Appendix D

Summaries of Analytical Results

Table D-1. Groundwater Sampling Results, 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]	-	-
pH	-	s.u.	7.35	6.95	7.44	7.1	7.35	**8.72**	7.22	7.74	8.17	7.37	7.3	7.4	-	6.5-8.5	-	-
Specific conductivity	-	µmhos/cm	447	247	**1,099**	**1,009**	**725**	**932**	**889**	**3,251**	622	222	311	**1,804**	-	700	-	-
Temperature	-	C°	15.7	12.02	11.39	13.7	19.37	10.99	19.53	15.96	15.0	17.7	16.95	13.29	-	-	-	-
Turbidity	-	NTU	16.1	2.17	2.68	4.57	183	86.1	701	665	831	169	303	288	-	-	-	-
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, Carbonate as $CaCO_3$	2320B	mg/L	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	1 *U*	-	-	-	-
Alkalinity, Hydroxide as $CaCO_3$	2320B	mg/L	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	1 *U*	-	-	-	-
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 + Nitrite as Nitrogen	353.2	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-
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	-	-	-
Orthophosphate as Phosphorus	365.3	mg/L	0.059	0.095	0.179	0.181	0.025	0.032	0.068	0.004 *U*	0.086	0.037	0.031	0.065	-	-	-	-
Phosphate as Orthophosphate	365.3	mg/L	0.181	0.292	0.550	0.556	0.077	0.098	0.209	0.013 *U*	0.264	0.114	0.095	0.200	-	-	-	-
pH	4500HB	s.u.	-	-	-	-	-	-	-	-	-	-	-	-	-	6.5-8.5	-	-
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																		
Aluminum	200.7	µg/L	-	-	-	-	66.0	30.0 *U*	153	**310**	94.0	30.0 *U*	**529**	174	-	50-200[c]	-	-
Antimony	200.8	µg/L	-	-	-	-	**29.7**	0.231	0.12	0.11	0.09	0.26	0.11	0.295	6	-	-	6.4
Arsenic	200.8	µg/L	-	-	-	-	3.1	0.2 *UJ*	0.52	0.55	0.91	1.07	0.51	1.6	10	-	-	5[e]
Barium	200.7	µg/L	-	-	-	-	93.1	45.1	70.6	533	30.8	151	55.3	279	2,000	-	-	3,200
Beryllium	200.8	µg/L	-	-	-	-	0.018 *J*	0.006 *U*	0.01 *J*	0.013 *J*	0.008 *J*	0.013 *J*	0.105	0.017 *J*	4	-	-	32
Cadmium	200.8	µg/L	-	-	-	-	0.172	0.126	0.036 *U*	0.052 *U*	0.063	0.064	0.092	0.017 *J*	5	-	-	8
Calcium	200.7	µg/L	-	-	-	-	68,600	99,400	70,500	186,000	64,900	29,300	29,600	131,000	-	-	-	-
Chromium	200.8	µg/L	-	-	-	-	0.23	0.05 *J*	0.7 *U*	0.66 *U*	1.02 *U*	0.04 *U*	1.28	0.45	100	-	-	24,000
Cobalt	200.8	µg/L	-	-	-	-	1.23	7.82	2.64	11.8	0.133	0.43	3.35	5.62	-	-	-	-
Copper	200.8	µg/L	-	-	-	-	0.61	0.86	13.6	1.49	0.62 *U*	0.33	0.980	1.46	-	1,000	1,300[d]	590
Iron	200.7	µg/L	-	-	-	-	55.4 *J*	**636** *J*	274	**643**	86.9	**6,570** *J*	**1,730** *J*	**440**	-	300	-	-
Lead	200.8	µg/L	-	-	-	-	0.094	0.017 *J*	0.121	0.103	0.063	0.055	1.11	0.481	-	-	15[d]	-
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*	-	-	-	-
Manganese	200.7	µg/L	-	-	-	-	**60.9**	**833**	**221**	**402**	1.2 *UJ*	**740**	**150**	**56.0**	-	50	-	2,200
Mercury	245.1/7470A	µg/L	-	-	-	-	0.02 *U*	0.02 *U*	0.02 *U*	0.02 *U*	0.02 *U*	0.02 *U*	0.02 *J*	0.02 *U*	2	-	-	4.8
Nickel	200.8	µg/L	-	-	-	-	2.3	10.9	5.5	8.4	1.05	2.57	9.66	6.87	100	-	-	320
Potassium	200.7	µg/L	-	-	-	-	5,650	5,880	9,920	43,500	3,850	6,410	3,880	7,990	-	-	-	-
Selenium	200.8	µg/L	-	-	-	-	2.9 *J*	0.3 *U*	0.3 *U*	1.3	0.4 *J*	0.3 *U*	1.6	1.1 *U*	50	-	-	80
Silver	200.8	µg/L	-	-	-	-	0.004 *U*	0.004 *U*	0.004 *U*	0.007 *UJ*	0.004 *U*	0.019 *J*	0.004 *U*	0.015 *J*	-	100	-	80
Sodium	200.7	µg/L	-	-	-	-	31,400	35,400	56,800	**287,000**	23,700	17,100	17,000	**127,000**	-	-	60,000[d]	-
Thallium	200.8	µg/L	-	-	-	-	0.028	0.005 *J*	0.005 *J*	0.033	0.004 *J*	0.053	0.063	0.005 *U*	2	-	-	1.1
Vanadium	200.8	µg/L	-	-	-	-	17.0	0.14 *J*	1.28	1.48	8.13	0.07 *UJ*	1.43	1.3	-	-	-	110
Zinc	200.8	µg/L	-	-	-	-	1.4	36.9	4.82 *U*	11 *U*	1.11 *U*	5.05	10.7	1.5	-	5,000	-	4,800
Total Metals																		
Aluminum	200.7	µg/L	30.0 *U*	30.0 *U*	30.0 *U*	30.0 *U*	-	-	-	-	-	-	-	-	-	50-200[c]	-	-
Antimony	200.8	µg/L	0.030 *J*	0.05 *J*	0.247	0.362	-	-	-	-	-	-	-	-	6	-	-	6.4
Arsenic	200.8	µg/L	0.7	0.79	**12.0**	**20.0**	-	-	-	-	-	-	-	-	10	-	-	5[e]
Barium	200.7	µg/L	100	55.9	130	124	-	-	-	-	-	-	-	-	2,000	-	-	3,200
Beryllium	200.8	µg/L	0.006 *U*	0.005 *J*	0.006 *U*	0.006 *U*	-	-	-	-	-	-	-	-	4	-	-	32
Cadmium	200.8	µg/L	0.020	0.033	0.022	0.057	-	-	-	-	-	-	-	-	5	-	-	8
Calcium	200.7	µg/L	44,100	22,100	91,200	93,400	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	200.8	µg/L	0.21	0.08 *UJ*	2.89	3.24	-	-	-	-	-	-	-	-	100	-	-	24,000
Cobalt	200.8	µg/L	0.170	0.365	0.342	0.378	-	-	-	-	-	-	-	-	-	-	-	-
Copper	200.8	µg/L	12.8	0.24	6.97	7.22	-	-	-	-	-	-	-	-	-	1,000	1,300[d]	590
Iron	200.7	µg/L	**1,190** *J*	102 *J*	11.4 *J*	87.3 *J*	-	-	-	-	-	-	-	-	-	300	-	-
Lead	200.8	µg/L	0.128	0.095	0.418	0.705	-	-	-	-	-	-	-	-	-	-	15[d]	-
Magnesium	200.7	µg/L	16,900	9,210	47,200	42,100	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	200.7	µg/L	10.3	21.4	0.2 *U*	1.3 *J*	-	-	-	-	-	-	-	-	-	50	-	2,200
Mercury	245.1/7470A	µg/L	0.02 *U*	0.02 *U*	0.02 *U*	0.02 *U*	-	-	-	-	-	-	-	-	2	-	-	4.8
Nickel	200.8	µg/L	1.22	0.52	2.03	2.28	-	-	-	-	-	-	-	-	100	-	-	320
Potassium	200.7	µg/L	5,360	3,320	7,260	7,040	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	200.8	µg/L	0.3 *U*	0.4 *J*	0.8 *J*	0.8 *J*	-	-	-	-	-	-	-	-	50	-	-	80
Silver	200.8	µg/L	0.004 *U*	0.032	0.013 *J*	0.013 *J*	-	-	-	-	-	-	-	-	-	100	-	80
Sodium	200.7	µg/L	22,700	11,300	**60,600**	42,800	-	-	-	-	-	-	-	-	-	-	60,000[d]	-
Thallium	200.8	µg/L	0.005 *U*	0.044	0.005 *U*	0.005 *U*	-	-	-	-	-	-	-	-	2	-	-	1.1
Vanadium	200.8	µg/L	3.37	1.84	2.5	3.25	-	-	-	-	-	-	-	-	-	-	-	110
Zinc	200.8	µg/L	109	2.38	26.7	83.6	-	-	-	-	-	-	-	-	-	5,000	-	4,800

Table D-1. Groundwater Sampling Results, 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
Volatile Organic Compounds																		
1,1,1-Trichloroethane (TCA)	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	16,000
1,1,2,2-Tetrachloroethane	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
1,1,2-Trichloroethane	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	0.77
1,1-Dichloroethane (1,1-DCA)	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,600
1,1-Dichloroethene (1,1-DCE)	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	400
1,2-Dichlorobenzene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	600	-	-	720
1,2-Dichloroethane (EDC)	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	0.48
1,2-Dichloropropane	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	0.64
1,3-Dichlorobenzene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1,4-Dichlorobenzene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	75	-	-	1.8
2-Chloroethyl vinyl ether	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acrolein	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160
Acrylonitrile	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	0.8
Bromodichloromethane	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	80[f]	-	-	0.71
Bromoform	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	80[f]	-	-	5.5
Bromomethane	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
Carbon tetrachloride	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	0.34
Chlorobenzene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	160
Chloroethane	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
Chloroform	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	80[f]	-	-	7.2
Chloromethane	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4
cis-1,3-Dichloropropene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	80[f]	-	-	0.52
Dichloromethane (Methylene Chloride)	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	5.8
Ethylbenzene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	700	-	-	800
m,p-Xylenes	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	10,000[g]	-	-	16,000
o-Xylene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	10,000[g]	-	-	16,000
Tetrachloroethene (PCE)	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	0.081
Toluene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	1,000	-	-	640
trans-1,2-Dichloroethene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	160
trans-1,3-Dichloropropene	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene (TCE)	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	0.49
Trichlorofluoromethane (Freon 11)	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,400
Vinyl chloride	624	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	0.029
Semivolatile Organic Compounds																		
1,2,4-Trichlorobenzene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	70	-	-	80
1,2-Diphenylhydrazine	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11
2,4,6-Trichlorophenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
2,4-Dichlorophenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
2,4-Dimethylphenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160
2,4-Dinitrophenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32
2,4-Dinitrotoluene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32
2,6-Dinitrotoluene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
2-Chloronaphthalene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	640
2-Chlorophenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40
2-Nitrophenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.19
4,6-Dinitro-2-methylphenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	960
Acenaphthylene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,800
Benz(a)anthracene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Benzidine	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00038
Benzo(a)pyrene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Benzo(b)fluoranthene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Benzo(g,h,i)perylene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
bis(2-chloroethoxy)methane	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-chloroethyl) ether	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04
Bis(2-chloroisopropyl) ether	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	320
bis(2-Ethylhexyl) phthalate	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	6.3
Butyl benzyl phthalate	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3200
Chrysene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Dibenz(a,h)anthracene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Diethyl phthalate	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,000
Dimethyl phthalate	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16,000

Table D-1. Groundwater Sampling Results, 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			MTCA Standard[a]
															Primary MCLs	Secondary MCLs (not health-based)	Action/ Advisory Levels	Method B
Di-n-butyl phthalate	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,600
Di-n-octyl phthalate	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	320
Fluoranthene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	640
Fluorene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	640
Hexachlorobenzene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	0.055
Hexachlorobutadiene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.56
Hexachlorocyclopentadiene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	48
Hexachloroethane	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.1
Indeno(1,2,3-cd)pyrene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Isophorone	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46
Naphthalene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160
Nitrobenzene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
N-nitrosodimethylamine	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00086
N-nitrosodi-n-propylamine	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-nitrosodiphenylamine	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol (PCP)	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	0.73
Phenanthrene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,800
Pyrene	625	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	480
Polychlorinated Biphenyls (PCBs)																		
Aroclor 1016	608M/8082	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	1.1
Aroclor 1221	608M/8082	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-
Aroclor 1232	608M/8082	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-
Aroclor 1242	608M/8082	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-
Aroclor 1248	608M/8082	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-
Aroclor 1254	608M/8082	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	0.32
Aroclor 1260	608M/8082	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-
Total Aroclor PCBs	608M/8082	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	0.044

Table D-1. Groundwater Sampling Results, 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			MTCA Standard[a]
															Primary MCLs	Secondary MCLs (not health-based)	Action/ Advisory Levels	Method B
Field Data																		
Chloride [b]	-	mg/L	400	105	25	20	40	80	95	160	>400	220	20	15	-	-[b]	-	-
pH	-	s.u.	-	8.14	-	-	7.14	7.14	7.16	7.2	6.81	7.05	7.14	7.37	-	6.5-8.5	-	-
Specific conductivity	-	µmhos/cm	**1,914**	**969**	554	567	**804**	**948**	**847**	**1,129**	**2,965**	**1,411**	**778**	528	-	700	-	-
Temperature	-	C°	11.55	16.07	11.87	12.48	13.31	12.17	15.9	13.5	11.9	11.9	12.6	13.3	-	-	-	-
Turbidity	-	NTU	80	766	435	841	78.5	64.7	12	7	0.15	12	5	26	-	-	-	-
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, Carbonate as $CaCO_3$	2320B	mg/L	1 *U*	1 *U*	1 *U*	1 *U*	3 *U*	3.0 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	-	-	-	-
Alkalinity, Hydroxide as $CaCO_3$	2320B	mg/L	1 *U*	1 *U*	1 *U*	1 *U*	3 *U*	3.0 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	3 *U*	-	-	-	-
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 + Nitrite as Nitrogen	353.2	mg/L	-	-	-	-	-	-	**17.7**	8.97	**31.4**	**42**	**14.4**	4.95	10	-	-	-
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	-	-	-
Orthophosphate as Phosphorus	365.3	mg/L	0.027	0.039	0.048	0.029	0.064	0.078	-	-	-	-	-	-	-	-	-	-
Phosphate as Orthophosphate	365.3	mg/L	0.083	0.120	0.147	0.089	0.196	0.239	-	-	-	-	-	-	-	-	-	-
pH	4500HB	s.u.	7.34 *J*	-	6.91 *J*	7.46 *J*	-	-	-	-	-	-	-	-	-	6.5-8.5	-	-
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																		
Aluminum	200.7	µg/L	132	30.0 *U*	**1,070**	**1,350** *J*	30.0 *U*	59	2 *U*	16.4 *J*	2 *U*	2 *U*	2 *U*	11.5 *J*	-	50-200[c]	-	-
Antimony	200.8	µg/L	0.107	0.112	0.082	0.39	**6.8**	0.11	-	-	-	-	-	-	6	-	-	6.4
Arsenic	200.8	µg/L	0.1 *U*	0.6 *U*	2.1	1.98	**35.4**	0.30 *UJ*	0.9	0.9	0.9	0.5 *J*	0.8	1.7	10	-	-	5[e]
Barium	200.7	µg/L	99.0	65.5	150	47.3	179	54.8	-	-	-	-	-	-	2,000	-	-	3,200
Beryllium	200.8	µg/L	0.006 *U*	0.006 *U*	0.042	0.074	0.01 *J*	0.009 *J*	-	-	-	-	-	-	4	-	-	32
Cadmium	200.8	µg/L	0.022	0.009 *J*	0.051	0.07	0.109	0.034 *U*	-	-	-	-	-	-	5	-	-	8
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	-	-	-	-
Chromium	200.8	µg/L	0.23 *U*	0.25 *U*	1.39	2.02	0.07 *UJ*	0.38 *U*	-	-	-	-	-	-	100	-	-	24,000
Cobalt	200.8	µg/L	12.5	2.02	4.23	2.47	0.351	0.168 *U*	-	-	-	-	-	-	-	-	-	-
Copper	200.8	µg/L	1.51	0.93	2.56	4.24	0.44	1.73	-	-	-	-	-	-	-	1,000	1,300[d]	590
Iron	200.7	µg/L	199	20.2	**2,070**	**2,570**	29.9 *J*	**723** *J*	24.2 *U*	30.4 *U*	10.4 *UJ*	4.5 *UJ*	15.1 *UJ*	35.3 *J*	-	300	-	-
Lead	200.8	µg/L	0.038 *U*	0.014 *J*	0.684	2.3	0.06	0.086 *U*	-	-	-	-	-	-	-	-	15[d]	-
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*	-	-	-	-
Manganese	200.7	µg/L	**1,210**	**174**	**560**	**218**	28.7	38.4	21.4	**134** *J*	17.5	**86.7**	37.4	**62.9**	-	50	-	2,200
Mercury	245.1/7470A	µg/L	0.02 *U*	0.02 *U*	0.02 *U*	0.02 *U*	0.02 *U*	0.02 *U*	-	-	-	-	-	-	2	-	-	4.8
Nickel	200.8	µg/L	15.6	4.77	5.27	5.22	1.66	2.58 *U*	-	-	-	-	-	-	100	-	-	320
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*	-	-	-	-
Selenium	200.8	µg/L	0.6 *UJ*	0.5 *UJ*	0.5 *UJ*	0.3 *J*	0.6 *J*	0.7 *J*	-	-	-	-	-	-	50	-	-	80
Silver	200.8	µg/L	0.01 *J*	0.004 *U*	0.004 *U*	0.01 *J*	0.009 *J*	0.004 *U*	-	-	-	-	-	-	-	100	-	80
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[d]	-
Thallium	200.8	µg/L	0.012 *J*	0.005 *U*	0.006 *J*	0.015 *J*	0.043	0.042 *U*	-	-	-	-	-	-	2	-	-	1.1
Vanadium	200.8	µg/L	0.71	0.9	1.89	4	1.46	0.43 *U*	-	-	-	-	-	-	-	-	-	110
Zinc	200.8	µg/L	1.3 *U*	0.6	5.4	7.73	1.12	1.63 *U*	-	-	-	-	-	-	-	5,000	-	4,800
Total Metals																		
Aluminum	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	50-200[c]	-	-
Antimony	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	6.4
Arsenic	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	5[e]
Barium	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	2,000	-	-	3,200
Beryllium	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	32
Cadmium	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	8
Calcium	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	24,000
Cobalt	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	1,000	1,300[d]	590
Iron	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-
Lead	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15[d]	-
Magnesium	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	2,200
Mercury	245.1/7470A	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	4.8
Nickel	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	320
Potassium	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	80
Silver	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	80
Sodium	200.7	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60,000[d]	-
Thallium	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1.1
Vanadium	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110
Zinc	200.8	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	5,000	-	4,800

Table D-1. Groundwater Sampling Results, 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
Volatile Organic Compounds																		
1,1,1-Trichloroethane (TCA)	624	µg/L	-	-	-	-	-	0.14 *U*	-	-	0.14 *U*	-	-	-	200	-	-	16,000
1,1,2,2-Tetrachloroethane	624	µg/L	-	-	-	-	-	0.11 *U*	-	-	0.11 *U*	-	-	-	-	-	-	0.22
1,1,2-Trichloroethane	624	µg/L	-	-	-	-	-	0.16 *U*	-	-	0.16 *U*	-	-	-	5	-	-	0.77
1,1-Dichloroethane (1,1-DCA)	624	µg/L	-	-	-	-	-	0.11 *U*	-	-	0.11 *U*	-	-	-	-	-	-	1,600
1,1-Dichloroethene (1,1-DCE)	624	µg/L	-	-	-	-	-	0.15 *U*	-	-	0.15 *U*	-	-	-	7	-	-	400
1,2-Dichlorobenzene	624	µg/L	-	-	-	-	-	0.13 *U*	-	-	0.13 *U*	-	-	-	600	-	-	720
1,2-Dichloroethane (EDC)	624	µg/L	-	-	-	-	-	0.12 *U*	-	-	0.12 *U*	-	-	-	5	-	-	0.48
1,2-Dichloropropane	624	µg/L	-	-	-	-	-	0.17 *U*	-	-	0.17 *U*	-	-	-	5	-	-	0.64
1,3-Dichlorobenzene	624	µg/L	-	-	-	-	-	0.16 *U*	-	-	0.16 *U*	-	-	-	-	-	-	
1,4-Dichlorobenzene	624	µg/L	-	-	-	-	-	0.15 *U*	-	-	0.15 *U*	-	-	-	75	-	-	1.8
2-Chloroethyl vinyl ether	624	µg/L	-	-	-	-	-	0.29 *U*	-	-	0.29 *U*	-	-	-	-	-	-	-
Acrolein	624	µg/L	-	-	-	-	-	3.3 *U*	-	-	3.3 *U*	-	-	-	-	-	-	160
Acrylonitrile	624	µg/L	-	-	-	-	-	0.61 *U*	-	-	0.61 *U*	-	-	-	-	-	-	-
Benzene	624	µg/L	-	-	-	-	-	0.14 *U*	-	-	0.14 *U*	-	-	-	5	-	-	0.8
Bromodichloromethane	624	µg/L	-	-	-	-	-	0.12 *U*	-	-	0.12 *U*	-	-	-	80[f]	-	-	0.71
Bromoform	624	µg/L	-	-	-	-	-	0.37 *U*	-	-	0.37 *U*	-	-	-	80[f]	-	-	5.5
Bromomethane	624	µg/L	-	-	-	-	-	0.28 *U*	-	-	0.28 *U*	-	-	-	-	-	-	11
Carbon tetrachloride	624	µg/L	-	-	-	-	-	0.047 *U*	-	-	0.047 *U*	-	-	-	5	-	-	0.34
Chlorobenzene	624	µg/L	-	-	-	-	-	0.098 *U*	-	-	0.098 *U*	-	-	-	100	-	-	160
Chloroethane	624	µg/L	-	-	-	-	-	0.16 *U*	-	-	0.16 *U*	-	-	-	-	-	-	15
Chloroform	624	µg/L	-	-	-	-	-	0.11 *U*	-	-	0.11 *U*	-	-	-	80[f]	-	-	7.2
Chloromethane	624	µg/L	-	-	-	-	-	0.23 *U*	-	-	0.23 *U*	-	-	-	-	-	-	3.4
cis-1,3-Dichloropropene	624	µg/L	-	-	-	-	-	0.13 *U*	-	-	0.13 *U*	-	-	-	-	-	-	-
Dibromochloromethane	624	µg/L	-	-	-	-	-	0.15 *U*	-	-	0.15 *U*	-	-	-	80[f]	-	-	0.52
Dichloromethane (Methylene Chloride)	624	µg/L	-	-	-	-	-	0.12 *U*	-	-	0.15 *UJ*	-	-	-	5	-	-	5.8
Ethylbenzene	624	µg/L	-	-	-	-	-	0.11 *U*	-	-	0.11 *U*	-	-	-	700	-	-	800
m,p-Xylenes	624	µg/L	-	-	-	-	-	0.26 *U*	-	-	0.29 *U*	-	-	-	10,000[g]	-	-	16,000
o-Xylene	624	µg/L	-	-	-	-	-	0.15 *J*	-	-	0.15 *U*	-	-	-	10,000[g]	-	-	16,000
Tetrachloroethene (PCE)	624	µg/L	-	-	-	-	-	0.14 *U*	-	-	0.14 *U*	-	-	-	5	-	-	0.081
Toluene	624	µg/L	-	-	-	-	-	0.32 *UJ*	-	-	0.22 *UJ*	-	-	-	1,000	-	-	640
trans-1,2-Dichloroethene	624	µg/L	-	-	-	-	-	0.15 *U*	-	-	0.15 *U*	-	-	-	100	-	-	160
trans-1,3-Dichloropropene	624	µg/L	-	-	-	-	-	0.10 *U*	-	-	0.1 *U*	-	-	-	-	-	-	-
Trichloroethene (TCE)	624	µg/L	-	-	-	-	-	0.13 *U*	-	-	0.13 *U*	-	-	-	5	-	-	0.49
Trichlorofluoromethane (Freon 11)	624	µg/L	-	-	-	-	-	0.11 *U*	-	-	0.11 *U*	-	-	-	-	-	-	2,400
Vinyl chloride	624	µg/L	-	-	-	-	-	0.16 *U*	-	-	0.16 *U*	-	-	-	2	-	-	0.029
Semivolatile Organic Compounds																		
1,2,4-Trichlorobenzene	625	µg/L	-	-	-	-	-	0.32 *U*	-	-	-	-	-	-	70	-	-	80
1,2-Diphenylhydrazine	625	µg/L	-	-	-	-	-	0.23 *U*	-	-	-	-	-	-	-	-	-	0.11
2,4,6-Trichlorophenol	625	µg/L	-	-	-	-	-	0.19 *U*	-	-	-	-	-	-	-	-	-	4
2,4-Dichlorophenol	625	µg/L	-	-	-	-	-	0.29 *U*	-	-	-	-	-	-	-	-	-	24
2,4-Dimethylphenol	625	µg/L	-	-	-	-	-	1.1 *U*	-	-	-	-	-	-	-	-	-	160
2,4-Dinitrophenol	625	µg/L	-	-	-	-	-	1.0 *U*	-	-	-	-	-	-	-	-	-	32
2,4-Dinitrotoluene	625	µg/L	-	-	-	-	-	0.26 *U*	-	-	-	-	-	-	-	-	-	32
2,6-Dinitrotoluene	625	µg/L	-	-	-	-	-	0.27 *U*	-	-	-	-	-	-	-	-	-	16
2-Chloronaphthalene	625	µg/L	-	-	-	-	-	0.43 *U*	-	-	-	-	-	-	-	-	-	640
2-Chlorophenol	625	µg/L	-	-	-	-	-	0.42 *U*	-	-	-	-	-	-	-	-	-	40
2-Nitrophenol	625	µg/L	-	-	-	-	-	0.35 *U*	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	625	µg/L	-	-	-	-	-	0.48 *U*	-	-	-	-	-	-	-	-	-	0.19
4,6-Dinitro-2-methylphenol	625	µg/L	-	-	-	-	-	2.3 *U*	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	625	µg/L	-	-	-	-	-	0.35 *U*	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	625	µg/L	-	-	-	-	-	0.48 *U*	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	625	µg/L	-	-	-	-	-	0.26 *U*	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	625	µg/L	-	-	-	-	-	2.3 *U*	-	-	-	-	-	-	-	-	-	-
Acenaphthene	625	µg/L	-	-	-	-	-	0.27 *U*	-	-	-	-	-	-	-	-	-	960
Acenaphthylene	625	µg/L	-	-	-	-	-	0.29 *U*	-	-	-	-	-	-	-	-	-	-
Anthracene	625	µg/L	-	-	-	-	-	0.33 *U*	-	-	-	-	-	-	-	-	-	4,800
Benz(a)anthracene	625	µg/L	-	-	-	-	-	0.25 *U*	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Benzidine	625	µg/L	-	-	-	-	-	29 *UJ*	-	-	-	-	-	-	-	-	-	0.00038
Benzo(a)pyrene	625	µg/L	-	-	-	-	-	0.37 *U*	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Benzo(b)fluoranthene	625	µg/L	-	-	-	-	-	0.27 *U*	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Benzo(g,h,i)perylene	625	µg/L	-	-	-	-	-	0.41 *U*	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	625	µg/L	-	-	-	-	-	0.32 *U*	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
bis(2-chloroethoxy)methane	625	µg/L	-	-	-	-	-	0.31 *U*	-	-	-	-	-	-	-	-	-	-
bis(2-chloroethyl) ether	625	µg/L	-	-	-	-	-	0.37 *U*	-	-	-	-	-	-	-	-	-	0.04
Bis(2-chloroisopropyl) ether	625	µg/L	-	-	-	-	-	0.36 *U*	-	-	-	-	-	-	-	-	-	320
bis(2-Ethylhexyl) phthalate	625	µg/L	-	-	-	-	-	0.47 *J*	-	-	-	-	-	-	6	-	-	6.3
Butyl benzyl phthalate	625	µg/L	-	-	-	-	-	0.55 *U*	-	-	-	-	-	-	-	-	-	3200
Chrysene	625	µg/L	-	-	-	-	-	0.40 *U*	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Dibenz(a,h)anthracene	625	µg/L	-	-	-	-	-	0.41 *U*	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Diethyl phthalate	625	µg/L	-	-	-	-	-	0.33 *U*	-	-	-	-	-	-	-	-	-	13,000
Dimethyl phthalate	625	µg/L	-	-	-	-	-	0.71 *U*	-	-	-	-	-	-	-	-	-	16,000

Table D-1. Groundwater Sampling Results, 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
Di-n-butyl phthalate	625	µg/L	-	-	-	-	-	0.46 *U*	-	-	-	-	-	-	-	-	-	1,600
Di-n-octyl phthalate	625	µg/L	-	-	-	-	-	0.38 *U*	-	-	-	-	-	-	-	-	-	320
Fluoranthene	625	µg/L	-	-	-	-	-	0.45 *U*	-	-	-	-	-	-	-	-	-	640
Fluorene	625	µg/L	-	-	-	-	-	0.23 *U*	-	-	-	-	-	-	-	-	-	640
Hexachlorobenzene	625	µg/L	-	-	-	-	-	0.27 *U*	-	-	-	-	-	-	1	-	-	0.055
Hexachlorobutadiene	625	µg/L	-	-	-	-	-	0.22 *U*	-	-	-	-	-	-	-	-	-	0.56
Hexachlorocyclopentadiene	625	µg/L	-	-	-	-	-	0.58 *U*	-	-	-	-	-	-	50	-	-	48
Hexachloroethane	625	µg/L	-	-	-	-	-	0.26 *U*	-	-	-	-	-	-	-	-	-	3.1
Indeno(1,2,3-cd)pyrene	625	µg/L	-	-	-	-	-	0.45 *U*	-	-	-	-	-	-	0.2[h]	-	-	0.012[h]
Isophorone	625	µg/L	-	-	-	-	-	0.35 *U*	-	-	-	-	-	-	-	-	-	46
Naphthalene	625	µg/L	-	-	-	-	-	0.31 *U*	-	-	-	-	-	-	-	-	-	160
Nitrobenzene	625	µg/L	-	-	-	-	-	0.36 *U*	-	-	-	-	-	-	-	-	-	4
N-nitrosodimethylamine	625	µg/L	-	-	-	-	-	1.7 *U*	-	-	-	-	-	-	-	-	-	0.00086
N-nitrosodi-n-propylamine	625	µg/L	-	-	-	-	-	0.51 *U*	-	-	-	-	-	-	-	-	-	-
N-nitrosodiphenylamine	625	µg/L	-	-	-	-	-	0.34 *U*	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol (PCP)	625	µg/L	-	-	-	-	-	0.38 *U*	-	-	-	-	-	-	1	-	-	0.73
Phenanthrene	625	µg/L	-	-	-	-	-	0.24 *U*	-	-	-	-	-	-	-	-	-	-
Phenol	625	µg/L	-	-	-	-	-	0.45 *U*	-	-	-	-	-	-	-	-	-	4,800
Pyrene	625	µg/L	-	-	-	-	-	0.47 *U*	-	-	-	-	-	-	-	-	-	480
Polychlorinated Biphenyls (PCBs)																		
Aroclor 1016	608M/8082	µg/L	-	-	-	-	-	0.043 *U*	-	-	0.00096 *U*	-	-	-	0.5	-	-	1.1
Aroclor 1221	608M/8082	µg/L	-	-	-	-	-	0.058 *U*	-	-	0.00096 *U*	-	-	-	0.5	-	-	-
Aroclor 1232	608M/8082	µg/L	-	-	-	-	-	0.049 *U*	-	-	0.00096 *U*	-	-	-	0.5	-	-	-
Aroclor 1242	608M/8082	µg/L	-	-	-	-	-	0.018 *U*	-	-	0.00096 *U*	-	-	-	0.5	-	-	-
Aroclor 1248	608M/8082	µg/L	-	-	-	-	-	0.035 *U*	-	-	0.00096 *U*	-	-	-	0.5	-	-	-
Aroclor 1254	608M/8082	µg/L	-	-	-	-	-	0.029 *U*	-	-	0.00096 *U*	-	-	-	0.5	-	-	0.32
Aroclor 1260	608M/8082	µg/L	-	-	-	-	-	0.053 *U*	-	-	0.00096 *U*	-	-	-	0.5	-	-	-
Total Aroclor PCBs	608M/8082	µg/L	-	-	-	-	-	0 *U*	-	-	0 *U*	-	-	-	0.5	-	-	0.044

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

- Not analyzed or not available
C° Degrees Celsius
$CaCO_3$ 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
NTU Nephelometric turbidity units
s.u. Standard units
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] Aluminum concentrations over 200 µg/L are shown as secondary MCL exceedances.

[d] The state board of health has not established MCLs for copper, lead, or sodium. EPA has established action levels for lead and copper at which a distribution system is required to consider corrosion control. These action levels are 15 µg/L for lead and 1,300 µg/L for copper. 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.

[e] MTCA Method A cleanup level for arsenic has been selected to account for naturally occurring arsenic in the project area.

[f] MCL for total trihalomethanes (bromodichloromethane, bromoform, dibromochloromethane, and chloroform).

[g] MCL for total xylenes.

[h] Standard shown is for the sum of all carcinogenic PAHs using Ecology's toxicity equivalency factor (TEF) methodology.

Table D-2. Dross Sampling Results, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	D-1 5/18/2010 13 feet	D-3 5/19/2010 21 feet	D-4 5/19/2010 16 feet	D-4 5/19/2010 36 feet	Soil Method B Cleanup Level [a]
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
Mercury	7471A	mg/kg	-	-	0.002 *U*	-	24
Nickel	6020	mg/kg	-	-	4.27	-	1,600
Potassium	6010B	mg/kg	178 *J*	117,000	113,000	117,000	-
Selenium	6020	mg/kg	-	-	0.2 *U*	-	400
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
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	8260B	µg/kg	-	-	0.28 *U*	-	38,000
1,1,1-Trichloroethane (TCA)	8260B	µg/kg	-	-	0.39 *U*	-	160,000,000
1,1,2,2-Tetrachloroethane	8260B	µg/kg	-	-	0.40 *U*	-	5,000
1,1,2-Trichloroethane	8260B	µg/kg	-	-	0.26 *U*	-	18,000
1,1-Dichloroethane (1,1-DCA)	8260B	µg/kg	-	-	0.23 *U*	-	16,000,000
1,1-Dichloroethene (1,1-DCE)	8260B	µg/kg	-	-	0.26 *U*	-	4,000,000
1,1-Dichloropropene	8260B	µg/kg	-	-	0.30 *U*	-	-
1,2,3-Trichlorobenzene	8260B	µg/kg	-	-	0.24 *U*	-	-
1,2,3-Trichloropropane	8260B	µg/kg	-	-	0.42 *U*	-	140
1,2,4-Trichlorobenzene	8260B	µg/kg	-	-	0.26 *U*	-	800,000
1,2,4-Trimethylbenzene	8260B	µg/kg	-	-	0.31 *U*	-	4,000,000
1,2-Dibromo-3-chloropropane	8260B	µg/kg	-	-	0.73 *U*	-	710
1,2-Dibromoethane	8260B	µg/kg	-	-	0.30 *U*	-	500
1,2-Dichlorobenzene	8260B	µg/kg	-	-	0.25 *U*	-	7,200,000
1,2-Dichloroethane (EDC)	8260B	µg/kg	-	-	0.17 *U*	-	11,000
1,2-Dichloropropane	8260B	µg/kg	-	-	0.25 *U*	-	15,000
1,3,5-Trimethylbenzene	8260B	µg/kg	-	-	0.40 *U*	-	4,000,000
1,3-Dichlorobenzene	8260B	µg/kg	-	-	0.27 *U*	-	-
1,3-Dichloropropane	8260B	µg/kg	-	-	0.23 *U*	-	-
1,4-Dichlorobenzene	8260B	µg/kg	-	-	0.28 *U*	-	42,000
2,2-Dichloropropane	8260B	µg/kg	-	-	0.40 *U*	-	-
2-Butanone	8260B	µg/kg	-	-	4.0 *UJ*	-	48,000,000
2-Chlorotoluene	8260B	µg/kg	-	-	0.32 *U*	-	1,600,000
2-Hexanone	8260B	µg/kg	-	-	1.1 *U*	-	-
4-Chlorotoluene	8260B	µg/kg	-	-	0.29 *U*	-	-
4-Isopropyltoluene	8260B	µg/kg	-	-	0.31 *U*	-	-
4-Methyl-2-pentanone	8260B	µg/kg	-	-	0.82 *U*	-	6,400,000
Acetone	8260B	µg/kg	-	-	13 *UJ*	-	8,000,000
Benzene	8260B	µg/kg	-	-	0.25 *U*	-	18,000

Table D-2. Dross Sampling Results, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	D-1 5/18/2010 13 feet	D-3 5/19/2010 21 feet	D-4 5/19/2010 16 feet	D-4 5/19/2010 36 feet	Soil Method B Cleanup Level [a]
Bromobenzene	8260B	µg/kg	-	-	0.25 *U*	-	-
Bromochloromethane	8260B	µg/kg	-	-	0.16 *U*	-	-
Bromodichloromethane	8260B	µg/kg	-	-	0.17 *U*	-	16,000
Bromoform	8260B	µg/kg	-	-	0.34 *U*	-	130,000
Bromomethane	8260B	µg/kg	-	-	0.69 *U*	-	110,000
Carbon disulfide	8260B	µg/kg	-	-	0.29 *U*	-	8,000,000
Carbon tetrachloride	8260B	µg/kg	-	-	0.40 *U*	-	7,700
Chlorobenzene	8260B	µg/kg	-	-	0.28 *U*	-	1,600,000
Chloroethane	8260B	µg/kg	-	-	0.35 *U*	-	350,000
Chloroform	8260B	µg/kg	-	-	0.25 *U*	-	160,000
Chloromethane	8260B	µg/kg	-	-	0.51 *U*	-	77,000
cis-1,2-Dichloroethene	8260B	µg/kg	-	-	0.26 *U*	-	800,000
cis-1,3-Dichloropropene	8260B	µg/kg	-	-	0.25 *U*	-	-
Dibromochloromethane	8260B	µg/kg	-	-	0.21 *U*	-	12,000
Dibromomethane	8260B	µg/kg	-	-	0.31 *U*	-	800,000
Dichlorodifluoromethane (Freon 12)	8260B	µg/kg	-	-	0.25 *U*	-	16,000,000
Dichloromethane (Methylene Chloride)	8260B	µg/kg	-	-	1.7 *UJ*	-	130,000
Ethylbenzene	8260B	µg/kg	-	-	0.25 *U*	-	8,000,000
Hexachlorobutadiene	8260B	µg/kg	-	-	0.24 *U*	-	13,000
Isopropylbenzene	8260B	µg/kg	-	-	0.15 *U*	-	8,000,000
m,p-Xylenes	8260B	µg/kg	-	-	0.41 *U*	-	160,000,000
Naphthalene	8260B	µg/kg	-	-	0.40 *U*	-	1,600,000
n-Butylbenzene	8260B	µg/kg	-	-	0.36 *U*	-	-
n-Propylbenzene	8260B	µg/kg	-	-	0.40 *U*	-	-
o-Xylene	8260B	µg/kg	-	-	0.15 *U*	-	160,000,000
sec-Butylbenzene	8260B	µg/kg	-	-	0.35 *U*	-	-
Styrene	8260B	µg/kg	-	-	0.15 *U*	-	33,000
tert-Butylbenzene	8260B	µg/kg	-	-	0.37 *U*	-	-
Tetrachloroethene (PCE)	8260B	µg/kg	-	-	0.29 *U*	-	1,900
Toluene	8260B	µg/kg	-	-	0.20 *U*	-	6,400,000
trans-1,2-Dichloroethene	8260B	µg/kg	-	-	0.39 *U*	-	1,600,000
trans-1,3-Dichloropropene	8260B	µg/kg	-	-	0.38 *U*	-	-
Trichloroethene (TCE)	8260B	µg/kg	-	-	0.30 *U*	-	11,000
Trichlorofluoromethane (Freon 11)	8260B	µg/kg	-	-	0.24 *U*	-	24,000,000
Vinyl chloride	8260B	µg/kg	-	-	0.35 *U*	-	670
Semivolatile Organic Compounds							
1,2,4-Trichlorobenzene	8270C	mg/kg	-	-	0.011 *U*	-	800
1,2-Dichlorobenzene	8270C	mg/kg	-	-	0.018 *U*	-	7,200
1,3-Dichlorobenzene	8270C	mg/kg	-	-	0.019 *U*	-	-
1,4-Dichlorobenzene	8270C	mg/kg	-	-	0.018 *U*	-	42
2,4,5-Trichlorophenol	8270C	mg/kg	-	-	0.018 *U*	-	8,000
2,4,6-Trichlorophenol	8270C	mg/kg	-	-	0.015 *U*	-	91
2,4-Dichlorophenol	8270C	mg/kg	-	-	0.017 *U*	-	240
2,4-Dimethylphenol	8270C	mg/kg	-	-	0.016 *U*	-	1,600
2,4-Dinitrophenol	8270C	mg/kg	-	-	0.12 *U*	-	160
2,4-Dinitrotoluene	8270C	mg/kg	-	-	0.015 *U*	-	160
2,6-Dinitrotoluene	8270C	mg/kg	-	-	0.016 *U*	-	80
2-Chloronaphthalene	8270C	mg/kg	-	-	0.010 *U*	-	6,400
2-Chlorophenol	8270C	mg/kg	-	-	0.0099 *U*	-	400
2-Methylnaphthalene	8270C	mg/kg	-	-	0.011 *U*	-	320
2-Methylphenol	8270C	mg/kg	-	-	0.017 *U*	-	4,000
2-Nitroaniline	8270C	mg/kg	-	-	0.017 *U*	-	-
2-Nitrophenol	8270C	mg/kg	-	-	0.014 *U*	-	-
3,3'-Dichlorobenzidine	8270C	mg/kg	-	-	0.027 *U*	-	2.2
3-Nitroaniline	8270C	mg/kg	-	-	0.18 *U*	-	-
4,6-Dinitro-2-methylphenol	8270C	mg/kg	-	-	0.15 *U*	-	-
4-Bromophenyl phenyl ether	8270C	mg/kg	-	-	0.013 *U*	-	-
4-Chloro-3-methylphenol	8270C	mg/kg	-	-	0.017 *U*	-	-
4-Chloroaniline	8270C	mg/kg	-	-	0.015 *U*	-	320
4-Chlorophenyl phenyl ether	8270C	mg/kg	-	-	0.016 *U*	-	-
4-Methylphenol	8270C	mg/kg	-	-	0.017 *U*	-	-
4-Nitroaniline	8270C	mg/kg	-	-	0.18 *U*	-	-
4-Nitrophenol	8270C	mg/kg	-	-	0.15 *U*	-	-
Acenaphthene	8270C	mg/kg	-	-	0.014 *U*	-	4,800
Acenaphthylene	8270C	mg/kg	-	-	0.016 *U*	-	-
Aniline	8270C	mg/kg	-	-	0.022 *U*	-	175
Anthracene	8270C	mg/kg	-	-	0.014 *U*	-	24,000
Benz(a)anthracene	8270C	mg/kg	-	-	0.013 *U*	-	0.14[b]
Benzo(a)pyrene	8270C	mg/kg	-	-	0.020 *U*	-	0.14[b]

Table D-2. Dross Sampling Results, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	D-1 5/18/2010 13 feet	D-3 5/19/2010 21 feet	D-4 5/19/2010 16 feet	D-4 5/19/2010 36 feet	Soil Method B Cleanup Level [a]
Benzo(b)fluoranthene	8270C	mg/kg	-	-	0.018 *U*	-	0.14[b]
Benzo(g,h,i)perylene	8270C	mg/kg	-	-	0.021 *U*	-	-
Benzo(k)fluoranthene	8270C	mg/kg	-	-	0.020 *U*	-	0.14[b]
Benzoic acid	8270C	mg/kg	-	-	0.14 *U*	-	32,000
Benzyl alcohol	8270C	mg/kg	-	-	0.017 *U*	-	24,000
bis(2-chloroethoxy)methane	8270C	mg/kg	-	-	0.011 *U*	-	-
bis(2-chloroethyl) ether	8270C	mg/kg	-	-	0.012 *U*	-	0.91
Bis(2-chloroisopropyl) ether	8270C	mg/kg	-	-	0.015 *U*	-	3,200
bis(2-Ethylhexyl) phthalate	8270C	mg/kg	-	-	0.076 *J*	-	71
Butyl benzyl phthalate	8270C	mg/kg	-	-	0.017 *U*	-	16,000
Chrysene	8270C	mg/kg	-	-	0.012 *U*	-	0.14[b]
Dibenz(a,h)anthracene	8270C	mg/kg	-	-	0.028 *U*	-	0.14[b]
Dibenzofuran	8270C	mg/kg	-	-	0.012 *U*	-	160
Diethyl phthalate	8270C	mg/kg	-	-	0.015 *U*	-	64,000
Dimethyl phthalate	8270C	mg/kg	-	-	0.017 *U*	-	80,000
Di-n-butyl phthalate	8270C	mg/kg	-	-	0.013 *U*	-	8,000
Di-n-octyl phthalate	8270C	mg/kg	-	-	0.024 *U*	-	1,600
Fluoranthene	8270C	mg/kg	-	-	0.012 *U*	-	3,200
Fluorene	8270C	mg/kg	-	-	0.013 *U*	-	3,200
Hexachlorobenzene	8270C	mg/kg	-	-	0.015 *U*	-	0.63
Hexachlorobutadiene	8270C	mg/kg	-	-	0.015 *U*	-	13
Hexachlorocyclopentadiene	8270C	mg/kg	-	-	0.013 *U*	-	480
Hexachloroethane	8270C	mg/kg	-	-	0.022 *U*	-	71
Indeno(1,2,3-cd)pyrene	8270C	mg/kg	-	-	0.039 *U*	-	0.14[b]
Isophorone	8270C	mg/kg	-	-	0.014 *U*	-	1,100
Naphthalene	8270C	mg/kg	-	-	0.015 *U*	-	1,600
Nitrobenzene	8270C	mg/kg	-	-	0.027 *U*	-	40
N-nitrosodimethylamine	8270C	mg/kg	-	-	0.026 *U*	-	0.02
N-nitrosodi-n-propylamine	8270C	mg/kg	-	-	0.020 *U*	-	0.14
N-nitrosodiphenylamine	8270C	mg/kg	-	-	0.018 *U*	-	200
Pentachlorophenol (PCP)	8270C	mg/kg	-	-	0.13 *U*	-	8.3
Phenanthrene	8270C	mg/kg	-	-	0.010 *U*	-	-
Phenol	8270C	mg/kg	-	-	0.020 *U*	-	48,000
Pyrene	8270C	mg/kg	-	-	0.014 *U*	-	2,400
Total Petroleum Hydrocarbons							
Diesel Range Organics (DRO)	NWTPH	mg/kg	-	-	50 *U*	-	-
Gasoline Range Organics (GRO)	NWTPH	mg/kg	-	-	20 *U*	-	-
Residual Range Organics (RRO)	NWTPH	mg/kg	-	-	100 *U*	-	-
Polychlorinated Biphenyls							
Aroclor 1016	8082	µg/kg	-	-	2.1 *U*	-	5,600
Aroclor 1221	8082	µg/kg	-	-	2.1 *U*	-	-
Aroclor 1232	8082	µg/kg	-	-	2.1 *U*	-	-
Aroclor 1242	8082	µg/kg	-	-	2.1 *U*	-	-
Aroclor 1248	8082	µg/kg	-	-	14	-	-
Aroclor 1254	8082	µg/kg	-	-	2.1 *U*	-	1,600
Aroclor 1260	8082	µg/kg	-	-	2.1 *U*	-	-
Total Aroclor PCBs	8082	µg/kg	-	-	14	-	500

Notes:

% Percent
\- Not analyzed or not available
J Estimated value
mg/kg Milligrams per kilogram
NWTPH Northwest Total Petroleum Hydrocarbons
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

[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 cleanup standards shown.

[b] Standard shown is for the sum of all carcinogenic PAHs using Ecology's toxicity equivalency factor (TEF) methodology.

Table D-3. Surface Water Sampling Results, 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 [c]	-	mg/L	35	35	340	20	320	10	15	320	-[c]	-[c]	-[c]	-[c]	-[c]	-	-	-	-	-
pH	-	s.u.	7.4	7.51	7.74	8.13	8.35	8.32	8.17	8.09	-	-	-	6.5 - 9.0	5.0 - 9.0	-	-	-	-	-
Specific conductivity	-	µmhos/cm	669	694	1,577	571	1,403	66	419	1,327	-	-	-	-	-	-	-	-	-	-
Temperature	-	C°	11.38	11.46	13.67	13.05	19.5	11.79	17.3	13.75	-	-	-	-	-	-	-	-	-	-
Turbidity	-	NTU	1.15	0.4	0.9	5.79	6.45	5.23	7.53	4.65	-	-	-	-	-	-	-	-	-	-
Analytical Laboratory Data																				
General Chemistry																				
Alkalinity, Bicarbonate as $CaCO_3$	2320B	mg/L	254	237	228	174	216	21.6	162	230	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate as $CaCO_3$	2320B	mg/L	3.0 *U*	3.0 *U*	3.0 *U*	3.0 *U*	3.0 *U*	1.0 *U*	3.0 *U*	3 *U*	-	-	-	-	-	-	-	-	-	-
Alkalinity, Hydroxide as $CaCO_3$	2320B	mg/L	3.0 *U*	3.0 *U*	3.0 *U*	3.0 *U*	3.0 *U*	1.0 *U*	3.0 *U*	3 *U*	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total as $CaCO_3$	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*	-	-	-	-	-	-	-	-	-	-
Orthophosphate as Phosphorus	365.3	mg/L	0.102	0.104	0.084	0.037	0.015	0.037	0.148	0.097	-	-	-	-	-	-	-	-	-	-
Phosphate as Orthophosphate	365.3	mg/L	0.313	0.319	0.258	0.114	0.046	0.114	0.454	0.298	-	-	-	-	-	-	-	-	-	-
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																				
Aluminum	200.7	µg/L	-	30 *U*	30 *U*	-	-	-	-	-	-	-	750	87	-	-	-	-	-	-
Antimony	200.8	µg/L	-	0.10 *U*	0.09 *U*	-	-	-	-	-	-	-	-	-	5.6	640	-	-	14	1,000
Arsenic	200.8	µg/L	-	**2.53**	**2.08**	-	-	-	-	-	360	190	340	150	0.018	0.14	360	190	0.018	0.098
Barium	200.7	µg/L	-	119	211	-	-	-	-	-	-	-	-	-	1,000	-	-	-	-	-
Beryllium	200.8	µg/L	-	0.004 *J*	0.003 *U*	-	-	-	-	-	-	-	-	-	4	-	-	-	-	270
Cadmium	200.8	µg/L	-	0.024 *U*	0.027 *U*	-	-	-	-	-	0.82	0.37	2	0.25	5	-	3.9	1	-	20
Calcium	200.7	µg/L	70,600	74,000	118,000	65,000	104,000	4,840	48,400	108,000	-	-	-	-	-	-	-	-	-	-
Chromium	200.8	µg/L	-	0.76	0.77	-	-	-	-	-	125[b]	40[b]	570	74	100	-	550	180	-	240,000
Cobalt	200.8	µg/L	-	0.077	0.112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	200.8	µg/L	-	0.53	0.47	-	-	-	-	-	3[b]	2[b]	13	9	1,300	-	17	11	-	2,700
Iron	200.7	µg/L	-	25.3 *J*	18.8 *J*	-	-	-	-	-	-	-	-	1,000	300	-	-	-	-	-
Lead	200.8	µg/L	-	0.046 *U*	0.040 *U*	-	-	-	-	-	8.6[b]	0.34[b]	65	2.5	-	-	65	2.5	-	-
Magnesium	200.7	µg/L	25,200	26,500	39,600	18,500	36,300	1,060	13,500	36,600	-	-	-	-	-	-	-	-	-	-
Manganese	200.7	µg/L	-	0.2 *U*	0.2 *U*	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-
Mercury	245.1	µg/L	-	0.02 *U*	0.02 *U*	-	-	-	-	-	2.1	0.012	1.4	0.77	-	-	2.1	0.012	0.14	-
Nickel	200.8	µg/L	-	1.17	1.72	-	-	-	-	-	307[b]	34[b]	470	52	610	4,600	1,400	160	610	1,100
Potassium	200.7	µg/L	4,460	4,880	11,300	3,350	10,100	851	3,140	9,060	-	-	-	-	-	-	-	-	-	-
Selenium	200.8	µg/L	-	0.7 *J*	0.9 *J*	-	-	-	-	-	20	5	calc	5	170	4,200	20	5	-	2,700
Silver	200.8	µg/L	-	0.018 *J*	0.021	-	-	-	-	-	0.15[b]	-	3.2	-	-	-	3.4	-	-	26,000
Sodium	200.7	µg/L	25,200	27,500	111,000	17,200	96,100	4,510	17,000	84,900	-	-	-	-	-	-	-	-	-	-
Thallium	200.8	µg/L	-	0.050 *U*	0.043 *U*	-	-	-	-	-	-	-	-	-	0.24	0.47	-	-	1.7	1.6
Vanadium	200.8	µg/L	-	6.46	5.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	200.8	µg/L	-	2.37	0.96 *U*	-	-	-	-	-	25[b]	23[b]	120	120	7,400	26,000	110	100	-	17,000
Volatile Organic Compounds																				
1,1,1-Trichloroethane (TCA)	624	µg/L	-	0.14 *U*	0.14 *U*	-	-	-	-	-	-	-	-	-	200	-	-	-	-	930,000
1,1,2,2-Tetrachloroethane	624	µg/L	-	0.11 *U*	0.11 *U*	-	-	-	-	-	-	-	-	-	0.17	4	-	-	0.17	6.5
1,1,2-Trichloroethane	624	µg/L	-	0.16 *U*	0.16 *U*	-	-	-	-	-	-	-	-	-	0.59	16	-	-	0.6	25
1,1-Dichloroethane (1,1-DCA)	624	µg/L	-	0.11 *U*	0.11 *U*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene (1,1-DCE)	624	µg/L	-	0.15 *U*	0.15 *U*	-	-	-	-	-	-	-	-	-	330	7,100	-	-	0.057	23,000
1,2-Dichlorobenzene	624	µg/L	-	0.13 *U*	0.13 *U*	-	-	-	-	-	-	-	-	-	420	1,300	-	-	2,700	4,200
1,2-Dichloroethane (EDC)	624	µg/L	-	0.12 *U*	0.12 *U*	-	-	-	-	-	-	-	-	-	0.38	37	-	-	0.38	59
1,2-Dichloropropane	624	µg/L	-	0.17 *U*	0.17 *U*	-	-	-	-	-	-	-	-	-	0.5	15	-	-	-	23
1,3-Dichlorobenzene	624	µg/L	-	0.16 *U*	0.16 *U*	-	-	-	-	-	-	-	-	-	320	960	-	-	400	-
1,4-Dichlorobenzene	624	µg/L	-	0.15 *U*	0.15 *U*	-	-	-	-	-	-	-	-	-	63	190	-	-	400	4.9
2-Chloroethyl vinyl ether	624	µg/L	-	0.29 *U*	0.29 *U*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acrolein	624	µg/L	-	3.3 *U*	3.3 *U*	-	-	-	-	-	-	-	3	3	6	9	-	-	320	-
Acrylonitrile	624	µg/L	-	0.61 *U*	0.61 *U*	-	-	-	-	-	-	-	-	-	0.051	0.25	-	-	0.059	0.4
Benzene	624	µg/L	-	0.14 *U*	0.14 *U*	-	-	-	-	-	-	-	-	-	2.2	51	-	-	1.2	23

Table D-3. Surface Water Sampling Results, 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	
Bromodichloromethane	624	µg/L	-	0.12 *U*	0.12 *U*	-	-	-	-	-	-	-	-	-	0.55	17	-	-	0.27	28
Bromoform	624	µg/L	-	0.37 *U*	0.37 *U*	-	-	-	-	-	-	-	-	-	4.3	140	-	-	4.3	220
Bromomethane	624	µg/L	-	0.28 *U*	0.28 *U*	-	-	-	-	-	-	-	-	-	47	1,500	-	-	48	970
Carbon tetrachloride	624	µg/L	-	0.047 *U*	0.047 *U*	-	-	-	-	-	-	-	-	-	0.23	1.6	-	-	0.25	2.7
Chlorobenzene	624	µg/L	-	0.098 *U*	0.098 *U*	-	-	-	-	-	-	-	-	-	130	1,600	-	-	680	5,000
Chloroethane	624	µg/L	-	0.16 *U*	0.16 *U*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	624	µg/L	-	0.11 *U*	0.11 *U*	-	-	-	-	-	-	-	-	-	5.7	470	-	-	5.7	280
Chloromethane	624	µg/L	-	0.23 *U*	0.23 *U*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130
cis-1,3-Dichloropropene	624	µg/L	-	0.13 *U*	0.13 *U*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	624	µg/L	-	0.15 *U*	0.15 *U*	-	-	-	-	-	-	-	-	-	0.4	13	-	-	0.41	21
Dichloromethane (Methylene Chloride)	624	µg/L	-	0.12 *U*	0.12 *U*	-	-	-	-	-	-	-	-	-	4.6	590	-	-	4.7	960
Ethylbenzene	624	µg/L	-	0.11 *U*	0.11 *U*	-	-	-	-	-	-	-	-	-	530	2,100	-	-	3,100	6,900
m,p-Xylenes	624	µg/L	-	0.26 *U*	0.26 *U*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	624	µg/L	-	0.13 *U*	0.13 *U*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene (PCE)	624	µg/L	-	0.14 *U*	0.14 *U*	-	-	-	-	-	-	-	-	-	0.69	3.3	-	-	0.8	0.39
Toluene	624	µg/L	-	0.40 *UJ*	0.27 *UJ*	-	-	-	-	-	-	-	-	-	1,300	15,000	-	-	6,800	19,000
trans-1,2-Dichloroethene	624	µg/L	-	0.15 *U*	0.15 *U*	-	-	-	-	-	-	-	-	-	100	10,000	-	-	-	33,000
trans-1,3-Dichloropropene	624	µg/L	-	0.10 *U*	0.10 *U*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene (TCE)	624	µg/L	-	0.13 *U*	0.13 *U*	-	-	-	-	-	-	-	-	-	2.5	30	-	-	2.7	6.7
Trichlorofluoromethane (Freon 11)	624	µg/L	-	0.11 *U*	0.11 *U*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	624	µg/L	-	0.16 *U*	0.16 *U*	-	-	-	-	-	-	-	-	-	0.025	2.4	-	-	2	3.7

Notes: Higher concentrations of sample and field duplicate shown.
Underlined and bolded results exceed one or more standards.
- Not analyzed or not available
C° Degrees Celsius
$CaCO_3$ 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
NTU Nephelometric turbidity units
s.u. Standard units
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] Standard calculated using equations provided in WAC 173-201A. Standards were calculated for each sample and the lowest calculated standard is shown.

[c] 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 D-4. Gas Vent Air Sampling Results, 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										
Acetylene	D1945	%	0.0020 *U*	0.0020 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0016 *U*	0.0019 *U*
Butane	D1945	%	0.0020 *U*	0.0020 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0016 *U*	0.0019 *U*
C6+	D1945	%	0.020 *U*	0.020 *U*	0.019 *U*	0.019 *U*	0.019 *U*	0.019 *U*	0.016 *U*	0.019 *U*
Carbon dioxide	D1945	%	0.47	0.28	0.26	0.41	0.099	0.071	0.18	0.14
Carbon monoxide	D1945	%	0.020 *U*	0.020 *U*	0.019 *U*	0.019 *U*	0.019 *U*	0.019 *U*	0.016 *U*	0.019 *U*
Ethane	D1945	%	0.0020 *U*	0.0020 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0016 *U*	0.0019 *U*
Ethene	D1945	%	0.0020 *U*	0.0020 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0016 *U*	0.0019 *U*
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
Isobutane	D1945	%	0.0020 *U*	0.0020 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0016 *U*	0.0019 *U*
Isopentane	D1945	%	0.0020 *U*	0.0020 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0016 *U*	0.0019 *U*
Methane	D1945	%	0.00020 *U*	0.00020 *U*	0.00019 *U*	0.026	0.054	0.0099	0.0079	0.011
Neopentane	D1945	%	0.0020 *U*	0.0020 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0016 *U*	0.0019 *U*
Nitrogen	D1945	%	78	78	78	85	84	79	80	81
Oxygen	D1945	%	21	21	21	13	14	20	19	19
Pentane	D1945	%	0.0020 *U*	0.0020 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0016 *U*	0.0019 *U*
Propane	D1945	%	0.0020 *U*	0.0020 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0019 *U*	0.0016 *U*	0.0019 *U*
Volatile Organic Compounds										
1,1,1-Trichloroethane (TCA)	TO-15	µg/m^3	5.4 *U*	5.5 *U*	5.2 *U*	5.2 *U*	5.2 *U*	5.1 *U*	42 *U*	5.1 *U*
1,1,2,2-Tetrachloroethane	TO-15	µg/m^3	6.8 *U*	6.9 *U*	6.5 *U*	6.6 *U*	6.6 *U*	6.4 *U*	53 *U*	6.4 *U*
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	TO-15	µg/m^3	7.6 *U*	7.7 *U*	7.3 *U*	7.3 *U*	7.3 *U*	7.1 *U*	59 *U*	7.2 *U*
1,1,2-Trichloroethane	TO-15	µg/m^3	5.4 *U*	5.5 *U*	5.2 *U*	5.2 *U*	5.2 *U*	5.1 *U*	42 *U*	5.1 *U*
1,1-Dichloroethane (1,1-DCA)	TO-15	µg/m^3	4.0 *U*	4.1 *U*	3.8 *U*	3.9 *U*	3.9 *U*	3.8 *U*	31 *U*	3.8 *U*
1,1-Dichloroethene (1,1-DCE)	TO-15	µg/m^3	3.9 *U*	4.0 *U*	3.8 *U*	3.8 *U*	3.8 *U*	3.7 *U*	31 *U*	3.7 *U*
1,2,4-Trichlorobenzene	TO-15	µg/m^3	30 *U*	30 *U*	28 *U*	28 *U*	28 *U*	28 *U*	230 *U*	28 *U*
1,2,4-Trimethylbenzene	TO-15	µg/m^3	4.9 *U*	4.9 *U*	4.7 *U*	4.7 *U*	4.7 *U*	4.6 *U*	38 *U*	4.6 *U*
1,2-Dibromoethane	TO-15	µg/m^3	7.6 *U*	7.7 *U*	7.3 *U*	7.3 *U*	7.3 *U*	7.1 *U*	60 *U*	7.2 *U*
1,2-Dichloro-1,1,2,2-Tetrafluoroethane (Freon 114)	TO-15	µg/m^3	7.0 *U*	7.0 *U*	6.6 *U*	6.7 *U*	6.7 *U*	6.5 *U*	54 *U*	6.6 *U*
1,2-Dichlorobenzene	TO-15	µg/m^3	6.0 *U*	6.0 *U*	5.7 *U*	5.7 *U*	5.7 *U*	5.6 *U*	46 *U*	5.6 *U*
1,2-Dichloroethane (EDC)	TO-15	µg/m^3	4.0 *U*	4.1 *U*	3.8 *U*	3.9 *U*	3.9 *U*	3.8 *U*	31 *U*	3.8 *U*
1,2-Dichloropropane	TO-15	µg/m^3	4.6 *U*	4.6 *U*	4.4 *U*	4.4 *U*	4.4 *U*	4.3 *U*	36 *U*	4.3 *U*
1,3,5-Trimethylbenzene	TO-15	µg/m^3	4.9 *U*	4.9 *U*	4.7 *U*	4.7 *U*	4.7 *U*	4.6 *U*	38 *U*	4.6 *U*
1,3-Butadiene	TO-15	µg/m^3	2.2 *U*	2.2 *U*	2.1 *U*	2.1 *U*	2.1 *U*	2.0 *U*	17 *U*	2.1 *U*
1,3-Dichlorobenzene	TO-15	µg/m^3	6.0 *U*	6.0 *U*	5.7 *U*	5.7 *U*	5.7 *U*	5.6 *U*	46 *U*	5.6 *U*
1,4-Dichlorobenzene	TO-15	µg/m^3	6.0 *U*	6.0 *U*	5.7 *U*	5.7 *U*	5.7 *U*	5.6 *U*	46 *U*	5.6 *U*
1,4-Dioxane	TO-15	µg/m^3	14 *U*	14 *U*	14 *U*	14 *U*	14 *U*	13 *U*	110 *U*	14 *U*
2,2,4-Trimethyl pentane	TO-15	µg/m^3	4.6 *U*	4.7 *U*	4.4 *U*	4.5 *U*	4.5 *U*	4.3 *U*	36 *U*	4.4 *U*
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
2-Hexanone	TO-15	µg/m^3	16 *U*	16 *U*	16 *U*	16 *U*	16 *U*	15 *U*	130 *U*	15 *U*
3-Chloro-1-propene	TO-15	µg/m^3	12 *U*	12 *U*	12 *U*	12 *U*	12 *U*	12 *U*	97 *U*	12 *U*
4-Ethyltoluene	TO-15	µg/m^3	4.9 *U*	4.9 *U*	4.7 *U*	4.7 *U*	4.7 *U*	4.6 *U*	38 *U*	4.6 *U*
4-Methyl-2-pentanone	TO-15	µg/m^3	4.1 *U*	4.1 *U*	3.9 *U*	3.9 *U*	3.9 *U*	3.8 *U*	32 *U*	3.8 *U*
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*
Benzyl chloride	TO-15	µg/m^3	5.2 *U*	5.2 *U*	4.9 *U*	4.9 *U*	4.9 *U*	4.8 *U*	40 *U*	4.9 *U*
Bromodichloromethane	TO-15	µg/m^3	6.7 *U*	6.7 *U*	6.4 *U*	6.4 *U*	6.4 *U*	6.2 *U*	52 *U*	6.3 *U*
Bromoform	TO-15	µg/m^3	10 *U*	10 *U*	9.8 *U*	9.9 *U*	9.9 *U*	9.6 *U*	80 *U*	9.7 *U*
Bromomethane	TO-15	µg/m^3	3.9 *U*	3.9 *U*	3.7 *U*	3.7 *U*	3.7 *U*	3.6 *U*	30 *U*	3.6 *U*
Carbon disulfide	TO-15	µg/m^3	3.1 *U*	3.1 *U*	3.0 *U*	3.0 *U*	3.0 *U*	2.9 *U*	24 *U*	2.9 *U*
Carbon tetrachloride	TO-15	µg/m^3	6.3 *U*	6.3 *U*	6.0 *U*	6.0 *U*	6.0 *U*	5.8 *U*	49 *U*	5.9 *U*

Table D-4. Gas Vent Air Sampling Results, 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
Chlorobenzene	TO-15	µg/m^3	4.6 *U*	4.6 *U*	4.4 *U*	4.4 *U*	4.4 *U*	4.3 *U*	36 *U*	4.3 *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
Chloroform	TO-15	µg/m^3	4.8 *U*	4.9 *U*	4.6 *U*	4.7 *U*	4.7 *U*	4.5 *U*	38 *U*	4.6 *U*
Chloromethane	TO-15	µg/m^3	8.2 *U*	8.3 *U*	7.8 *U*	48	33	110	65	130
cis-1,2-Dichloroethene	TO-15	µg/m^3	3.9 *U*	4.0 *U*	3.8 *U*	3.8 *U*	3.8 *U*	3.7 *U*	31 *U*	3.7 *U*
cis-1,3-Dichloropropene	TO-15	µg/m^3	4.5 *U*	4.6 *U*	4.3 *U*	4.3 *U*	4.3 *U*	4.2 *U*	35 *U*	4.3 *U*
Cyclohexane	TO-15	µg/m^3	3.4 *U*	3.4 *U*	3.3 *U*	3.3 *U*	3.3 *U*	3.2 *U*	27 *U*	3.2 *U*
Dibromochloromethane	TO-15	µg/m^3	8.5 *U*	8.6 *U*	8.1 *U*	8.1 *U*	8.1 *U*	7.9 *U*	66 *U*	8.0 *U*
Dichlorodifluoromethane (Freon 12)	TO-15	µg/m^3	4.9 *U*	5.0 *U*	4.7 *U*	4.7 *U*	4.7 *U*	4.6 *U*	38 *U*	4.6 *U*
Dichloromethane (Methylene Chloride)	TO-15	µg/m^3	45	11	17	110	180	22	39	34
Ethanol	TO-15	µg/m^3	7.5 *U*	7.6 *U*	7.2 *U*	7.2 *U*	7.2 *U*	7.0 *U*	58 *U*	7.1 *U*
Ethylbenzene	TO-15	µg/m^3	4.3 *U*	4.4 *U*	4.1 *U*	4.1 *U*	4.1 *U*	4.0 *U*	34 *U*	4.1 *U*
Hexachlorobutadiene	TO-15	µg/m^3	42 *U*	43 *U*	40 *U*	41 *U*	41 *U*	40 *U*	330 *U*	40 *U*
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*
Isopropanol	TO-15	µg/m^3	9.8 *U*	9.9 *U*	9.3 *U*	9.4 *U*	9.4 *U*	9.1 *U*	76 *U*	9.2 *U*
Isopropylbenzene	TO-15	µg/m^3	4.9 *U*	4.9 *U*	4.7 *U*	4.7 *U*	4.7 *U*	4.6 *U*	38 *U*	4.6 *U*
m,p-Xylenes	TO-15	µg/m^3	4.3 *U*	4.4 *U*	4.1 *U*	4.1 *U*	4.1 *U*	4.0 *U*	34 *U*	4.1 *U*
Methyl-tert-butyl ether	TO-15	µg/m^3	3.6 *U*	3.6 *U*	3.4 *U*	3.4 *U*	3.4 *U*	3.4 *U*	28 *U*	3.4 *U*
n-Heptane	TO-15	µg/m^3	4.1 *U*	4.1 *U*	3.9 *U*	3.9 *U*	3.9 *U*	3.8 *U*	32 *U*	3.8 *U*
n-Propylbenzene	TO-15	µg/m^3	4.9 *U*	4.9 *U*	4.7 *U*	4.7 *U*	4.7 *U*	4.6 *U*	38 *U*	4.6 *U*
o-Xylene	TO-15	µg/m^3	4.3 *U*	4.4 *U*	4.1 *U*	4.1 *U*	4.1 *U*	4.0 *U*	34 *U*	4.1 *U*
Styrene	TO-15	µg/m^3	4.2 *U*	4.3 *U*	4.0 *U*	4.1 *U*	4.1 *U*	4.0 *U*	33 *U*	4.0 *U*
Tetrachloroethene (PCE)	TO-15	µg/m^3	6.7 *U*	6.8 *U*	6.4 *U*	6.5 *U*	6.5 *U*	6.3 *U*	52 *U*	6.4 *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*
TPH ref. to Gasoline (MW=100)	TO-15	µg/m^3	81 *U*	82 *U*	78 *U*	78 *U*	78 *U*	76 *U*	630 *U*	77 *U*
trans-1,2-Dichloroethene	TO-15	µg/m^3	3.9 *U*	4.0 *U*	3.8 *U*	3.8 *U*	3.8 *U*	3.7 *U*	31 *U*	3.7 *U*
trans-1,3-Dichloropropene	TO-15	µg/m^3	4.5 *U*	4.6 *U*	4.3 *U*	4.3 *U*	4.3 *U*	4.2 *U*	35 *U*	4.3 *U*
Trichloroethene (TCE)	TO-15	µg/m^3	5.3 *U*	5.4 *U*	5.1 *U*	5.1 *U*	5.1 *U*	5.0 *U*	42 *U*	5.0 *U*
Trichlorofluoromethane (Freon 11)	TO-15	µg/m^3	5.6 *U*	5.6 *U*	5.3 *U*	5.4 *U*	5.4 *U*	5.2 *U*	44 *U*	5.3 *U*
Vinyl chloride	TO-15	µg/m^3	2.5 *U*	2.6 *U*	2.4 *U*	2.4 *U*	2.4 *U*	2.4 *U*	20 *U*	2.4 *U*
Siloxanes										
Decamethylcylopentasiloxane (D5)	Air Toxics 71	µg/m^3	1,400 *U*	1,300 *U*	1,400 *U*	1,200 *U*	1,100 *U*	1,300 *U*	1,400 *U*	1,300 *U*
Dodecamethylcyclohexasiloxane (D6)	Air Toxics 71	µg/m^3	2,800 *U*	2,500 *U*	2,800 *U*	2,500 *U*	2,200 *U*	2,600 *U*	2,800 *U*	2,600 *U*
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
Octamethylcyclotetrasiloxane (D4)	Air Toxics 71	µg/m^3	1,400 *U*	1,300 *U*	1,400 *U*	1,200 *U*	1,100 *U*	1,300 *U*	1,400 *U*	1,300 *U*
Octamethyltrisiloxane	Air Toxics 71	µg/m^3	1,400 *U*	1,300 *U*	1,400 *U*	1,200 *U*	1,100 *U*	1,300 *U*	1,400 *U*	1,300 *U*

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 D-5. Dross Borehole Air Sampling Results, 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			
Acetylene	D1945	%	0.0016 *U*
Butane	D1945	%	0.0016 *U*
C6+	D1945	%	0.016 *U*
Carbon dioxide	D1945	%	0.018
Carbon monoxide	D1945	%	0.016 *U*
Ethane	D1945	%	0.0016 *U*
Ethene	D1945	%	0.0016 *U*
Helium	D1945	%	0.082 *U*
Hydrogen	D1945	%	1.6
Isobutane	D1945	%	0.0016 *U*
Isopentane	D1945	%	0.0016 *U*
Methane	D1945	%	0.054
Oxygen	D1945	%	17
Neopentane	D1945	%	0.0016 *U*
Nitrogen	D1945	%	82
Pentane	D1945	%	0.0016 *U*
Propane	D1945	%	0.0016 *U*
Volatile Organic Compounds			
1,1,1-Trichloroethane (TCA)	TO-15	µg/m^3	44 *U*
1,1,2,2-Tetrachloroethane	TO-15	µg/m^3	56 *U*
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	TO-15	µg/m^3	62 *U*
1,1,2-Trichloroethane	TO-15	µg/m^3	44 *U*
1,1-Dichloroethane (1,1-DCA)	TO-15	µg/m^3	33 *U*
1,1-Dichloroethene (1,1-DCE)	TO-15	µg/m^3	32 *U*
1,2,4-Trichlorobenzene	TO-15	µg/m^3	240 *U*
1,2,4-Trimethylbenzene	TO-15	µg/m^3	40 *U*
1,2-Dibromoethane	TO-15	µg/m^3	63 *U*
1,2-Dichloro-1,1,2,2-Tetrafluoroethane (Freon 114)	TO-15	µg/m^3	57 *U*
1,2-Dichlorobenzene	TO-15	µg/m^3	49 *U*
1,2-Dichloroethane (EDC)	TO-15	µg/m^3	33 *U*
1,2-Dichloropropane	TO-15	µg/m^3	38 *U*
1,3,5-Trimethylbenzene	TO-15	µg/m^3	40 *U*
1,3-Butadiene	TO-15	µg/m^3	18 *U*
1,3-Dichlorobenzene	TO-15	µg/m^3	49 *U*
1,4-Dichlorobenzene	TO-15	µg/m^3	49 *U*
1,4-Dioxane	TO-15	µg/m^3	120 *U*
2,2,4-Trimethyl pentane	TO-15	µg/m^3	38 *U*
2-Butanone	TO-15	µg/m^3	24 *U*
2-Hexanone	TO-15	µg/m^3	130 *U*
3-Chloro-1-propene	TO-15	µg/m^3	100 *U*
4-Ethyltoluene	TO-15	µg/m^3	40 *U*
4-Methyl-2-pentanone	TO-15	µg/m^3	33 *U*
Acetone	TO-15	µg/m^3	710 *J*
Benzene	TO-15	µg/m^3	26 *U*
Benzyl chloride	TO-15	µg/m^3	42 *U*
Bromodichloromethane	TO-15	µg/m^3	55 *U*
Bromoform	TO-15	µg/m^3	84 *U*
Bromomethane	TO-15	µg/m^3	32 *U*
Carbon disulfide	TO-15	µg/m^3	25 *U*
Carbon tetrachloride	TO-15	µg/m^3	51 *U*
Chlorobenzene	TO-15	µg/m^3	38 *U*
Chloroethane	TO-15	µg/m^3	22 *U*
Chloroform	TO-15	µg/m^3	40 *U*
Chloromethane	TO-15	µg/m^3	75

Table D-5. Dross Borehole Air Sampling Results, Heglar Kronquist Landfill, Mead, Washington

Chemical	Analytical Method	Units	D-1 5/19/2010
cis-1,2-Dichloroethene	TO-15	µg/m^3	32 *U*
cis-1,3-Dichloropropene	TO-15	µg/m^3	37 *U*
Cyclohexane	TO-15	µg/m^3	28 *U*
Dibromochloromethane	TO-15	µg/m^3	69 *U*
Dichlorodifluoromethane (Freon 12)	TO-15	µg/m^3	40 *U*
Dichloromethane (Methylene Chloride)	TO-15	µg/m^3	28 *U*
Ethanol	TO-15	µg/m^3	61 *U*
Ethylbenzene	TO-15	µg/m^3	35 *U*
Hexachlorobutadiene	TO-15	µg/m^3	350 *U*
Hexane	TO-15	µg/m^3	29 *U*
Isopropanol	TO-15	µg/m^3	80 *U*
Isopropylbenzene	TO-15	µg/m^3	40 *U*
m,p-Xylenes	TO-15	µg/m^3	35 *U*
Methyl-tert-butyl ether	TO-15	µg/m^3	29 *U*
n-Heptane	TO-15	µg/m^3	33 *U*
n-Propylbenzene	TO-15	µg/m^3	40 *U*
o-Xylene	TO-15	µg/m^3	35 *U*
Styrene	TO-15	µg/m^3	35 *U*
Tetrachloroethene (PCE)	TO-15	µg/m^3	55 *U*
Tetrahydrofuran	TO-15	µg/m^3	24 *U*
Toluene	TO-15	µg/m^3	31 *U*
TPH ref. to Gasoline (MW=100)	TO-15	µg/m^3	670 *U*
trans-1,2-Dichloroethene	TO-15	µg/m^3	32 *U*
trans-1,3-Dichloropropene	TO-15	µg/m^3	37 *U*
Trichloroethene (TCE)	TO-15	µg/m^3	44 *U*
Trichlorofluoromethane (Freon 11)	TO-15	µg/m^3	46 *U*
Vinyl chloride	TO-15	µg/m^3	21 *U*
Siloxanes			
Decamethylcylopentasiloxane (D5)	Air Toxics 71	µg/m^3	1,300 *U*
Dodecamethylcyclohexasiloxane (D6)	Air Toxics 71	µg/m^3	2,500 *U*
Hexamethyldisiloxane	Air Toxics 71	µg/m^3	3,800 *J*
Octamethylcyclotetrasiloxane (D4)	Air Toxics 71	µg/m^3	1,300 *U*
Octamethyltrisiloxane	Air Toxics 71	µg/m^3	1,300 *U*
Polychlorinated Biphenyls (PCBs)			
Aroclor 1016/1242	TO-10	µg/m^3	2.6 *U*
Aroclor 1221	TO-10	µg/m^3	2.6 *U*
Aroclor 1232	TO-10	µg/m^3	2.6 *U*
Aroclor 1248	TO-10	µg/m^3	2.6 *U*
Aroclor 1254	TO-10	µg/m^3	2.6 *U*
Aroclor 1260	TO-10	µg/m^3	2.6 *U*
Total Aroclor PCBs	TO-10	µg/m^3	0 *U*

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 D-6. Ambient Air Sampling Results, 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																				
Acetylene	D1945	%	0.0019 *U*	-	0.0019 *U*	-	0.0018 *U*	-	0.0019 *U*	-	0.0017 *U*	-	0.0016 *U*	-	0.0018 *U*	-	0.0017 *U*	-	-	-
Butane	D1945	%	0.0019 *U*	-	0.0019 *U*	-	0.0018 *U*	-	0.0019 *U*	-	0.0017 *U*	-	0.0016 *U*	-	0.0018 *U*	-	0.0017 *U*	-	-	-
C6+	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*	-	-	-
Carbon dioxide	D1945	%	0.040	-	0.040	-	0.040	-	0.038	-	0.045	-	0.042	-	0.044	-	0.043	-	-	-
Carbon monoxide	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*	-	-	-
Ethane	D1945	%	0.0019 *U*	-	0.0019 *U*	-	0.0018 *U*	-	0.0019 *U*	-	0.0017 *U*	-	0.0016 *U*	-	0.0018 *U*	-	0.0017 *U*	-	-	-
Ethene	D1945	%	0.0019 *U*	-	0.0019 *U*	-	0.0018 *U*	-	0.0019 *U*	-	0.0017 *U*	-	0.0016 *U*	-	0.0018 *U*	-	0.0017 *U*	-	-	-
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*	-	-	-
Isobutane	D1945	%	0.0019 *U*	-	0.0019 *U*	-	0.0018 *U*	-	0.0019 *U*	-	0.0017 *U*	-	0.0016 *U*	-	0.0018 *U*	-	0.0017 *U*	-	-	-
Isopentane	D1945	%	0.0019 *U*	-	0.0019 *U*	-	0.0018 *U*	-	0.0019 *U*	-	0.0017 *U*	-	0.0016 *U*	-	0.0018 *U*	-	0.0017 *U*	-	-	-
Methane	D1945	%	0.00020	-	0.00020	-	0.00020	-	0.00020	-	0.00020	-	0.00020	-	0.00020	-	0.00020	-	-	-
Neopentane	D1945	%	0.0019 *U*	-	0.0019 *U*	-	0.0018 *U*	-	0.0019 *U*	-	0.0017 *U*	-	0.0016 *U*	-	0.0018 *U*	-	0.0017 *U*	-	-	-
Nitrogen	D1945	%	79	-	79	-	79	-	79	-	79	-	79	-	79	-	79	-	-	-
Oxygen	D1945	%	21	-	21	-	21	-	21	-	21	-	21	-	21	-	21	-	-	-
Pentane	D1945	%	0.0019 *U*	-	0.0019 *U*	-	0.0018 *U*	-	0.0019 *U*	-	0.0017 *U*	-	0.0016 *U*	-	0.0018 *U*	-	0.0017 *U*	-	-	-
Propane	D1945	%	0.0019 *U*	-	0.0019 *U*	-	0.0018 *U*	-	0.0019 *U*	-	0.0017 *U*	-	0.0016 *U*	-	0.0018 *U*	-	0.0017 *U*	-	-	-
Volatile Organic Compounds																				
1,1,1-Trichloroethane (TCA)	TO-15	µg/m^3	42 *U*	0.19 *U*	41 *U*	0.20 *U*	40 *U*	0.19 *U*	68 *U*	0.19 *U*	62 *U*	0.20 *U*	4.4 *U*	0.19 *U*	17 *U*	0.18 *U*	16 *U*	0.19 *U*	4,800	11,000
1,1,2,2-Tetrachloroethane	TO-15	µg/m^3	52 *U*	0.23 *U*	51 *U*	0.24 *U*	50 *U*	0.23 *U*	85 *U*	0.24 *U*	78 *U*	0.24 *U*	5.5 *U*	0.23 *U*	21 *U*	0.22 *U*	20 *U*	0.23 *U*	0.043	0.43
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	TO-15	µg/m^3	59 *U*	1.3 *U*	57 *U*	1.4 *U*	56 *U*	1.3 *U*	95 *U*	1.3 *U*	87 *U*	1.4 *U*	6.2 *U*	1.3 *U*	23 *U*	1.2 *U*	22 *U*	1.3 *U*	14,000	30,000
1,1,2-Trichloroethane	TO-15	µg/m^3	42 *U*	0.19 *U*	41 *U*	0.20 *U*	40 *U*	0.19 *U*	68 *U*	0.19 *U*	62 *U*	0.20 *U*	4.4 *U*	0.19 *U*	17 *U*	0.18 *U*	16 *U*	0.19 *U*	0.16	1.6
1,1-Dichloroethane (1,1-DCA)	TO-15	µg/m^3	31 *U*	0.14 *U*	30 *U*	0.14 *U*	30 *U*	0.14 *U*	50 *U*	0.14 *U*	46 *U*	0.14 *U*	3.2 *U*	0.14 *U*	12 *U*	0.13 *U*	12 *U*	0.14 *U*	320	700
1,1-Dichloroethene (1,1-DCE)	TO-15	µg/m^3	30 *U*	0.068 *U*	30 *U*	0.071 *U*	29 *U*	0.068 *U*	49 *U*	0.069 *U*	45 *U*	0.071 *U*	3.2 *U*	0.068 *U*	12 *U*	0.064 *U*	11 *U*	0.068 *U*	91	200
1,2,4-Trichlorobenzene	TO-15	µg/m^3	230 *U*	6.3 *U*	220 *U*	6.6 *U*	220 *U*	6.3 *U*	370 *U*	6.5 *U*	340 *U*	6.6 *U*	24 *U*	6.3 *U*	90 *U*	6.0 *U*	85 *U*	6.3 *U*	91	200
1,2,4-Trimethylbenzene	TO-15	µg/m^3	38 *U*	0.84 *U*	37 *U*	0.88 *U*	36 *U*	0.84 *U*	61 *U*	0.86 *U*	56 *U*	0.88 *U*	4.0 *U*	0.84 *U*	15 *U*	0.79 *U*	14 *U*	0.84 *U*	2.7	6
1,2-Dibromoethane	TO-15	µg/m^3	59 *U*	1.3 *U*	58 *U*	1.4 *U*	56 *U*	1.3 *U*	96 *U*	1.3 *U*	88 *U*	1.4 *U*	6.2 *U*	1.3 *U*	23 *U*	1.2 *U*	22 *U*	1.3 *U*	0.011	0.11
1,2-Dichloro-1,1,2,2-Tetrafluoroethane (Freon 114)	TO-15	µg/m^3	53 *U*	-	52 *U*	-	51 *U*	-	87 *U*	-	80 *U*	-	5.6 *U*	-	21 *U*	-	20 *U*	-	-	-
1,2-Dichlorobenzene	TO-15	µg/m^3	46 *U*	1.0 *U*	45 *U*	1.1 *U*	44 *U*	1.0 *U*	75 *U*	1.0 *U*	68 *U*	1.1 *U*	4.8 *U*	1.0 *U*	18 *U*	0.97 *U*	17 *U*	1.0 *U*	64	140
1,2-Dichloroethane (EDC)	TO-15	µg/m^3	31 *U*	0.14 *U*	30 *U*	0.14 *U*	30 *U*	0.14 *U*	50 *U*	0.14 *U*	46 *U*	0.14 *U*	3.2 *U*	0.14 *U*	12 *U*	0.13 *U*	12 *U*	0.14 *U*	0.096	0.96
1,2-Dichloropropane	TO-15	µg/m^3	35 *U*	0.79 *U*	35 *U*	0.83 *U*	34 *U*	0.79 *U*	58 *U*	0.81 *U*	53 *U*	0.83 *U*	3.7 *U*	0.79 *U*	14 *U*	0.74 *U*	13 *U*	0.79 *U*	1.8	4
1,3,5-Trimethylbenzene	TO-15	µg/m^3	38 *U*	0.84 *U*	37 *U*	0.88 *U*	36 *U*	0.84 *U*	61 *U*	0.86 *U*	56 *U*	0.88 *U*	4.0 *U*	0.84 *U*	15 *U*	0.79 *U*	14 *U*	0.84 *U*	2.7	6
1,3-Butadiene	TO-15	µg/m^3	17 *U*	0.38 *U*	16 *U*	0.40 *U*	16 *U*	0.38 *U*	28 *U*	0.39 *U*	25 *U*	0.40 *U*	1.8 *U*	0.38 *U*	6.7 *U*	0.36 *U*	6.3 *U*	0.38 *U*	0.08	0.8
1,3-Dichlorobenzene	TO-15	µg/m^3	46 *U*	1.0 *U*	45 *U*	1.1 *U*	44 *U*	1.0 *U*	75 *U*	1.0 *U*	68 *U*	1.1 *U*	4.8 *U*	1.0 *U*	18 *U*	0.97 *U*	17 *U*	1.0 *U*	-	-
1,4-Dichlorobenzene	TO-15	µg/m^3	46 *U*	1.0 *U*	45 *U*	1.1 *U*	44 *U*	1.0 *U*	75 *U*	1.0 *U*	68 *U*	1.1 *U*	4.8 *U*	1.0 *U*	18 *U*	0.97 *U*	17 *U*	1.0 *U*	370	800
1,4-Dioxane	TO-15	µg/m^3	110 *U*	0.62 *U*	110 *U*	0.64 *U*	100 *U*	0.62 *U*	180 *U*	0.63 *U*	160 *U*	0.64 *U*	12 *U*	0.62 *U*	44 *U*	0.58 *U*	41 *U*	0.62 *U*	-	-
2,2,4-Trimethyl pentane	TO-15	µg/m^3	36 *U*	4.0 *U*	35 *U*	4.2 *U*	34 *U*	4.0 *U*	58 *U*	4.1 *U*	53 *U*	4.2 *U*	3.8 *U*	4.0 *U*	14 *U*	3.8 *U*	13 *U*	4.0 *U*	-	-
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
2-Hexanone	TO-15	µg/m^3	120 *U*	3.5 *U*	120 *U*	3.7 *U*	120 *U*	3.5 *U*	200 *U*	3.6 *U*	190 *U*	3.7 *U*	13 *U*	3.5 *U*	50 *U*	3.3 *U*	47 *U*	3.5 *U*	-	-
3-Chloro-1-propene	TO-15	µg/m^3	96 *U*	2.7 *U*	94 *U*	2.8 *U*	91 *U*	2.7 *U*	160 *U*	2.7 *U*	140 *U*	2.8 *U*	10 *U*	2.7 *U*	38 *U*	2.5 *U*	36 *U*	2.7 *U*	0.46	1
4-Ethyltoluene	TO-15	µg/m^3	38 *U*	0.84 *U*	37 *U*	0.88 *U*	36 *U*	0.84 *U*	61 *U*	0.86 *U*	56 *U*	0.88 *U*	4.0 *U*	0.84 *U*	15 *U*	0.79 *U*	14 *U*	0.84 *U*	-	-
4-Methyl-2-pentanone	TO-15	µg/m^3	31 *U*	0.70 *U*	31 *U*	0.73 *U*	30 *U*	0.70 *U*	51 *U*	0.72 *U*	47 *U*	0.73 *U*	3.3 *U*	0.70 *U*	12 *U*	0.66 *U*	12 *U*	0.70 *U*	32	70
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
Benzyl chloride	TO-15	µg/m^3	40 *U*	0.88 *U*	39 *U*	0.93 *U*	38 *U*	0.88 *U*	64 *U*	0.90 *U*	59 *U*	0.93 *U*	4.2 *U*	0.88 *U*	16 *U*	0.83 *U*	15 *U*	0.88 *U*	4.6	0.52
Bromodichloromethane	TO-15	µg/m^3	51 *U*	1.1 *U*	50 *U*	1.2 *U*	49 *U*	1.1 *U*	83 *U*	1.2 *U*	76 *U*	1.2 *U*	5.4 *U*	1.1 *U*	20 *U*	1.1 *U*	19 *U*	1.1 *U*	-	-
Bromoform	TO-15	µg/m^3	79 *U*	1.8 *U*	78 *U*	1.8 *U*	75 *U*	1.8 *U*	130 *U*	1.8 *U*	120 *U*	1.8 *U*	8.3 *U*	1.8 *U*	32 *U*	1.7 *U*	29 *U*	1.8 *U*	2.3	23
Bromomethane	TO-15	µg/m^3	30 *U*	0.66 *U*	29 *U*	0.70 *U*	28 *U*	0.66 *U*	48 *U*	0.68 *U*	44 *U*	0.70 *U*	3.1 *U*	0.66 *U*	12 *U*	0.62 *U*	11 *U*	0.66 *U*	2.3	5
Carbon disulfide	TO-15	µg/m^3	24 *U*	2.7 *U*	23 *U*	2.8 *U*	23 *U*	2.7 *U*	39 *U*	2.7 *U*	36 *U*	2.8 *U*	2.5 *U*	2.7 *U*	9.5 *U*	2.5 *U*	8.9 *U*	2.7 *U*	320	700
Carbon tetrachloride	TO-15	µg/m^3	48 *U*	1.1 *U*	47 *U*	1.1 *U*	46 *U*	1.1 *U*	78 *U*	1.1 *U*	72 *U*	1.1 *U*	5.1 *U*	1.1 *U*	19 *U*	1.0 *U*	18 *U*	1.1 *U*	0.17	1.7
Chlorobenzene	TO-15	µg/m^3	35 *U*	0.79 *U*	34 *U*	0.82 *U*	34 *U*	0.79 *U*	57 *U*	0.80 *U*	52 *U*	0.82 *U*	3.7 *U*	0.79 *U*	14 *U*	0.74 *U*	13 *U*	0.79 *U*	8	18
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
Chloroform	TO-15	µg/m^3	37 *U*	0.83 *U*	37 *U*	0.87 *U*	36 *U*	0.83 *U*	61 *U*	0.85 *U*	56 *U*	0.87 *U*	3.9 *U*	0.83 *U*	15 *U*	0.79 *U*	14 *U*	0.83 *U*	0.11	1.1
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
cis-1,2-Dichloroethene	TO-15	µg/m^3	30 *U*	0.14 *U*	30 *U*	0.14 *U*	29 *U*	0.14 *U*	49 *U*	0.14 *U*	45 *U*	0.14 *U*	3.2 *U*	0.14 *U*	12 *U*	0.13 *U*	11 *U*	0.14 *U*	16	35
cis-1,3-Dichloropropene	TO-15	µg/m^3	35 *U*	0.78 *U*	34 *U*	0.81 *U*	33 *U*	0.78 *U*	56 *U*	0.79 *U*	52 *U*	0.81 *U*	3.6 *U*	0.78 *U*	14 *U*	0.73 *U*	13 *U*	0.78 *U*	-	-
Cyclohexane	TO-15	µg/m^3	26 *U*	0.59 *U*	26 *U*	0.62 *U*	25 *U*	0.59 *U*	43 *U*	0.60 *U*	39 *U*	0.62 *U*	2.8 *U*	0.59 *U*	10 *U*	0.55 *U*	9.8 *U*	0.59 *U*	-	-
Dibromochloromethane	TO-15	µg/m^3	65 *U*	1.4 *U*	64 *U*	1.5 *U*	62 *U*	1.4 *U*	110 *U*	1.5 *U*	97 *U*	1.5 *U*	6.8 *U*	1.4 *U*	26 *U*	1.4 *U*	24 *U*	1.4 *U*	-	-
Dichlorodifluoromethane (Freon 12)	TO-15	µg/m^3	38 *U*	-	37 *U*	-	36 *U*	-	62 *U*	-	56 *U*	-	4.0 *U*	-	15 *U*	-	14 *U*	-	80	180
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
Ethanol	TO-15	µg/m^3	58 *U*	1.6 *U*	56 *U*	2.1 *U*	55 *U*	4.4 *U*	94 *U*	1.8 *U*	86 *U*	1.9 *U*	6.1 *U*	4.0 *U*	23 *U*	4.0 *U*	21 *U*	2.0 *U*	-	-
Ethylbenzene	TO-15	µg/m^3	33 *U*	0.15 *U*	32 *U*	0.16 *U*	32 *U*	0.15 *U*	54 *U*	0.15 *U*	49 *U*	0.16 *U*	3.5 *U*	0.15 *U*	13 *U*	0.14 *U*	12 *U*	0.15 *U*	460	1,000
Hexachlorobutadiene	TO-15	µg/m^3	330 *U*	9.1 *U*	320 *U*	9.5 *U*	310 *U*	9.1 *U*	530 *U*	9.3 *U*	490 *U*	9.5 *U*	34 *U*	9.1 *U*	130 *U*	8.6 *U*	120 *U*	9.1 *U*	0.11	1.1
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*	-	-
Isopropanol	TO-15	µg/m^3	75 *U*	2.1 *U*	74 *U*	2.2 *U*	72 *U*	2.1 *U*	120 *U*	2.2 *U*	110 *U*	2.2 *U*	7.9 *U*	2.1 *U*	30 *U*	2.0 *U*	28 *U*	2.1 *U*	-	-
Isopropylbenzene	TO-15	µg/m^3	38 *U*	0.84 *U*	37 *U*	0.88 *U*	36 *U*	0.84 *U*	61 *U*	0.86 *U*	56 *U*	0.88 *U*	4.0 *U*	0.84 *U*	15 *U*	0.79 *U*	14 *U*	0.84 *U*	180	400
m,p-Xylenes	TO-15	µg/m^3	33 *U*	0.30 *U*	32 *U*	0.31 *U*	32 *U*	0.30 *U*	54 *U*	0.30 *U*	50 *U*	0.31 *U*	3.5 *U*	0.30 *U*	13 *U*	0.36 *U*	12 *U*	0.30 *U*	46	100

Table D-6. Ambient Air Sampling Results, 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		
Methyl-tert-butyl ether	TO-15	µg/m^3	28 *U*	0.62 *U*	27 *U*	0.64 *U*	26 *U*	0.62 *U*	45 *U*	0.63 *U*	41 *U*	0.64 *U*	2.9 *U*	0.62 *U*	11 *U*	0.58 *U*	10 *U*	0.62 *U*	9.6	96
n-Heptane	TO-15	µg/m^3	31 *U*	0.70 *U*	31 *U*	0.73 *U*	30 *U*	0.70 *U*	51 *U*	0.72 *U*	47 *U*	0.73 *U*	3.3 *U*	0.70 *U*	12 *U*	0.66 *U*	12 *U*	0.70 *U*	-	-
n-Propylbenzene	TO-15	µg/m^3	38 *U*	0.84 *U*	37 *U*	0.88 *U*	36 *U*	0.84 *U*	61 *U*	0.86 *U*	56 *U*	0.88 *U*	4.0 *U*	0.84 *U*	15 *U*	0.79 *U*	14 *U*	0.84 *U*	-	-
o-Xylene	TO-15	µg/m^3	33 *U*	0.15 *U*	32 *U*	0.16 *U*	32 *U*	0.15 *U*	54 *U*	0.15 *U*	50 *U*	0.16 *U*	3.5 *U*	0.15 *U*	13 *U*	0.14 *U*	12 *U*	0.15 *U*	46	100
Styrene	TO-15	µg/m^3	32 *U*	0.73 *U*	32 *U*	0.76 *U*	31 *U*	0.73 *U*	53 *U*	0.74 *U*	48 *U*	0.76 *U*	3.4 *U*	0.73 *U*	13 *U*	0.68 *U*	12 *U*	0.73 *U*	4.4	44
Tetrachloroethene (PCE)	TO-15	µg/m^3	52 *U*	0.23 *U*	51 *U*	0.24 *U*	50 *U*	0.23 *U*	84 *U*	0.24 *U*	77 *U*	0.24 *U*	5.5 *U*	0.23 *U*	21 *U*	0.22 *U*	19 *U*	0.23 *U*	0.42	4.2
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
TPH ref. to Gasoline (MW=100)	TO-15	µg/m^3	620 *U*	-	610 *U*	-	600 *U*	-	1,000 *U*	-	930 *U*	-	66 *U*	-	250 *U*	-	230 *U*	-	-	-
trans-1,2-Dichloroethene	TO-15	µg/m^3	30 *U*	0.68 *U*	30 *U*	0.71 *U*	29 *U*	0.68 *U*	49 *U*	0.69 *U*	45 *U*	0.71 *U*	3.2 *U*	0.68 *U*	12 *U*	0.64 *U*	11 *U*	0.68 *U*	32	70
trans-1,3-Dichloropropene	TO-15	µg/m^3	35 *U*	0.78 *U*	34 *U*	0.81 *U*	33 *U*	0.78 *U*	56 *U*	0.79 *U*	52 *U*	0.81 *U*	3.6 *U*	0.78 *U*	14 *U*	0.73 *U*	13 *U*	0.78 *U*	-	-
Trichloroethene (TCE)	TO-15	µg/m^3	41 *U*	0.18 *U*	40 *U*	0.19 *U*	39 *U*	0.18 *U*	67 *U*	0.19 *U*	61 *U*	0.19 *U*	4.3 *U*	0.18 *U*	16 *U*	0.17 *U*	15 *U*	0.18 *U*	0.1	1
Trichlorofluoromethane (Freon 11)	TO-15	µg/m^3	43 *U*	1.2 *U*	42 *U*	1.2 *U*	41 *U*	1.1 *U*	70 *U*	1.2 *U*	64 *U*	1.1 *U*	4.5 *U*	1.1 *U*	17 *U*	1.3 *U*	16 *U*	1.3 *U*	320	700
Vinyl chloride	TO-15	µg/m^3	20 *U*	0.86 *U*	19 *U*	0.33 *U*	19 *U*	0.29 *U*	32 *U*	0.23 *U*	29 *U*	0.059 *U*	2.0 *U*	0.53 *U*	7.8 *U*	0.59 *U*	7.3 *U*	0.94 *U*	0.28	2.8
Siloxanes																				
Decamethylcylopentasiloxane (D5)	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*	-	-	-
Dodecamethylcyclohexasiloxane (D6)	Air Toxics 71	µg/m^3	2,600 *U*	-	2,600 *U*	-	2,700 *U*	-	2,800 *U*	-	2,600 *U*	-	2,700 *U*	-	2,700 *U*	-	2,700 *U*	-	-	-
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*	-	-	-
Octamethylcyclotetrasiloxane (D4)	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*	-	-	-
Octamethyltrisiloxane	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.