Tables

Table 1. Summary of Groundwater Sampling Results for Select Constituents, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	3b 5/12/2010	4aad 5/13/2010	4bcd 5/12/2010	5add 5/12/2010	BH-1 5/12/2010	BH-2 5/12/2010	BH-3 5/11/2010	BH-4 5/11/2010	BH-5 5/10/2010	BH-6 5/12/2010	BH-7 5/13/2010	BH-9 5/7/2010	Federal or State Standard: Primary MCLs	Federal or State Standard: Secondary MCLs (not health-based)	Federal or State Standard: Action/ Advisory Levels	MTCA Standard[a] Method B
Field Data																		
Chloride[b]	-	mg/L	10	7.5	160	95	70	60	115	400	25	7.5	15	400	-	-[b]	-	-
Specific conductivity	-	µmhos/cm	447	247	**1,099**	**1,009**	**725**	**932**	**889**	**3,251**	622	222	311	**1,804**	-	700	-	-
Analytical Laboratory Data																		
General Chemistry																		
Alkalinity, Bicarbonate as $CaCO_3$	2320B	mg/L	245	118	400	352	234	138	215	171	281	223	214	310	-	-	-	-
Alkalinity, Total as $CaCO_3$	2320B	mg/L	245	118	400	352	234	138	215	171	281	223	214	310	-	-	-	-
Ammonia as Nitrogen	350.1	mg/L	0.020 *U*	0.02 *U*	0.020 *U*	0.025 *UJ*	0.046 *UJ*	0.116	0.020 *U*	0.020 *U*	0.020 *U*	0.064 *U*	0.069 *U*	0.021 *J*	-	-	-	-
Chloride	300.0	mg/L	2.11	2.35	105	71.4	57.4	50.1	93.9	**810**	13.4	1.77	6.42	**368**	-	250	-	-
Fluoride	300.0	mg/L	0.40	0.43	0.25	0.22	0.36	0.35	0.18 *J*	0.14 *J*	0.43	0.38	0.3	0.3	4	2	-	0.96
Nitrate as Nitrogen	353.2/353.3	mg/L	0.045 *J*	0.036 *UJ*	2.88 *J*	6.04 *J*	1.82 *J*	**26.0** *J*	**15.8** *J*	**34.9** *J*	8.8 *J*	0.052 *U*	3.22 *J*	6.59 *J*	10	-	-	-
Nitrite as Nitrogen	353.2	mg/L	0.009 *UJ*	0.005 *J*	0.012 *UJ*	0.010 *UJ*	0.058 *U*	0.183	0.035 *UJ*	0.041 *UJ*	0.020 *UJ*	0.006 *J*	0.024 *J*	0.030 *UJ*	1	-	-	-
Sulfate	300.0	mg/L	2.62	2.19	22.8	22.9	18.3	41.4	21.3	32.2	18.4	3.4	9.51	33.3	-	250	-	-
Total Dissolved Solids	2540C	mg/L	259	198	**572**	**526**	391	**540**	491	**1,910**	375	210	230	**967**	-	500	-	-
Dissolved Metals																		
Calcium	200.7	µg/L	-	-	-	-	68,600	99,400	70,500	186,000	64,900	29,300	29,600	131,000	-	-	-	-
Magnesium	200.7	µg/L	-	-	-	-	27,200	37,400	19,000 *J*	60,100 *J*	24,700 *J*	12,700	9,440	47,200 *J*	-	-	-	-
Potassium	200.7	µg/L	-	-	-	-	5,650	5,880	9,920	43,500	3,850	6,410	3,880	7,990	-	-	-	-
Sodium	200.7	µg/L	-	-	-	-	31,400	35,400	56,800	**287,000**	23,700	17,100	17,000	**127,000**	-	-	60,000[c]	-
Total Metals																		
Calcium	200.7	µg/L	44,100	22,100	91,200	93,400	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	200.7	µg/L	16,900	9,210	47,200	42,100	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	200.7	µg/L	5,360	3,320	7,260	7,040	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	200.7	µg/L	22,700	11,300	**60,600**	42,800	-	-	-	-	-	-	-	-	-	-	60,000[c]	-

Table 1. Summary of Groundwater Sampling Results for Select Constituents, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	BH-10 5/6/2010	BH-11 5/7/2010	BH-12 5/6/2010	BH-13 5/4/2010	BH-15 5/13/2010	3bcd-2 5/17/2010	MW-1 9/30/2010	MW-2 9/30/2010	MW-3 10/1/2010	MW-4 9/30/2010	MW-5 9/29/2010	MW-6 9/29/2010	Federal or State Standard: Primary MCLs	Federal or State Standard: Secondary MCLs (not health-based)	Federal or State Standard: Action/ Advisory Levels	MTCA Standard[a] Method B
Field Data																		
Chloride[b]	-	mg/L	400	105	25	20	40	80	95	160	>400	220	20	15	-	-[b]	-	-
Specific conductivity	-	µmhos/cm	**1,914**	**969**	554	567	**804**	**948**	**847**	**1,129**	**2,965**	**1,411**	**778**	528	-	700	-	-
Analytical Laboratory Data																		
General Chemistry																		
Alkalinity, Bicarbonate as $CaCO_3$	2320B	mg/L	220	276	263	173	360	311	197	285	178	226	290	223	-	-	-	-
Alkalinity, Total as $CaCO_3$	2320B	mg/L	220	276	263	173	360	311	197	285	178	226	290	223	-	-	-	-
Ammonia as Nitrogen	350.1	mg/L	0.442	0.020 *U*	0.02 *U*	0.02 *U*	0.031 *UJ*	0.069 *U*	0.02 *U*	0.02 *U*	0.02 *U*	0.432	0.02 *U*	0.02 *U*	-	-	-	-
Chloride	300.0	mg/L	**388**	89.7	15.8	11.5	30.3	57.9	77.2	155	**788**	175	19.4	15.6	-	250	-	-
Fluoride	300.0	mg/L	0.23	0.27	0.34	0.3	0.54	0.27	0.38 *J*	0.24 *J*	0.13 *J*	0.3 *J*	0.46	0.35 *J*	4	2	-	0.96
Nitrate as Nitrogen	353.2/353.3	mg/L	**52.2**	9.93 *J*	0.009 *U*	9.02	0.061 *U*	**15.9** *J*	**17.7**	8.97	**31.4**	**42**	**14.4**	4.95	10	-	-	-
Nitrite as Nitrogen	353.2	mg/L	0.074	0.017 *UJ*	0.005 *U*	0.005 *U*	0.007 *J*	0.049 *UJ*	0.005 *U*	0.026 *J*	0.005 *U*	0.005 *U*	0.005 *U*	0.005 *U*	1	-	-	-
Sulfate	300.0	mg/L	47	30.0	30.8	36.2	31.7	34.7	30.4	30.7	30.1	45.6	43.6	27.1	-	250	-	-
Total Dissolved Solids	2540C	mg/L	**1,330**	**535**	378	327	465	**563**	489	**657**	**1,980**	**883**	496	**545**	-	500	-	-
Dissolved Metals																		
Calcium	200.7	µg/L	152,000	105,000	58,000	54,600	73,800	80,600	45,800	128,000	178,000	117,000	78,600	61,000	-	-	-	-
Magnesium	200.7	µg/L	53,000 *J*	33,300 *J*	22,800 *J*	17,900	29,100	35,600	13,200 *J*	40,400 *J*	51,300 *J*	37,400 *J*	31,300 *J*	19,100 *J*	-	-	-	-
Potassium	200.7	µg/L	14,900	6,140	7,220	5,170	6,040	7,590	29,500 *J*	6,710 *J*	33,400 *J*	12,000 *J*	4,670 *J*	4,450 *J*	-	-	-	-
Sodium	200.7	µg/L	**140,000**	26,900	31,900	17,800	49,600	59,400	**84,200**	29,000	**235,000**	**82,300**	32,100	18,600	-	-	60,000[c]	-
Total Metals																		
Calcium	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60,000[c]	-

Notes: Underlined and bolded results exceed one or more standard.
Higher concentrations of sample and field duplicate shown.
- Not analyzed or not available
$CaCO_3$ Calcium carbonate
J Estimated value
MCL Maximum contaminant level
mg/L Milligrams per liter
µmhos/cm Micromhos per centimeter
µg/L Micrograms per liter
MTCA Model Toxics Control Act
U Not detected by laboratory or qualified as not detected (data validation).

[a] Washington State Department of Ecology's MTCA Cleanup Levels and Risk Calculations (CLARC), Washington Administrative Code (WAC 173-340). Lower of carcinogen and non-carcinogen Method B and C cleanup standards shown.

[b] Chloride was estimated in the field using a test kit to guide field activities. Chloride measured by the analytical laboratory is more accurate and these results are compared with the secondary MCL.

[c] The state board of health has not established an MCL for sodium. EPA's recommended range for sodium for most individuals is 30,000 to 60,000 µg/L based on aesthetic effects (taste). The EPA recommended level for sodium-sensitive consumers is 20,000 µg/L (see WAC 246-290-310(3)(a)). The upper limit of EPA's recommended range for most individuals of 60,000 µg/L is used for comparison.

Table 2. Summary of dross results for detected constituents, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	D-1 5/18/2010 13 ft	D-3 5/19/2010 21 ft	D-4 5/19/2010 16 ft	D-4 5/19/2010 36 ft	Soil Method B Cleanup Level *
General Chemistry							
Ammonia as Nitrogen	350.1M	mg/kg	-	-	338	-	-
Chloride	9056M	mg/kg	637	339,000	388,000	307,000	-
Cyanide, Total	9012A	mg/kg	-	-	0.21	-	1,600
Fluoride	9056M	mg/kg	75.3	220	446	201	4,800
Nitrate as Nitrogen	9056M	mg/kg	165	2.7 *U*	2.7 *U*	2.7 *U*	8,000
Nitrite as Nitrogen	9056M	mg/kg	296	1.7 *U*	1.7 *U*	1.7 *U*	130,000
Total Nitrogen	416	µg/g	-	-	1,400	-	-
Orthophosphate	4500PF	mg/kg	-	-	0.50	-	-
Sulfate	9056M	mg/kg	-	-	22.7	-	-
Total Kjeldahl Nitrogen	4500NC	µg/g	-	-	630	-	-
Total Solids	160.3M	%	66.9	89.0	90.7	95.4	-
Metals							
Aluminum	6010B	mg/kg	219,000	74,000	57,700	80,300	-
Antimony	6020	mg/kg	-	-	0.466 *J*	-	32
Arsenic	6020	mg/kg	-	-	0.43 *J*	-	0.67
Barium	6010B	mg/kg	-	-	14.8	-	16,000
Beryllium	6020	mg/kg	-	-	0.283	-	160
Cadmium	6020	mg/kg	-	-	0.012 *J*	-	80
Calcium	6010B	mg/kg	-	-	3,130	-	-
Chromium	6020	mg/kg	-	-	45.8	-	120,000
Cobalt	6020	mg/kg	-	-	0.507	-	-
Copper	6020	mg/kg	-	-	266 *J*	-	3,000
Iron	6010B	mg/kg	-	-	1,310	-	-
Lead	6020	mg/kg	-	-	2.760	-	-
Magnesium	6010B	mg/kg	-	-	8,710	-	-
Manganese	6010B	mg/kg	-	-	393 *J*	-	11,000
Nickel	6020	mg/kg	-	-	4.27	-	1,600
Potassium	6010B	mg/kg	178 *J*	117,000	113,000	117,000	-
Silver	6020	mg/kg	-	-	0.016 *J*	-	400
Sodium	6010B	mg/kg	192 *J*	158,000 *J*	159,000 *J*	134,000 *J*	-
Thallium	6020	mg/kg	-	-	0.016 *J*	-	5.6
Vanadium	6020	mg/kg	-	-	30.1	-	560
Zinc	6020	mg/kg	-	-	188 *J*	-	24,000
Semivolatile Organic Compounds							
bis(2-Ethylhexyl) phthalate	8270C	mg/kg	-	-	0.076 *J*	-	71
Polychlorinated Biphenyls							
Aroclor 1248	8082	µg/kg	-	-	14	-	-
Total Aroclor PCBs	8082	µg/kg	-	-	14	-	500

Notes:

* Washington State Department of Ecology's Model Toxics Control Act Cleanup Levels and Risk Calculations (CLARC), Washington Administrative Code (WAC 173-340). Lower of carcinogen and non-carcinogen Method B cleanup standards shown.

% Percent

\- Not analyzed or not available

J Estimated value

mg/kg Milligrams per kilogram

U Not detected by laboratory at the reporting limit or detection limit shown, or qualified as not detected (data validation).

µg/kg Micrograms per kilogram

µg/g Micrograms per gram

Table 3. Summary of surface water results for select constituents, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	SW-1 5/14/2010	SW-2 5/14/2010	SW-3 5/14/2010	SW-4 5/14/2010	SW-5 5/14/2010	SW-6 5/14/2010	SW-7 5/17/2010	SW-8 5/13/2010	WAC 173-201A Fresh Water		Clean Water Act, Section 304 Fresh Water				National Toxics Rule, 40 CFR 131 Fresh Water			MTCA Method B Surface Water Cleanup Level [a]
											Acute	Chronic	Acute	Chronic	Water + Organism	Organism only	Acute	Chronic	Human Health	
Field Data																				
Chloride, field[b]	-	mg/L	35	35	340	20	320	10	15	320	-[b]	-[b]	-[b]	-[b]	-[b]	-	-	-	-	-
Specific conductivity	-	µmhos/cm	669	694	1,577	571	1,403	66	419	1,327	-	-	-	-	-	-	-	-	-	-
Analytical Laboratory Data General Chemistry																				
Alkalinity, Bicarbonate as CaCO3	2320B	mg/L	254	237	228	174	216	21.6	162	230	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total as CaCO3	2320B	mg/L	254	237	228	174	216	21.6	162	230	-	-	-	must be 20 or higher	-	-	-	-	-	-
Ammonia as Nitrogen	350.1	mg/L	0.030 *UJ*	0.020 *U*	0.020 *U*	0.020 *U*	0.034 *UJ*	0.020 *U*	0.042 *UJ*	0.02 *U*	calc	calc	-	-	-	-	-	-	-	-
Chloride	300.0	mg/L	20.0	21.7	**301**	9.77	**252**	2.69	8.30	**239**	860	230	860	230	250	-	-	-	-	-
Fluoride	300.0	mg/L	0.27	0.31	0.24	0.25	0.25	0.060 *J*	0.22	0.26	-	-	-	-	-	-	-	-	-	-
Nitrate as Nitrogen	353.2	mg/L	9.26 *J*	9.93 *J*	**18.0** *J*	**12.0** *J*	**14.8** *J*	0.113 *U*	1.63 *J*	**10.8** *J*	-	-	-	-	10	-	-	-	-	-
Nitrite as Nitrogen	353.2	mg/L	0.0060 *UJ*	0.006 *UJ*	0.006 *UJ*	0.013 *UJ*	0.039 *UJ*	0.010 *UJ*	0.043 *UJ*	0.01 *J*	-	-	-	-	-	-	-	-	-	-
Sulfate	300.0	mg/L	42.3	40.4	36.3	40.7	36.7	2.20	18.4	32.4	-	-	-	-	250	-	-	-	-	-
Total Dissolved Solids	2540C	mg/L	408	408	821	342	739	44.0	261	759	-	-	-	-	-	-	-	-	-	-
Total Metals																				
Calcium	200.7	µg/L	70,600	74,000	118,000	65,000	104,000	4,840	48,400	108,000	-	-	-	-	-	-	-	-	-	-
Magnesium	200.7	µg/L	25,200	26,500	39,600	18,500	36,300	1,060	13,500	36,600	-	-	-	-	-	-	-	-	-	-
Potassium	200.7	µg/L	4,460	4,880	11,300	3,350	10,100	851	3,140	9,060	-	-	-	-	-	-	-	-	-	-
Sodium	200.7	µg/L	25,200	27,500	111,000	17,200	96,100	4,510	17,000	84,900	-	-	-	-	-	-	-	-	-	-

Notes: Higher concentrations of sample and field duplicate shown.
Underlined and bolded results exceed one or more standards.

- Not analyzed or not available
$CaCO_3$ Calcium carbonate
calc This standard is a calculated value; calculation was not performed because the chemical was not detected or information was not available to complete the calculation.
J Estimated value
mg/L Milligrams per liter
µmhos/cm micromhos per centimeter
U Not detected by laboratory at the reporting limit or detection limit shown, or qualified as not detected (data validation)
µg/L Micrograms per liter

[a] Washington State Department of Ecology Model Toxics Control Act (MTCA) Cleanup Levels and Risk Calculations (CLARC), Washington Administrative Code (WAC) 173-340. Lower of carcinogen and non-carcinogen Method B cleanup standard is shown.
[b] Chloride was estimated in the field using a test kit to guide field activities. Chloride measured by the analytical laboratory is more accurate and these results are compared with standards.

Table 4. Gas vent air screening results, Heglar Kronquist Landfill, Mead, Washington

Location	Instrument: Date	Dielectric	Multirae					Miran			Detector Tube		
		Hydrogen (ppm)	Ammonia (ppm)	VOCs (ppm)	Carbon Monoxide (ppm)	Oxygen (%)	LEL[a] (%)	Carbon Dioxide[b] (ppm)	Methane[b] (ppm)	Ammonia (ppm)	Ammonia (ppm)	Phosgene (ppm)	Hydrogen Cyanide (ppm)
GV-1	5/14/2010	50	0	0	0	19.7	0	1,650	0.2	0	<0.2	<0.1	<0.5
GV-2	5/14/2010	0	0	0	0	20.3	0	20	0.4	0	<0.2	<0.1	<0.5
GV-3	5/14/2010	0	0	0	0	20	0	55	0.2	0	<0.2	<0.1	<0.5
GV-4	5/14/2010	0	0	0	1	19	0	43	0.5	0	<0.2	<0.1	<0.5
GV-5	5/14/2010	0	0	0	1	19.3	0	106	-	0	<0.2	<0.1	<0.5
GV-6	5/14/2010	0	0	0	1	19.9	0	192	2.2	0	<0.2	<0.1	<0.5
GV-7	5/14/2010	50	0	0.5	0	17.5	0	50	0.3	0	2	<0.1	<0.5
GV-8	5/14/2010	50	0	0	0	19.6	0	122	-	0	2	<0.1	<0.5
GV-9	5/14/2010	78,000	*72 or >50 (DL)*	114	*>1191 or >500 (DL)*	12	61	460	*228 or >100 (DL)*	82	250	<0.1	<0.5
GV-10	5/14/2010	15,325	32	6	*>1191 or >500 (DL)*	13.8	18	665	*271.4 or >100 (DL)*	44	50	<0.1	<0.5
GV-11	5/14/2010	3,250	*>200 or >50 (DL)*	12.9	*>1191 or >500 (DL)*	16.2	4	*1374 or >1,000 (DL)*	27.6	0	<0.2	<0.1	<0.5
GV-12	5/14/2010	676	2	0.2	0	18.6	0	164	6.2	0	<0.2	<0.1	<0.5
GV-13	5/14/2010	0	0	0	0	20.9	0	272	2.2	0	<0.2	<0.1	<0.5
GV-14	5/14/2010	50	0	0.3	0	18.3	0	64	1.6	0	<0.2	<0.1	<0.5

Notes: Measurements shown in *italics* exceed the upper detection limit of the instrument.
Discrepancies noted in field screening data shown, which were used to select locations for follow-up laboratory analyses. See analytical data in Tables 5 through 7.

% Percent
DL Detection limit of instrument
GV Gas vent
LEL Lower explosive limit
PPM parts per million
VOCs Volatile organic compounds

[a] Percent of combustible gas

[b] Screening data collected on May 18, 2010.

Table 5. Summary of gas vent air sampling results for select constituents, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	GV-1 5/16/2010	GV-6 5/16/2010	GV-7 5/16/2010	GV-9 5/16/2010	GV-10 5/16/2010	GV-11 5/16/2010	GV-12 5/16/2010	GV-13 5/16/2010
Ammonia	OSHA 188	µg/m^3	760 *U*	770 *U*	810 *U*	45,000	8,800	170,000	13,000	830 *U*
Fixed and Natural Gases										
Carbon dioxide	D1945	%	0.47	0.28	0.26	0.41	0.099	0.071	0.18	0.14
Helium	D1945	%	0.12	0.35	0.20	1.2	0.91	0.74	0.75	0.094 *U*
Hydrogen	D1945	%	0.020 *U*	0.020 *U*	0.019 *U*	0.71	0.72	0.11	0.061	0.061
Methane	D1945	%	0.00020 *U*	0.00020 *U*	0.00019 *U*	0.026	0.054	0.0099	0.0079	0.011
Nitrogen	D1945	%	78	78	78	85	84	79	80	81
Oxygen	D1945	%	21	21	21	13	14	20	19	19
Volatile Organic Compounds										
2-Butanone	TO-15	µg/m^3	2.9 *U*	3.0 *U*	2.8 *U*	15	8.8	5.7	23 *U*	3.4
Acetone	TO-15	µg/m^3	9.9	10	12	64	28	32	74 *U*	25
Benzene	TO-15	µg/m^3	3.2 *U*	3.2 *U*	3.0 *U*	3.0 *U*	3.4	3.0 *U*	25 *U*	3.0 *U*
Chloroethane	TO-15	µg/m^3	2.6 *U*	2.6 *U*	2.5 *U*	9.8	12	6.9	20 *U*	6.4
Chloromethane	TO-15	µg/m^3	8.2 *U*	8.3 *U*	7.8 *U*	48	33	110	65	130
Dichloromethane (Methylene Chloride)	TO-15	µg/m^3	45	11	17	110	180	22	39	34
Hexane	TO-15	µg/m^3	3.5 *U*	3.5 *U*	3.3 *U*	3.4 *U*	5.3	3.3 *U*	27 *U*	3.3 *U*
Tetrahydrofuran	TO-15	µg/m^3	2.9 *U*	3.0 *U*	2.8 *U*	23	16	2.8	30	2.8 *U*
Toluene	TO-15	µg/m^3	3.7 *U*	3.8 *U*	3.6 *U*	5.6	4.9	3.5 *U*	29 *U*	3.5 *U*
Siloxanes										
Hexamethyldisiloxane	Air Toxics 71	µg/m^3	1,400 *U*	1,300 *U*	1,400 *U*	2,200	1,100 *U*	2,400	1,400 *U*	3,100

Notes: GV-9, GV-10 and GV-12 sampled for siloxanes on May 15, 2010. GV-9 and GV-10 sampled on May 15, 2010 for ammonia.

% Percent

U Not detected by laboratory at the reporting limit or detection limit shown, or qualified as not detected (data validation).

µg/m^3 Micrograms per cubic meter

Table 6. Summary of dross borehole air results for select constituents, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	D-1 5/19/2010
Ammonia	OSHA 188	µg/m^3	1,800,000
Fixed and Natural Gases			
Carbon dioxide	D1945	%	0.018
Helium	D1945	%	0.082 *U*
Hydrogen	D1945	%	1.6
Methane	D1945	%	0.054
Nitrogen	D1945	%	82
Oxygen	D1945	%	17
Volatile Organic Compounds			
2-Butanone	TO-15	µg/m^3	24 *U*
Acetone	TO-15	µg/m^3	710 *J*
Benzene	TO-15	µg/m^3	26 *U*
Chloroethane	TO-15	µg/m^3	22 *U*
Chloromethane	TO-15	µg/m^3	75
Dichloromethane (Methylene Chloride)	TO-15	µg/m^3	28 *U*
Hexane	TO-15	µg/m^3	29 *U*
Tetrahydrofuran	TO-15	µg/m^3	24 *U*
Toluene	TO-15	µg/m^3	31 *U*
Siloxanes			
Hexamethyldisiloxane	Air Toxics 71	µg/m^3	3,800 *J*

Notes: Higher concentration of sample and field duplicate shown.

% Percent

J Estimated value

U Not detected by laboratory at the reporting limit or detection limit shown, or qualified as not detected (data validation).

µg/m^3 Micrograms per cubic meter

Table 7. Summary of ambient air results for select constituents, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	Ambient Air on Landfill										Ambient Air on Landfill Fenceline						Air Method B Cleanup Level[a]	Air Method C Cleanup Level[a]
			ALF-1 5/20/2010	ALF-1 9/7/2010	ALF-2 5/20/2010	ALF-2 9/7/2010	ALF-3 5/20/2010	ALF-3 9/7/2010	ALF-4 5/20/2010	ALF-4 9/7/2010	ALF-5 5/20/2010	ALF-5 9/7/2010	AOS-1 5/20/2010	AOS-1 9/7/2010	AOS-2 5/20/2010	AOS-2 9/7/2010	AOS-3 5/20/2010	AOS-3 9/7/2010		
Ammonia	OSHA 188	µg/m^3	380 *U*	-	380 *U*	-	400 *U*	-	390 *U*	-	200 *U*	-	160 *U*	-	190 *U*	-	380 *U*	-	100[b]	440[c]
Fixed and Natural Gases																				
Carbon dioxide	D1945	%	0.040	-	0.040	-	0.040	-	0.038	-	0.045	-	0.042	-	0.044	-	0.043	-	-	-
Helium	D1945	%	0.096 *U*	-	0.094 *U*	-	0.092 *U*	-	0.094 *U*	-	0.086 *U*	-	0.080 *U*	-	0.092 *U*	-	0.086 *U*	-	-	-
Hydrogen	D1945	%	0.019 *U*	-	0.019 *U*	-	0.018 *U*	-	0.019 *U*	-	0.017 *U*	-	0.016 *U*	-	0.018 *U*	-	0.017 *U*	-	-	-
Methane	D1945	%	0.00020	-	0.00020	-	0.00020	-	0.00020	-	0.00020	-	0.00020	-	0.00020	-	0.00020	-	-	-
Nitrogen	D1945	%	79	-	79	-	79	-	79	-	79	-	79	-	79	-	79	-	-	-
Oxygen	D1945	%	21	-	21	-	21	-	21	-	21	-	21	-	21	-	21	-	-	-
Volatile Organic Compounds																				
2-Butanone	TO-15	µg/m^3	22 *U*	0.69 *U*	22 *U*	3.2 *U*	22 *U*	4.9 *U*	37 *U*	1.3 *U*	34 *U*	0.94 *U*	2.9	5.9 *U*	9.0 *U*	4.4 *U*	8.4 *U*	0.76 *U*	460	1,000
Acetone	TO-15	µg/m^3	73 *U*	7.0 *U*	71 *U*	19 *U*	69 *U*	22 *U*	120 *U*	9.0 *U*	110 *U*	8.4 *U*	19	27 *U*	29 *U*	14 *U*	27 *U*	7.8 *U*	-	-
Benzene	TO-15	µg/m^3	24 *U*	0.28 *U*	24 *U*	0.28 *U*	23 *U*	0.27 *U*	40 *U*	0.29 *U*	36 *U*	0.28 *U*	2.6 *U*	0.27 *U*	9.7 *U*	0.27 *U*	9.1 *U*	0.27 *U*	0.32	3.2
Chloroethane	TO-15	µg/m^3	20 *U*	0.45 *U*	20 *U*	0.47 *U*	19 *U*	0.45 *U*	33 *U*	0.46 *U*	30 *U*	0.47 *U*	2.1 *U*	0.45 *U*	8.0 *U*	0.42 *U*	7.5 *U*	0.45 *U*	3	30
Chloromethane	TO-15	µg/m^3	63 *U*	0.35 *U*	62 *U*	0.37 *U*	60 *U*	0.35 *U*	100 *U*	0.36 *U*	94 *U*	0.37 *U*	6.6 *U*	0.35 *U*	25 *U*	0.33 *U*	24 *U*	0.35 *U*	1.4	14
Dichloromethane (Methylene Chloride)	TO-15	µg/m^3	26 *U*	1.2 *U*	26 *U*	1.2 *U*	25 *U*	1.2 *U*	43 *U*	3.4 *U*	40 *U*	1.2 *U*	2.8 *U*	1.2 *U*	10 *U*	5.9 *U*	9.9 *U*	1.2 *U*	5.3	53
Hexane	TO-15	µg/m^3	27 *U*	0.60 *U*	26 *U*	0.63 *U*	26 *U*	0.60 *U*	44 *U*	0.62 *U*	40 *U*	0.63 *U*	2.8 *U*	0.60 *U*	11 *U*	0.57 *U*	10 *U*	0.60 *U*	-	-
Tetrahydrofuran	TO-15	µg/m^3	22 *U*	2.5 *U*	22 *U*	2.6 *U*	22 *U*	2.5 *U*	37 *U*	2.6 *U*	34 *U*	2.6 *U*	2.4 *U*	2.5 *U*	9.0 *U*	2.4 *U*	8.4 *U*	2.5 *U*	-	-
Toluene	TO-15	µg/m^3	29 *U*	0.36 *U*	28 *U*	0.26 *U*	28 *U*	0.71 *U*	47 *U*	0.39 *U*	43 *U*	0.21 *U*	3.0 *U*	0.32 *U*	11 *U*	1.0 *U*	11 *U*	0.37 *U*	2,200	4,900
Siloxanes																				
Hexamethyldisiloxane	Air Toxics 71	µg/m^3	1,300 *U*	-	1,300 *U*	-	1,300 *U*	-	1,400 *U*	-	1,300 *U*	-	1,300 *U*	-	1,300 *U*	-	1,400 *U*	-	-	-

Notes: Samples analyzed for Siloxanes collected on May 17, 2010. ALF-1, ALF-2, ALF-3, ALF-4 and AOS-3 sampled for Ammonia on May 17, 2010. ALF-5, AOS-1 and AOS-2 sampled for Ammonia on May 18, 2010.

% Percent

- Not analyzed or not available

U Not detected by laboratory at the reporting limit or detection limit shown, or qualified as not detected (data validation).

µg/m^3 micrograms per cubic meter

[a] Washington State Department of Ecology's Model Toxics Control Act Cleanup Levels and Risk Calculations (CLARC), Washington Administrative Code (WAC 173-340). Lower of carcinogen and non-carcinogen Method B and Method C cleanup standards shown.

[b] Environmental Protection Agency (EPA) Preliminary Remedial Goal, Residential Air.

[c] EPA Preliminary Remedial Goal, Industrial Air.

Table 8. Well Construction Details and Groundwater Elevation Data, Heglar Kronquist Landfill, Mead, Washington

Monitoring Well ID	Completion Date	Total Depth (ft bgs)	Screen Interval (ft bgs)	Well Completion*	Well Elevation North TOC (ft above msl)	31-Oct-10		24-Jan-11	
						Depth to Groundwater North TOC (ft above msl)	Water level Elevation (ft above msl)	Depth to Groundwater North TOC (ft above msl)	Water level Elevation (ft above msl)
MW-1	13-Sep-10	70	53 - 68	Above-ground, 2-inch PVC	2183.49	56.24	2127.25	58.76	2124.73
MW-2	16-Sep-10	75	58 - 73	Above-ground, 2-inch PVC	2186.19	62.38	2123.81	65.80	2120.39
MW-3	17-Sep-10	60	43 - 58	Above-ground, 2-inch PVC	2176.18	52.37	2123.81	55.21	2120.97
MW-4	14-Sep-10	66	49 - 64	Above-ground, 2-inch PVC	2247.25	49.84	2197.41	51.98	2195.27
MW-5	21-Sep-10	47	30 - 45	Above-ground, 2-inch PVC	2228.26	31.96	2196.30	33.96	2194.30
MW-6	16-Sep-10	55	38 - 53	Above-ground, 2-inch PVC	2167.21	41.97	2125.24	46.54	2120.67
3bcd-1	1-May-80	53	48 - 53	Above-ground, 5-inch steel	2256.07	dry	-	dry	-
3bcd-2	5-May-80	41.78**	31 - 66	Above-ground, 6-inch steel	2217.87	38.75	2179.12	40.30	2177.57
3bcc	Prior to 1980	57.5	Unknown	Above-ground, 6-inch steel	2184.17	dry	-	dry	-

Notes:

bgs below ground surface
ft feet
msl Mean sea level
TOC Top of casing (top of inner PVC casing for MW-1 through MW-6 and top of steel casing for 3bcd-1, 3bcd-2, and 3bcc); surveyed in 2010.
* Wells MW-1 through MW-6 completed with inner 2-in. diameter PVC casings and outer, aboveground steel monuments with locking lids surrounded by three steel protective posts. Wells 3bcd-1, 3bcd-2, and 3bcc completed with 5-in. or 6-in. diameter steel casings extended aboveground with locking lids.
** Sounded well depth in May 2010 measured at 41.78 ft bgs. Total depth on well log prepared in 1980 is 66 ft bgs.

Table 9. Summary of sample locations shown on Figure 14

SampleLocation	Sample Location Description	Date of Chloride Concentrations Shown on Figure 14	Investigator
3b	Private well	May 2010	Exponent
3bcd-2	Monitor well	May 2010	Exponent
4aad	Cistern	May 2010	Exponent
4bcd	Private well	May 2010	Exponent
5add	Private well	May 2010	Exponent
BH-1	Borehole	May 2010	Exponent
BH-2	Borehole	May 2010	Exponent
BH-3	Borehole	May 2010	Exponent
BH-4	Borehole	May 2010	Exponent
BH-5	Borehole	May 2010	Exponent
BH-6	Borehole	May 2010	Exponent
BH-7	Borehole	May 2010	Exponent
BH-8 (North)	Borehole	dry	Exponent
BH-8 (South)	Borehole	dry	Exponent
BH-9	Borehole	May 2010	Exponent
BH-10	Borehole	May 2010	Exponent
BH-11	Borehole	May 2010	Exponent
BH-12	Borehole	May 2010	Exponent
BH-13	Borehole	May 2010	Exponent
BH-15	Borehole	May 2010	Exponent
SW-1 (3cca)	Spring	May 2010	Exponent
SW-2 (3cbd-2)	Spring	May 2010	Exponent
SW-3 (3cbd-1)	Spring	May 2010	Exponent
SW-4 (3bcb)	Spring	May 2010	Exponent
SW-5	Drainage	May 2010	Exponent
SW-6	Creek	May 2010	Exponent
SW-7	Creek	May 2010	Exponent
SW-8	Drainage	May 2010	Exponent
MW-1	Monitor well	September 2010	Exponent
MW-2	Monitor well	September 2010	Exponent
MW-2a	Borehole	dry	Exponent
MW-3	Monitor well	September 2010	Exponent
MW-4	Monitor well	September 2010	Exponent
MW-5	Monitor well	September 2010	Exponent
MW-6	Monitor well	September 2010	Exponent
Test Hole	Borehole	September 2010	Exponent
HC-1	Private well	December 2008	Hart Crowser
HC-4	Private well	December 2008	Hart Crowser
HC-5 North	Private well	December 2008	Hart Crowser
HC-5 South	Private well	December 2008	Hart Crowser
HC-16	Private well	December 2008	Hart Crowser
3bbc (HC-7)	Private well	December 2008	Hart Crowser
3cbb-1 (HC-9/HC-10)	Private well	December 2008	Hart Crowser
4ada (HC-6)	Private well	December 2008	Hart Crowser
3bcc	Monitor well	--	--
3bcd-3	Monitor well	--	--
3caa	Private well	--	--
3cba	Private well	--	--
3cbb-2	Private well	--	--
4acc-1	Private well	--	--
4acc-2	Private well	--	--
4cdd	Private well	--	--

Note: Alternate well identifications shown in parentheses were assigned based on professional judgment based on a review of available well records.

-- Data not shown or not available.