0.1 UJ	0.36	0.2 U	0.01 U	NA	0.1 U	0.444	0.5 U	0.047 U
Indeno(1,2,3-cd)pyrene	0.01	0.1 U	0.1 U	0.1 U	0.048 U	0.01 U	NA	0.1 U	0.2 U	0.2 U	0.01 U	NA	0.1 U	0.132	0.5 U	0.047 U
Benzo(ghi)perylene	---	0.1 U	0.1 U	0.1 U	0.048 U	0.1 U	NA	1 U	2 U	2 U	0.1 U	NA	1 U	1 U	5 U	0.047 U
Dibenzo(a,h)anthracene	---	0.1 U	0.1 U	0.1 U	0.048 U	0.01 U	NA	0.1 U	0.2 U	0.2 U	0.01 U	NA	0.1 U	0.1 U	0.5 U	0.047 U
Total cPAH TEQ (ND=0.5RL)	0.018	0.1	0.1	0.1	0.036 T	0.01	NA	0.1	0.15	0.15	0.01	NA	0.08	0.35	0.38	0.04 T
SEMIVOLATILES (ug/L)																
Method SW8270																
Pentachlorophenol	10	2.3	3.12	0.5 U	0.12	0.141 J	NA	0.5 UJ	2.94	1 U	0.05 U	NA	0.5 UJ	4.02	4.26	0.77
N-Nitrosodiphenylamine	6	NA	NA	NA	0.95 U	0.02 U	NA	0.2 U	0.4 U	2.2	0.02 U	NA	0.2 UJ	0.2 U	1 U	0.95 U
2,4,6-Trichlorophenol	3	0.5 U	0.781	0.5 U	0.018 U	0.0552	NA	0.5 U	1 UJ	1 U	0.171	NA	0.5 U	0.5 UJ	2.5 U	0.018 U
2,3,5,6-Tetrachlorophenol	---	0.5 U	0.571	0.5 U	0.95 U	0.5 U	NA	5 U	10 U	10 U	0.5 U	NA	5 U	5 U	25 U	0.95 U
2,4,5-Trichlorophenol	3,600	0.5 U	0.5 U	0.5 U	0.95 U	0.05 U	NA	0.5 U	1 U	1 U	0.0638	NA	0.5 U	0.5 U	2.5 U	0.95 U
Carbazole	---	NA	NA	NA	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6
TOTAL PETROLEUM HYDROCARBONS (µg/L)																
NWTPH-DX																
Diesel-range hydrocarbons	500	3140	3360	2320	3600	1530	1280	3840	1900	2060	5230	6460	5200	4090	2990	2500 J
Lube Oil-range Hydrocarbons	500	500 U	500 U	500 U	410 U	750	500 U	4430	1660	2620	500 U	500 U	100 U	500 U	500 U	410 U
BTEX (ug/L)																
Method SW8260B																
Ethylbenzene	2,100	NA	NA	NA	0.2 U	1.76	NA	NA	NA	NA	161	NA	NA	NA	NA	NA
Benzene	51	NA	NA	NA	0.2 U	0.5 U	NA	NA	NA	NA	5.13	NA	NA	NA	NA	NA
EPH (ug/L)																
Method NWEPH																
C10-C12 Aliphatics	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C10-C12 Aromatics	---	NA	NA	NA	NA	73 J	NA	NA	NA	NA	418 J	NA	NA	NA	NA	NA
C12-C16 Aliphatics	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C12-C16 Aromatics	---	NA	NA	NA	NA	411 J	NA	NA	NA	NA	2980 J	NA	NA	NA	NA	NA
C16-C21 Aliphatics	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	434	NA	NA	NA	NA	NA
C16-C21 Aromatics	---	NA	NA	NA	NA	212	NA	NA	NA	NA	1090	NA	NA	NA	NA	NA
C21-C34 Aliphatics	---	NA	NA	NA	NA	695	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C21-C34 Aromatics	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	84.2	NA	NA	NA	NA	NA
C8-C10 Aliphatics	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C8-C10 Aromatics	---	NA	NA	NA	NA	50 UJ	NA	NA	NA	NA	165 J	NA	NA	NA	NA	NA
DIOXINS/FURANS (pg/L)																
Method SW8290/EPA1613																
1,2,3,7,8,9-HxCDD	---	NA	NA	NA	NA	43.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDD	---	NA	NA	NA	NA	19700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	---	NA	NA	NA	NA	3860	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDF	---	NA	NA	NA	NA	297	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	---	NA	NA	NA	NA	329	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD	---	NA	NA	NA	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	---	NA	NA	NA	NA	71.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dioxin/Furan TEQ (ND=0.5RL) - Human/Mamma	---	NA	NA	NA	NA	114.6 T	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS																
Total Organic Carbon (EPA415.1; mg/L)	---	NA	NA	NA	NA	10.8	NA	NA	NA	NA	80.6	NA	NA	NA	NA	NA
FIELD PARAMETERS																
Turbidity (NTU)		NA	NA	NA	10.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.20

TABLE 6-8
ANALYTICAL RESULTS FOR CONSTITUENTS DETECTED IN GROUNDWATER AT THE R.G. HALEY SITE NEAR THE OVERLAP AREA
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Sample ID: / Sample Date :	2012 Cornwall Ave LF Site Screening Level	IZ-MW-1 6/22/2004	IZ-MW-1 9/23/2004	IZ-MW-1 12/9/2004	IZ-MW-1 3/30/2005	IZ-MW-1 9/15/2005	TL-MW-10 6/23/2004	TL-MW-10 9/23/2004	TL-MW-10 12/9/2004	TL-MW-10 4/1/2005	TL-MW-10 9/14/2005	TL-MW-12 7/18/2012	TL-MW-13 7/17/2012
TOTAL METALS (ug/L)													
Method SW6020													
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED METALS (ug/L)													
Method SW6020													
Arsenic	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (ug/L)													
Method SW8270													
Naphthalene	83	0.217	NA	0.0402 J	0.0154	0.0462 X	7.58	NA	49.5	41.6	1 U	32	2.2
2-Methylnaphthalene	---	0.1 U	NA	0.1 U	0.1 U	0.1 U	16.9	NA	200	165	1450	680	23
1-Methylnaphthalene	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	520	27
Acenaphthylene	---	0.0105	NA	0.01 U	0.01 U	0.01 U	1 U	NA	1 U	96.1	1 U	2.9	0.29
Acenaphthene	990	0.0125	NA	0.01 U	0.0939	0.01 U	1.6	NA	171	327	3460	17	1.7
Fluorene	3	0.0215	NA	0.01 U	0.12	0.01 U	1 U	NA	186	458	2500	14	1
Phenanthrene	---	0.0666	NA	0.0152 J	0.398	0.0126	1 U	NA	542	1150	15400	14	1.8
Anthracene	9.6	0.0228	NA	0.01 U	0.081	0.01 U	1 U	NA	109	175	2890	0.45	0.1
Fluoranthene	3.3	0.0587	NA	0.01 U	0.0279	0.0106	1 U	NA	21	59.9	737	0.21	0.075
Pyrene	15	0.0562	NA	NA	0.0844	0.0103	0.01 U	NA	56.6	185	2050	0.38	0.13
Dibenzofuran	---	0.01 U	NA	0.01 U	0.0383	0.01 U	1 U	NA	1 U	92.2	1 U	4.8	0.95 U
Benzo(a)pyrene	0.018	0.016	NA	0.0146 J	0.0101	0.01 U	0.0201	NA	6.7	10.6	135 J	0.047 U	0.048 U
Benzo(a)anthracene	0.018	0.0196	NA	0.01 U	0.0182	0.01 U	0.01 U	NA	15.9	35.8	509	0.055	0.048 U
Benzo(b)fluoranthene	0.018	0.0121	NA	0.01 U	0.0102	0.01 U	0.013	NA	1 U	7.39	57.7 J	0.047 U	0.048 U
Benzo(k)fluoranthene	0.018	0.0258	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	1 U	3.52	78.8 J	0.047 U	0.048 U
Chrysene	0.018	0.0233	NA	0.01 U	0.028	0.01 U	0.01 U	NA	22.4	50.4	619	0.048	0.048 U
Indeno(1,2,3-cd)pyrene	0.01	0.0196	NA	0.0242 J	0.01 U	0.01 U	0.01 U	NA	1 U	2.63	1 U	0.047 U	0.048 U
Benzo(ghi)perylene	---	0.1 U	NA	0.01 U	0.1 U	0.1 U	0.1 U	NA	10 U	10 U	75	0.047 U	0.048 U
Dibenzo(a,h)anthracene	---	0.0258	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	1 U	1.85	1 U	0.047 U	0.048 U
Total cPAH TEQ (ND=0.5RL)	0.018	0.03	NA	0.02	0.01	0.01	0.02	NA	8.7	16.22	205.8	0.04 T	0.04 T
SEMIVOLATILES (ug/L)													
Method SW8270													
Pentachlorophenol	10	0.147	NA	0.05 UJ	0.25	0.0822	5 U	NA	5 UJ	5 U	1350	0.03	0.066
N-Nitrosodiphenylamine	6	0.02 U	NA	0.02 U	0.231	0.02 U	2 U	NA	2 UJ	824 J	2 U	0.95 U	0.95 U
2,4,6-Trichlorophenol	3	0.05 U	NA	0.05 U	0.05 UJ	0.05 U	5 U	NA	5 U	5 U	5 U	0.018 U	0.018 U
2,3,5,6-Tetrachlorophenol	---	0.5 U	NA	0.5 U	0.5 U	0.5 U	50 U	NA	50 U	50 U	50 U	0.95 U	0.95 U
2,4,5-Trichlorophenol	3,600	0.05 U	NA	0.05 U	0.05 U	0.05 U	5 U	NA	5 U	5 U	5 U	0.95 U	0.95 U
Carbazole	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4	0.95 U
TOTAL PETROLEUM HYDROCARBONS (µg/L)													
NWTPH-DX													
Diesel-range hydrocarbons	500	250 U	250 U	250 U	250 U	NA	2510	79800	151000	288000	2470000	5800 J	820 J
Lube Oil-range Hydrocarbons	500	500 U	500 U	NA	500 U	500 U	500 U	10400	50000 U	65400	622000	410 U	410 U
BTEX (ug/L)													
Method SW8260B													
Ethylbenzene	2,100	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1
Benzene	51	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U
EPH (ug/L)													
Method NWEPH													
C10-C12 Aliphatics	---	50 UJ	NA	NA	NA	NA	3950 J	NA	NA	NA	NA	NA	NA
C10-C12 Aromatics	---	50 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C12-C16 Aliphatics	---	50 UJ	NA	NA	NA	NA	45800 J	NA	NA	NA	NA	NA	NA
C12-C16 Aromatics	---	50 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C16-C21 Aliphatics	---	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C16-C21 Aromatics	---	50 U	NA	NA	NA	NA	40300 J	NA	NA	NA	NA	NA	NA
C21-C34 Aliphatics	---	50 U	NA	NA	NA	NA	16100 J	NA	NA	NA	NA	NA	NA
C21-C34 Aromatics	---	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C8-C10 Aliphatics	---	50 UJ	NA	NA	NA	NA	292 J	NA	NA	NA	NA	NA	NA
C8-C10 Aromatics	---	50 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIOXINS/FURANS (pg/L)													
Method SW8290/EPA1613													
1,2,3,7,8,9-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dioxin/Furan TEQ (ND=0.5RL) - Human/Mamma	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONVENTIONALS													
Total Organic Carbon (EPA415.1; mg/L)	---	57.2	NA	NA	NA	NA	98.5	NA	NA	NA	NA	NA	NA
FIELD PARAMETERS													
Turbidity (NTU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.20	14.30

ug/L = micrograms per liter
pg/L = picograms per liter
--- = Water Quality Standard or other criteria not established.
E = Reported result is an estimate because of the presence of interference
J = The analyte was positively identified. The associated numerical result is an estimate
U = The analyte was not detected at or above the value shown
UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate
NA = Not analyzed or result not available.
TEQ = Toxicity Equivalency

TABLE 6-9
TP-7 PRODUCT SAMPLE ANALYTICAL RESULTS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Analyte	Analytical Result
PAH (mg/kg)	
Naphthalene	2,200
2-Methylnaphthalene	17,000
Acenaphthylene	100 U
Acenaphthene	670
Fluorene	720
Phenanthrene	1,900
Anthracene	100 U
Fluoranthene	100 U
Pyrene	120
Benzo(a)anthracene	100 U
Chrysene	100 U
Benzo(b)fluoranthene	100 U
Benzo(k)fluoranthene	100 U
Benzo(a)pyrene	100 U
Indeno(1,2,3-cd)pyrene	100 U
Dibenz(a,h)anthracene	100 U
Benzo(g,h,i)perylene	100 U
Dibenzofuran	280
PCBs (mg/kg)	
Aroclor 1016	1 U
Aroclor 1242	1 U
Aroclor 1248	1 U
Aroclor 1254	1 U
Aroclor 1260	1 U
Aroclor 1221	2 U
Aroclor 1232	1 U
BTEX (mg/kg)	
Benzene	0.1 U
Toluene	0.1 U
Ethylbenzene	3.7
m,p-Xylene	12
o-Xylene	6.7
DIESEL RANGE HYDROCARBONS (mg/kg)	
Diesel Range Hydrocarbons	990,000
Motor Oil	10,000

mg/kg = milligram per kilogram

U = Indicates compound was analyzed for, but was not detected at the reported sample detection limit.

TABLE 8-1
SCREENING CRITERIA SUMMARY
DETECTED GROUNDWATER CONSTITUENTS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Constituents	Highest Concentration Detected in Downgradient Perimeter Samples	Preliminary Screening Level (SL) (a)	Criteria Exceedances For Downgradient Perimeter Samples (b)
Dissolved Metals (µg/L)			
Arsenic	2	5	0 of 24
Copper	2.6	2.4	1 of 24
Lead	1	8.1	0 of 24
Zinc	50	81	0 of 24
PAHs (µg/L)			
Naphthalene	3.9	83	0 of 24
Acenaphthene	1.4	3.3	0 of 24
Fluorene	1.4	3	0 of 24
Anthracene	5	9.6	0 of 24
Fluoranthene	0.18	3.3	0 of 24
Pyrene	0.39	15	0 of 24
2-Methylnaphthalene	3.3	15	0 of 24
SVOCs (µg/L)			
bis(2-Ethylhexyl)phthalate	2.5	3	0 of 24
1,4-Dichlorobenzene	1.4	5	0 of 24
VOCs (µg/L)			
Benzene	0.51	51	0 of 24
Toluene	0.2	15,000	0 of 24
Chlorobenzene	10	1,600	0 of 24
Ethylbenzene	3.1	2,100	0 of 24
1,2-Dichlorobenzene	0.36	6.1	0 of 24
1,4-Dichlorobenzene	3.2	5	0 of 24
Conventionals (mg/L)			
Manganese *(dissolved)*	1.44	0.1	22 of 24
NH_3-Ammonia (mg NH_3/L) (c)	0.636	0.035	13 of 24

µg/L = microgram per liter
mg/L = milligram per liter
Detected groundwater constituents are listed in Table 6-2 of this report.
An understanding of the text is necessary for proper interpretation of this table.
(a) PSLs based on most restrictive criteria protective of surface water or marine sediment.
(b) 0 of 24: Number of samples exceeding the SL; number of samples tested in downgradient perimeter monitoring.
(c) NH_3-Ammonia calculated using sample's total ammonia, pH, and temperature with equations from equations developed by Emerson et al. 1975.

TABLE 8-2
PRELIMINARY CLEANUP LEVELS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Indicator Hazardous Substance	Sediment (a) (mg/kg - dry)	Sediment (b) (mg/kg - OC)	Groundwater (µg/L)	Basis for Groundwater Preliminary Cleanup Level
Copper	390	---	---	---
Cadmium	(c)	---	---	---
Lead	(c)	---	---	---
Silver	6.1	---	---	---
Zinc	410	---	---	---
Bis(2-ethylhexyl)phthalate	1.3	47	---	---
cPAHs	(c)	---	---	---
PCBs (d)	0.006	---	---	---
Manganese	---	---	0.1	Surface Water ARAR - Human Health – Marine – Clean Water Act §304
NH_3-Ammonia (mg NH_3/L)	---	---	0.035	Surface Water ARAR - Aquatic Life - Marine/Chronic - Ch. 173-201A WAC

--- Cleanup level was not developed for this indicator constituent because no Screening level (SL) exceedance occurred in this medium.

(a) Sediment cleanup levels based on Sediment Quality Standard, dry weight, except as otherwise noted.

(b) Sediment cleanup levels based on Sediment Quality Standard, carbon normalized values, except as otherwise noted.

(c) Potentially bioaccumulative constituent. PCL not developed because PCBs used in RI/FS as surrogate for all relevant bioaccumulatives

(d) Sediment cleanup level for PCBs is based on PQL for individual PCB aroclors.

TABLE 8-3
SCREENING CRITERIA SUMMARY
DETECTED SEDIMENT CONSTITUENTS
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Constituent	Maximum Concentration in Surface Sediment Samples	SQS (a)	PQL (b)	Criteria Exceedances (c)
Metals (mg/kg-dry wt)				
Copper	756E	390	-	2/16
Lead	887	450	-	2/16
Silver	12J	6.1	-	1/16
Zinc	2140E	410	-	1/16
Organics (mg/kg OC)				
Bis (2-ethylhexyl)phthalate	100	47	-	2/11
Total PCBs	24.6	12	0.21	11/12
Total bulk PCBs (mg/kg-dry wt)			0.006	

E = Reported result is an estimate because of the presence of interference.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
mg/kg = milligrams per kilogram
OC = carbon normalized
(a) Sediment Quality Standard chemical criteria (WAC 173-204).
(b) For PCBs, the preliminary cleanup level has been established at the PQL.
PQL is based on the recommended value in Ecology's Sediment Sampling and Analysis Plan Appendix (Ecology 2008)
PQL for organic carbon normalized criteria based on an average organic carbon concentration of 2.8%.
(c) 1/3: Numerator equals number of samples exceeding one or more criteria. Denominator equals number of samples tested (i.e., one sample from S-1, S-2, and S-3).
Results and criteria for copper, lead, and silver are based on dry weight.
Results for bis(2-ethylhexyl)phthalate and PCBs are normalized for TOC.

TABLE 9-1
REMEDIAL ACTION ALTERNATIVES SUMMARY
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Alternative Number	Alternative Name	Soil Remedy	Groundwater Remedy	Indoor Air/Soil Gas/ Landfill Gas Remedy	Sediment Remedy
1	Containment with Low Permeability Cap, Shoreline Stabilization, and Deep Subtidal Sediment MNR	Containment by placement of low permeability cap over the Upland Site Unit, potentially consisting of low permeability soil; separation, gas control, drainage, and cover soil layers; and pavement and/or buildings. Institutional controls for maintaining Site covers and managing intrusive activities.	Low permeability cap over the Upland Site Unit to reduce surface water infiltration. Improve drainage near BNSF railroad and decommission existing stormwater system in northeast portion of Site (reduce infiltration). Site regrading to enhance stormwater runoff and decrease infiltration. Institutional controls restricting groundwater use and long term groundwater compliance monitoring to confirm compliance with cleanup standards.	Landfill gas control system beneath all capped areas of Site.	Shoreline stabilization system over intertidal and shallow subtidal zones to contain refuse/wood debris and limit human and benthic contact. Monitored natural attenuation for deep subtidal zone.
2	Containment with Low Permeability Cap and Liner, Shoreline Stabilization with Sand Filter, Sediment Cap, and MNR	Containment by placement of low permeabilty cap over the Upland Site Unit, potentially consisting of low permeability soil with a scrim-reinforced liner; gas control, drainage, and cover soil layers; and pavement and/or buildings. Institutional controls for maintaining Site covers and managing intrusive activities.	Low permeability cap over the Upland Site Unit reduces surface water infiltration. Improve drainage near BNSF railroad and decommission existing stormwater system in northeast portion of Site (reduce infiltration). Site regrading to enhance stormwater runoff and decrease infiltration. Sand treatment layer underlying shoreline stabilization system to filter groundwater prior to discharge to surface water, and enhance hydrodynamic dispersion and aeration. Institutional controls restricting groundwater use and long term groundwater compliance monitoring to confirm compliance with cleanup standards.	Landfill gas control system beneath all capped areas of Site.	Shoreline stabilization system over intertidal and shallow subtidal zones to contain refuse/wood debris and limit human and benthic contact. Thin-layer sand cap in deep subtidal zone. MNR for affected uncapped areas in deep subtidal zone.
3	Two-Layer Upland Cap, Upgradient Groundwater Diversion Barrier System, Shoreline Stabilization with Sand Filter, Engineered Sediment Containment Cap, and MNR	Containment by placement of two-layer low permeability cap (soil and FML) potentially consisting of low permeability soil; gas control, drainage, and cover soil layers; and pavement and/or buildings.	Two-layer low permeability cap over the Upland Site Unit reduces surface water infiltration. Improve drainage near BNSF railroad and decommission existing stormwater system in northeast portion of Site (reduce infiltration). Site regrading to enhance stormwater runoff and decrease infiltration. Upgradient groundwater diversion barrier system to reduce groundwater flow. Sand/gravel layer underlying shoreline stabilization system to filter groundwater prior to discharge to surface water (additionally enhances hydrodynamic dispersion and aeration). Institutional controls restricting groundwater use and long term groundwater compliance monitoring to confirm compliance with cleanup standards.	Landfill gas control system beneath all capped areas of Site.	Shoreline stabilization system to contain refuse/wood debris and limit human and benthic contact. Engineered sediment cap in deep subtidal zone. MNR for uncapped areas within deep subtidal zone.
4	Waste Removal	Excavation of landfill refuse and wood debris, and offsite disposal at a licensed solid waste disposal facility.	Not Applicable (source would be removed).	Not Applicable (source would be removed).	Removal of source of sediment contamination, including refuse and wood debris. Reconfiguring and stabilizing the new shoreline.

TABLE 9-2
EVALUATION OF REASONABLE RESTORATION TIME FRAME, UPLAND SITE UNIT
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Criteria	Alternative 1: Containment with Low Permeability Cap, Shoreline Stabilization, and Monitored Natural Recovery	Alternative 2: Containment with Low Permeability Cap and Liner, Shoreline Stabilization with Sand Filter, Sediment Cap, and Monitored Natural Recovery	Alternative 3: Two-Layer Upland Cap, Upgradient Groundwater Diversion Barrier System, Shoreline Stabilization with Sand Filter, Engineered Sediment Cap, and Monitored Natural Recovery	Alternative 4: Waste Removal and Offsite Disposal
Potential risks to human health and the environment.	Alternative 1 is expected to achieve soil cleanup standards immediately. It may require 1 or more years following construction to achieve groundwater cleanup standards, depending on the length of time required to achieve stabilized conditions after construction. Therefore, this timeframe is reasonable given the potential risks to human health and the environment.	The timeframe for achieving soil cleanup standards is similar to Alternative 1, and the timeframe for achieving groundwater cleanup standards is faster than for Alternative 1, due to reduction in groundwater discharge resulting from shoreline sand filter system. Therefore, this timeframe is also reasonable given the potential risks to human health and the environment.	The timeframe for achieving soil cleanup standards is similar to Alternatives 1 and 2, and the timeframe for achieving groundwater cleanup standards is similar but may be slightly faster than for Alternative 2, due to reduction in groundwater discharge resulting from groundwater diversion system. Therefore, this timeframe is also reasonable given the potential risks to human health and the environment.	Excavation and offsite disposal will achieve risk reduction in a longer timeframe (4 to 5 years) based on the complexity of implementation requiring additional planning and construction time. However, with source removal, all of the potential risk will be eliminated after implementation.
Practicability of achieving shorter restoration time frame.	Achieves reasonable restoration time frame, though Alternatives 2 and 3 may be able to achieve cleanup standards for groundwater somewhat faster based on additional measures to reduce surface or groundwater infiltration to the Site.	Achieves reasonable restoration time frame, though Alternative 3 may be able to achieve cleanup standards for groundwater somewhat faster based on additional efforts to reduce groundwater infiltration.	This Alternative has the shortest practicable restoration timeframe.	Estimated restoration time frame: 4 to 5 years including design. This Alternative has the longest estimated restoration timeframe.
Current use of Site, surrounding areas, and associated resources that is, or may be, affected by releases from the Site.	Current use of the Site is limited by the presence of contamination. The estimated restoration timeframe is reasonable for future planned use of the Site uplands.	Current use of the Site is limited by the presence of contamination. The estimated restoration timeframe is reasonable for future planned use of the Site uplands.	Current use of the Site is limited by the presence of contamination. The estimated restoration timeframe is reasonable for future planned use of the Site uplands.	Cleanup action would eliminate current upland Site use and return to marine habitat. This Alternative would preclude the use of the upland portion of the Site as a park, since it would be returned to marine habitat.
Availability of alternate water supplies.	City of Bellingham municipal water supply readily available and is not affected by cleanup of the Site.	City of Bellingham municipal water supply readily available and is not affected by cleanup of the Site.	City of Bellingham municipal water supply readily available and is not affected by cleanup of the Site.	Not applicable, based on conversion to marine habitat.
Likely effectiveness and reliability of institutional controls.	Degree of effectiveness of institutional controls is high and would be effective immediately upon implementation. Long-term City/DNR ownership will minimize potential for institutional controls to be overlooked or otherwise violated.	Degree of effectiveness of institutional controls is high and would be effective immediately upon implementation. Long-term City/DNR ownership will minimize potential for institutional controls to be overlooked or otherwise violated.	Degree of effectiveness of institutional controls is high and would be effective immediately upon implementation. Long-term City/DNR ownership will minimize potential for institutional controls to be overlooked or otherwise violated.	Institutional controls not required.
Ability to control and monitor migration of hazardous substances from the Site.	Estimated restoration timeframe is appropriate based on the immediate implementation of measures to control and monitor migration of hazardous substances form the Site.	Estimated restoration timeframe is appropriate based on the immediate implementation of measures to control and monitor migration of hazardous substances form the Site.	Estimated restoration timeframe is appropriate based on the immediate implementation of measures to control and monitor migration of hazardous substances form the Site.	Control of hazardous substance migration during construction would be a significant issue. Following implementation, the contaminant source and risk of future migration would be eliminated, except for possible suspension and redistribution of hazardous substances during removal that could contaminate surface sediment.
Toxicity of hazardous substances at the Site.	Alternative 1 is expected to achieve soil cleanup standards immediately. It may require 1 or more years following construction to achieve groundwater cleanup standards, depending on the length of time required to achieve stabilized conditions after construction. Based on the toxicity of hazardous substances at the Site, the estimated restoration timeframe is reasonable.	The timeframe for achieving soil cleanup standards is similar to Alternative 1, and the timeframe for achieving groundwater cleanup standards is faster than for Alternative 1, due to reduction in groundwater discharge resulting from shoreline sand filter system. Therefore, based on the toxicity of hazardous substances at the Site, the estimated restoration timeframe for Alternative 2 is also reasonable.	The timeframe for achieving soil cleanup standards is similar to Alternatives 1 and 2, and the timeframe for achieving groundwater cleanup standards is similar but may be slightly faster than for Alternative 2, due to reduction in groundwater discharge resulting from groundwater diversion system. Therefore, based on the toxicity of hazardous substances at the Site this timeframe is also reasonable.	Alternative 4 would not reduce toxicity, but would remove hazardous substances from the Site. Based on the toxicity of hazardous substances at this Site, the estimated restoration timeframe for this Alternative is reasonable.
Natural processes which reduce concentrations of hazardous substances and have been documented to occur at the Site or under similar Site conditions.	In addition to the upland cap achieving soil cleanup standards, a primary mechanism for reduction of concentrations in groundwater is hydrodynamic dispersion due to tidal fluctuation and increased dissolved oxygen near the shoreline caused by wave action and tidal exchange. This process is dynamic but will begin to occur immediately upon implementation and therefore the estimated restoration timeframe is reasonable.	In addition to the upland cap achieving soil cleanup standards, a primary mechanism for reduction of concentrations in groundwater is hydrodynamic dispersion due to tidal fluctuation and increased dissolved oxygen near the shoreline caused by wave action and tidal exchange. This process is dynamic but will begin to occur immediately upon implementation and therefore the estimated restoration timeframe is reasonable. The inclusion of a shoreline sand filter in this Alternative may improve the estimated restoration timeframe compared to Alternative 1.	In addition to the upland cap achieving soil cleanup standards, a primary mechanism for reduction of concentrations in groundwater is hydrodynamic dispersion due to tidal fluctuation and increased dissolved oxygen near the shoreline caused by wave action and tidal exchange. This process is dynamic but will begin to occur immediately upon implementation and therefore the estimated restoration timeframe is reasonable. The inclusion of additional groundwater diversion in this Alternative may improve the estimated restoration timeframe compared to Alternative 1.	Not applicable. Contaminant source will be removed.

TABLE 9-3
EVALUATION OF REASONABLE RESTORATION TIME FRAME, MARINE SITE UNIT
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Criteria	Alternative 1: Containment with Low Permeability Cap, Shoreline Stabilization, and Monitored Natural Recovery	Alternative 2: Containment with Low Permeability Cap and Liner, Shoreline Stabilization with Sand Filter, Sediment Cap, and Monitored Natural Recovery	Alternative 3: Two-Layer Upland Cap, Upgradient Groundwater Interception, Shoreline Stabilization with Sand Filter, Engineered Sediment Cap, and Monitored Natural Recovery	Alternative 4: Waste Removal and Offsite Disposal
Potential risks to human health and the environment.	Alternative 1 is anticipated to achieve adequate protection of human health and the environment in the intertidal and shallow subtidal areas within 3 to 5 years (2 years of cleanup action construction), and within 10 to 20 years within deep subtidal zone where MNR applied. .	Similar to Alternative 1, but increased protection in intertidal and shallow subtidal zones because of improved groundwater quality resulting from installation of sand filter layer, and increased protection in subtidal zone where sediment cap placed. Anticipated to achieve protection of human health and the environment in intertidal and shallow subtidal zones, and portion of deep subtidal zone that is capped, immediately following cleanup construction (1 to 2 years). Remainder of deep subtidal zone anticipated to achieve protection within 10 to 15 years, slightly shorter than Alternative 1 because capping of portion of deep subtidal zone should accelerate the effectiveness of MNR.	Restoration time frame anticipated to be the same as Alternative 2, but greater protection in capped portion of deep subtidal area due to thicker, engineered cap.	Dredging and offsite disposal will remove sediment contamination and source of contaminated groundwater discharge to Bellingham Bay following construction (4 to 5 years), which is a similar restoration time frame as Alternative 1 through 3 in the intertidal and shallow subtidal zones, but 5 to 15 years shorter than Alternatives 1 through 3 in the deep subtidal zone. However, redistribution and contamination of post-construction sediment surface could extend the restoration time frame by 10 to 20 years, resulting in a similar restoration time frame to the other alternatives.
Practicability of achieving shorter restoration time frame.	A shorter restoration time frame may be achievable for the portion of the Marine Site Unit subject to MNR. Practicability of achieving shorter restoration time frame evaluated in DCA.	Alternative 4 (complete removal) is anticipated to achieve a shorter restoration time frame. The practicability of achieving a shorter restoration time frame will be evaluated in the DCA.	Equivalent to Alternative 2.	None of the other alternatives provide a shorter restoration time frame. The practicability of achieving a shorter restoration time frame will be evaluated in the DCA.
Current use of Site, surrounding areas, and associated resources that is, or may be, affected by releases from the Site.	Current use limited because of releases from the Site. Aquatic resources and function will likely be restored within about 3 to 5 years following construction in intertidal and shallow subtidal zones, and 10 to 20 years in deep subtidal zone subject to MNR.	Similar to Alternative 1, except that aquatic resources and function would be more rapidly restored in the portion of the deep subtidal area that is capped rather than relying exclusively on MNR.	Equivalent to Alternative 2.	Current Site use for aquatic purposes would be significantly improved by removing waste and creating significant new aquatic habitat with improved habitat function.
Availability of alternate water supplies.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Likely effectiveness and reliability of institutional controls.	Institutional controls should be effective in limiting shellfish gathering and other activities that could compromise the integrity of the shoreline stabilization system.	Equivalent to Alternative 1.	Similar to Alternative 1. Institutional controls would likely be extended to prevent activities that could compromise the integrity of the engineered sediment cap.	Not applicable.
Ability to control and monitor migration of hazardous substances from the Site.	Implementation of the Alternative would control migration of hazardous substances in intertidal and shallow subtidal zones immediately following construction. Control of migration in the deep subtidal zone subject to MNR would be controlled within 10 to 20 years. The migration of hazardous substances would be monitored through sediment natural recovery monitoring starting immediately following construction of shoreline stabilization system and periodically until sediment cleanup standards are achieved throughout the Site.	Improved compared to Alternative 1. Additional control of hazardous substances in deep subtidal zone provided through placement of thin layer cap.	Somewhat Improved compared to Alternative 2. Additional control of hazardous substances in portion of deep subtidal zone provided through placement of engineered cap.	The control of contaminant migration would be difficult during construction due to the removal of large volumes of affected media in direct contact with tidally-affected surface water. Control not required following implementation, but natural recovery monitoring may be required if significant surface contamination results from suspension and redistribution.
Toxicity of hazardous substances at the Site.	Toxicity of hazardous substances would not be affected, but would be contained immediately in the intertidal and shallow subtidal zones. Complete containment in deep subtidal zone would not occur until natural recovery processes developed adequate clean sediment cap, estimated to be 10 to 20 years.	Improved compared to Alternative 1. Containment in deep subtidal would not occur until natural recovery processes developed adequate clean sediment cap.	Improved compared to Alternative 2. Refuse and wood debris in sediments at the Site exceed benthic criteria. Containment in deep subtidal would not occur beyond engineered cap until natural recovery processes developed adequate clean sediment cap.	Alternative would not reduce toxicity, but would remove hazardous substances from the Site.
Natural processes which reduce concentrations of hazardous substances and have been documented to occur at the Site or under similar Site conditions.	Natural recovery of sediment quality is documented to occur at the Site in subtidal sediment.	See Alternative 1.	See Alternative 1.	See Alternative 1. Natural recovery only relevant if suspension and redistribution of contamination results in surface sediment contamination following cleanup.

TABLE 9-4
ALTERNATIVES COST ESTIMATE SUMMARY (a)
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Alternative Number	Alternative Name	Upland Site Unit Estimated Cost (b)	Marine Site Unit Estimated Cost (b)
1	Containment with Low Permeability Cap, Shoreline Stabilization, and Deep Subtidal Sediment MNR	**$ 5,100,000**	**$ 3,100,000**
2	Containment with Low Permeability Cap and Liner, Shoreline Stabilization with Sand Filter, Thin Layer Sediment Cap, and MNR	**$ 5,700,000**	**$ 3,400,000**
3	Two-Layer Upland Cap, Upgradient Groundwater Diversion Barrier System, Shoreline Stabilization with Sand Filter, Engineered Sediment Cap, and Monitored Natural Recovery	**$ 6,900,000**	**$ 3,800,000**
4	Waste Removal and Offsite Disposal	**$ 53,700,000**	**$ 24,500,000**

(a) All estimated costs represent present worth based on a discount rate of 3% for long-term operation, monitoring, and maintenance tasks, and are considered order of magnitude estimates with a relative accuracy range of -30 to +50 percent. Use should be limited to the comparative evaluation of alternatives. More accurate costs will be developed during the design and implementation phases of the cleanup.

(b) A detailed breakdown of estimated costs are provided in Appendix F.

TABLE 9-5
SUMMARY OF MTCA ALTERNATIVES EVALUATION AND DCA RANKING
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Site Unit	Upland Site Unit			
Alternative Number	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Alternative Name	**Containment with Low Permeability Cap, Shoreline Stabilization, and Deep Subtidal Sediment MNR**	**Containment with Low Permeability Cap and Liner, Shoreline Stabilization with Sand Filter, Sediment Cap, and MNR**	**Two-Layer Upland Cap, Upgradient Groundwater Diversion Barrier System, Shoreline Stabilization with Sand Filter, Engineered Sediment Cap and Monitored Natural Recovery**	**Waste Removal and Offsite Disposal**
Alternative Description (Specific to the Upland Site Unit)	Containment by placement of low permeability cap over the Upland Site Unit, potentially consisting of low permeability soil, separation, drainage, and cover soil layers, pavement and/or buildings; landfill gas control; and institutional controls and compliance monitoring.	Containment by placement of low permeability cap over the Upland Site Unit, potentially consisting of low permeability soil with a scrim-reinforced liner, drainage, and cover soil layers, pavement and/or buildings; landfill gas control; and institutional controls and compliance monitoring.	Containment with two-layer low permeability cap (soil and FML), pavement or buildings over landfill; shoreline sand filter; stormwater and erosion control; upgradient groundwater diversion barrier system; landfill gas control; and institutional controls and compliance monitoring	Complete removal of refuse and wood waste and the associated contaminated soil; offsite disposal at a solid waste facility
Individual Ranking Criteria				
1 Meets Remedial Action Objectives	Yes	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria				
[WAC 173-340-360(2)(a)]				
-Protect human health and the environment	Yes	Yes	Yes	Yes
-Comply with cleanup standards	Yes	Yes	Yes	Yes
-Comply with applicable state/federal laws	Yes	Yes	Yes	Yes
-Provide for compliance monitoring	Yes	Yes	Yes	Yes
3 Restoration Time Frame	est. 3 to 5 years	est. 1 to 2 years	est. 1 to 2 years	est. 4 - 5 years
[WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]				
-Potential risk to human health and environment	medium low	Low	Low	Low
-Practicability of achieving shorter restoration time	Low	Low	Low	Medium
-Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
-Future use of site, surrounding area, and resources	Parkland/Mixed Use or Industrial	Parkland/Mixed Use or Industrial	Parkland/Mixed Use or Industrial	Parkland/Mixed Use or Industrial
-Availability of alternative water supplies	Yes	Yes	Yes	Yes
-Likely effectiveness/reliability of institutional controls	High	High	High	Not Applicable
-Ability to monitor migration of hazardous substances	Yes	Yes	Yes	Yes
-Toxicity of hazardous substances at the site	Low	Low	Low	Low
-Natural processes that reduce concentrations	Yes	Yes	Yes	Yes
Overall Reasonable Restoration Time Frame Reasonable	Yes	Yes	Yes	Yes
4 Relative Benefits Ranking for DCA				
[WAC 173-340-360(2)(b)(i) and WAC 173-340-360(3)(f)]				
-Overall Protectiveness	Medium Low / 4 / 0.3 / 1.2	Medium / 6 / 0.3 / 1.8	Medium High / 7 / 0.3 / 2.1	High / 9 / 0.3 / 2.7
-Permanence	Medium / 5 / 0.2 / 1	Medium / 6 / 0.2 / 1.2	Medium / 6 / 0.2 / 1.2	High / 9 / 0.2 / 1.8
-Long-Term Effectiveness	Medium / 5 / 0.2 / 1	Medium / 6 / 0.2 / 1.2	Medium High / 7 / 0.2 / 1.4	High / 10 / 0.2 / 2
-Manageability of Short-Term Risk	High / 9 / 0.1 / 0.9	High / 9 / 0.1 / 0.9	Medium High / 8 / 0.1 / 0.8	Low / 2 / 0.1 / 0.2
-Implementability	High / 9 / 0.1 / 0.9	High / 9 / 0.1 / 0.9	Medium High / 7 / 0.1 / 0.7	Medium Low / 3 / 0.1 / 0.3
-Consideration of Public Concerns	High / 10 / 0.1 / 1	High / 10 / 0.1 / 1	High / 10 / 0.1 / 1	High / 10 / 0.1 / 1
-Net Environmental Benefit	N/A / / / 0	N/A / / / 0	N/A / / / 0	N/A / / / 0
Comparative Overall Benefit	**6.0**	**7.0**	**7.2**	**8.0**
5 Disproportionate Cost Analysis				
Estimated Remedy Cost	**$ 5,100,000**	**$ 5,700,000**	**$ 6,900,000**	**$ 53,700,000**
Magnitude of Cost Compared to Lowest Cost Alternative	--	112%	135%	1053%
Magnitude of Relative Benefit to Most Permanent Alternative	75%	88%	90%	--
Relative Benefit / (Cost / $5 Million)	5.88	6.14	5.22	0.74
Costs Disproportionate to Incremental Benefits	No	Yes	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable	**No**	**Yes**	**No**	**No**

Note: Relative Benefit / Cost values are scaled per $5 million in order to compare ranges similar in scale to comparative overall benefit, allowing the plot of all 3 parameters on Figure 9-10.

TABLE 9-5
SUMMARY OF MTCA ALTERNATIVES EVALUATION AND DCA RANKING
CORNWALL AVENUE LANDFILL SITE
BELLINGHAM, WASHINGTON

Site Unit	Marine Site Unit			
Alternative Number	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Alternative Name	**Containment with Low Permeability Cap, Shoreline Stabilization, and Deep Subtidal Sediment MNR**	**Containment with Low Permeability Cap and Liner, Shoreline Stabilization with Sand Filter, Sediment Cap, and MNR**	**Containment with Two-Layer Upland Cap, Upgradient Groundwater Diversion Barrier System, Shoreline Stabilization, Engineered Sediment Cap, and Monitored Natural Recovery**	**Waste Removal and Offsite Disposal**
Alternative Description (Specific to the Marine Site Unit)	Shoreline stabilization in the intertidal and shallow subtidal zones; monitored natural recovery of contaminated deep subtidal sediments; compliance monitoring and institutional controls	Shoreline stabilization in the intertidal and shallow subtidal zones; deep subtidal thin layer cap; monitored natural recovery in un-capped deep subtidal area; compliance monitoring and institutional controls	Shoreline stabilization in the intertidal and shallow subtidal zones; deep subtidal engineered cap; monitored natural recovery in un-capped deep subtidal area; compliance monitoring and institutional controls	Removal of refuse, wood debris, and contaminated sediments from the marine environment; shoreline stabilization of the new shoreline
Individual Ranking Criteria				
1 Meets Remedial Action Objectives	Yes	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria				
[WAC 173-340-360(2)(a)]				
-Protect human health and the environment	Yes	Yes	Yes	Yes
-Comply with cleanup standards	Yes	Yes	Yes	Yes
-Comply with applicable state/federal laws	Yes	Yes	Yes	Yes
-Provide for compliance monitoring	Yes	Yes	Yes	Yes
3 Restoration Time Frame	est. 10 - 20 years	est. 10 to 15 years	est. 10 to 15 years	est. 3 - 5 years, possibly longer if redistribution
[WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]				
-Potential risk to human health and environment	Medium Low	Low	Low	Low
-Practicability of achieving shorter restoration time	Medium	Low	Low	Low
-Current use of site, surrounding area, and resources	Recreation and Commercial Maritime	Recreation and Commercial Maritime	Recreation and Commercial Maritime	Recreation and Commercial Maritime
-Future use of site, surrounding area, and resources	Recreation and Commercial Maritime	Recreation and Commercial Maritime	Recreation and Commercial Maritime	Recreation and Commercial Maritime
-Availability of alternative water supplies	Not Applicable	Not Applicable	Not Applicable	Not Applicable
-Likely effectiveness/reliability of institutional controls	High	High	High	Not Applicable
-Ability to monitor migration of hazardous substances	High	High	High	Not Applicable
-Toxicity of hazardous substances at the site	Medium	Medium	Medium	Medium
-Natural processes that reduce concentrations	Yes	Yes	Yes	Yes
Overall Reasonable Restoration Time Frame	Yes	Yes	Yes	Yes
4 Relative Benefits Ranking for DCA				
[WAC 173-340-360(2)(b)(i) and WAC 173-340-360(3)(f)]				

	Comparative Benefit Rating	Score	Weighting Factor	Weighted Score	Comparative Benefit Rating	Score	Weighting Factor	Weighted Score	Comparative Benefit Rating	Score	Weighting Factor	Weighted Score	Comparative Benefit Rating	Score	Weighting Factor	Weighted Score
-Overall Protectiveness	Medium	5	0.3	1.5	Medium High	7	0.3	2.1	Medium High	8	0.3	2.4	High	9	0.3	2.7
-Permanence	Medium	6	0.2	1.2	Medium High	7	0.2	1.4	Medium High	7	0.2	1.4	High	9	0.2	1.8
-Long-Term Effectiveness	Medium	5	0.1	0.5	Medium High	8	0.1	0.8	Medium High	8	0.1	0.8	High	9	0.1	0.9
-Manageability of Short-Term Risk	High	9	0.1	0.9	Medium High	8	0.1	0.8	Medium High	8	0.1	0.8	Low	2	0.1	0.2
-Implementability	High	10	0.1	1.0	High	9	0.1	0.9	High	9	0.1	0.9	Medium Low	4	0.1	0.4
-Consideration of Public Concerns	High	10	0.1	1.0	High	10	0.1	1.0	High	10	0.1	1.0	High	10	0.1	1.0
-Net Environmental Benefit	Medium	5	0.1	0.5	Medium	6	0.1	0.6	Medium High	7	0.1	0.7	High	9	0.1	0.9
Comparative Overall Benefit				**6.6**				**7.6**				**8.0**				**7.9**

5 Disproportionate Cost Analysis				
Estimated Remedy Cost	**$ 3,100,000**	**$ 3,400,000**	**$ 3,800,000**	**$ 24,500,000**
Magnitude of Cost Compared to Lowest Cost Alternative	--	110%	123%	790%
Magnitude of Relative Benefit to Most Permanent Alternative	84%	96%	101%	100%
Relative Benefit / Cost ($5 Million)	10.65	11.18	10.53	1.61
Costs Disproportionate to Incremental Benefits	No	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable	**No**	**Yes**	**No**	**No**

Note: Relative Benefit / Cost values are scaled per $5 million in order to compare ranges similar in scale to comparative overall benefit, allowing the plot of all 3 parameters on Figure 9-10.