

Appendix B

Surface Water Quality - Monitoring Results



Appendix B-1

MOE Requirements for Surface Water Quality Assessment

TABLE A: Assessment Criteria for Waste Disposal Sites		
Parameter	Value (mg/L)	Source
Phenol	0.04	Lowest Observed Effect Concentration noted in Literature Review
Zinc	0.089	Aquatic Protection Value*
Chloride	180	Suggested value, Standards Development Branch, MOE
Un-ionized Ammonia	0.100	US EPA studies
Sulphate (mg/L)	100	British Columbia guideline
pH	6.0-9.0	Canadian Water Quality Guideline
Arsenic	0.150	Aquatic Protection Value*
Barium	2.300	Aquatic Protection Value*
Boron	3.550	Aquatic Protection Value*
Cadmium	0.00021	Aquatic Protection Value*
Chromium (total)	0.064	Aquatic Protection Value*
Copper	0.0069	Aquatic Protection Value*
Iron	1.000	US EPA Criterion
Lead	0.002	Aquatic Protection Value*
*Source: Aquatic Protection Value from MOE (2009) "Rationale for the Development of Soil and Groundwater Standards for use at Contaminated Sites in Ontario", Table 3.1". Aquatic Protection Values (APVs) represent the lowest chronic adverse effects level from the literature for each of the parameters that are listed. The APVs that are listed in Table 3.1 are concentrations above which chronic adverse effects on aquatic species have been observed (this means that no dilution has occurred at the point of comparison). Note: Additional trigger parameters may be added based on site-specific conditions. An appropriate trigger level concentration will need to be determined for each parameter and implemented into the monitoring program.		

Table B: Alternative Review Criteria	
Source : Canadian Water Quality Guideline	
Parameter	Value (mg/L)
Phenol	.004
Chloride (proposed)	128
Boron	1.50
Cadmium (interim)	0.000017
Nitrate-nitrogen	2.9
Nitrite-nitrogen	.06
Zinc	.030

Measurement Type:		Field				Lab													
Parameter		Temp.	pH	Conductivity	Dissolved Oxygen	Alkalinity (as CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic	Barium	Beryllium (Be)	BOD5	Boron	Cadmium	Calcium (Ca)	Chloride	Chromium	Cobalt (Co)	Conductivity
Units		°C	-	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mS/cm
Detecion Limit						1	0.005	0.001	0.001	0.01	0.0005	2	0.01	0.0001	0.2	1	0.001	0.0005	2
PWQO		--	6.5-8.5	--	--	--	0.075	0.02	0.1	--	1.1	--	0.2	0.0002	--	0	0	0.0009	--
Sample ID:	Sample Date:																		
Site A	2006-11-04	11.7	8.08	670	12.27	214	0.028	--	ND	0.061	ND	ND	0.012	ND	0.093	112	ND	ND	778
Site A	2006-07-06	21.3	-	965	8.9	310	0.033	--	ND	0.11	ND	--	0.038	ND	0.13	138	ND	ND	1060
Site C	2006-10-24	--	--	--	--	257	0.11	--	ND	0.075	ND	--	0.04	ND	0.12	163	ND	ND	1070
Site C	2006-07-06	25.8	--	960	10.7	277	0.076	--	ND	0.084	ND	--	0.03	ND	0.12	170	ND	ND	1030
Site G	2006-11-04	18.3	7.72	976	10.25	208	0.032	--	ND	0.059	ND	ND	0.022	ND	0.098	127	ND	ND	875
Site G	2006-10-24	--	--	--	--	548	0.25	0.002	0.002	0.1	ND	--	0.63	0.0002	0.28	193	ND	0.0039	2230
Site J	2006-11-04	11.5	8.13	739	13.21	366	0.12	--	0.001	0.077	ND	ND	0.084	ND	0.15	116	ND	0.0005	1050
Site J	2006-07-06	18.7	-	1019	6.9	246	0.23	--	ND	0.13	ND	--	0.11	ND	0.13	133	ND	0.0006	1130

Measurement Type:		Lab																		
Parameter		Copper	Dissolved Calcium (Ca)	Dissolved Magnesium (Mg)	Dissolved Organic Carbon	Dissolved Potassium (K)	Dissolved Sodium (Na)	Escherichia coli	Hardness (CaCO3)	Iron	Lead	Magnesium (Mg)	Manganese (Mn)	Molybdenum (Mo)	Nickel (Ni)	N-NH3 (Ammonia)	N-NH3 (unionized)	N-NO2 (Nitrite)	N-NO3 (Nitrate)	Total Organic Carbon (TOC)
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	CFU/100 mL	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Detecion Limit		0.001	0.05	0.05	0.1	1	0.5	10	1	0.03	0.001	0.05	0.002	0.001	0.001	0.02	0.02	0.1	0.1	0.1
PWQO		0.005	--	--	--	--	--	100	--	0.3	0.005	--	--	0.04	0.025	--	0.02	--	--	--
Sample ID:	Sample Date:																			
Site A	2006-11-04	0.001	86.4	9.82	7.3	2	66.1	-	260	0.06	ND	12	0.012	ND	ND	ND	-	ND	0.50	8.2
Site A	2006-07-06	0.001	123	18.6	11.7	4	63.8	980	380	0.10	ND	21	0.018	ND	ND	0.05	0.00	ND	ND	12.6
Site C	2006-10-24	0.002	104	9.79	--	3	94.6	740	300	0.17	ND	11	0.02	ND	ND	0.20	0.02	ND	1.60	13.2
Site C	2006-07-06	0.002	105	7.39	20.2	5	92.8	5900	290	0.27	ND	8.7	0.032	ND	ND	0.11	0.01	0.04	0.20	20.6
Site G	2006-11-04	0.001	93.2	13.5	5.3	4	72.2	--	290	ND	ND	15	0.015	0.001	0.002	ND	--	ND	0.70	5.7
Site G	2006-10-24	0.017	257	59.4	--	25	127	>20,000	890	0.91	0.0035	68	0.81	0.014	0.019	9.73	1.00	0.29	2.50	50
Site J	2006-11-04	0.005	135	22.8	10.4	4	53.6	-	430	0.27	0.0013	28	0.12	0.003	0.003	0.41	0.01	0.05	0.50	11.4
Site J	2006-07-06	0.002	116	24.8	4.1	6	77.3	3100	390	0.53	ND	28	0.17	0.003	0.005	0.17	0.01	0.04	1.10	4.2

Exceeds PWQO

-- Not Sampled

Measurement Type:		Lab																		
Parameter		Orthophosphate (P)	pH	Phenols	Phosphorus	Potassium (K)	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Sulphate	Thallium (Tl)	Toltal Dissolved Solids	Total Suspended Solids	Tungsten (W)	Turbidity	Uranium (U)	Vanadium (V)	Zinc	Zirconium (Zr)
Units		mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L
Detecion Limit		0.01		0.001	0.002	0.2	0.002	0.05	0.0005	0.1	1	0.00005	1	2	0.001	0.1	0.0001	0.001	0.01	0.001
PWQO		--	6.5-8.5	0.001	0.03	--	0.1	--	0.0001	--	--	0.0003	--	0.00	0.03	--	0.005	0.006	0.03	0.004
Sample ID:	Sample Date:																			
Site A	2006-11-04	0.01	8.30	--	0.012	2	ND	1.5	ND	66	33.00	ND	503	1.00	ND	0.5	0.0014	ND	ND	ND
Site A	2006-07-06	0.04	8.30	--	0.044	4	ND	6.5	ND	69	84.00	ND	707	ND	ND	1	0.0017	0.001	0.01	ND
Site C	2006-10-24	0.03	8.10	--	0.031	3.7	ND	3.7	ND	110	58.00	ND	--	10.00	ND	1.6	0.0012	0.001	ND	ND
Site C	2006-07-06	0.06	8.30	--	0.069	5.4	ND	4.1	ND	100	25.00	ND	664	1.00	ND	1.9	0.0007	0.002	0.009	ND
Site G	2006-11-04	ND	8.30	--	0.007	3.2	ND	2	ND	70	72.00	ND	551	ND	ND	1.1	0.0016	ND	ND	ND
Site G	2006-10-24	ND	8.00	--	0.16	26	ND	6.7	0.0003	140	457.00	ND	--	2.00	ND	9.6	0.006	0.003	0.02	0.001
Site J	2006-11-04	0.02	8.30	--	0.037	4.3	ND	5.2	ND	59	67.00	ND	672	ND	ND	4.2	0.0026	0.002	0.006	ND
Site J	2006-07-06	ND	8.10	--	0.016	7.5	ND	4.7	ND	84	175.00	0.06	754	ND	ND	12	0.0021	ND	ND	ND

Exceeds PWQO

-- Not Sampled

			Field																						
			Paraneter	Temp.	pH	Conductivity	Dissolved Oxygen	Alkalinity (as CaCO3)	Aluminum (Al)	Antimony (Sb)	Arsenic	Barium	Beryllium (Be)	BOD5	Boron	Cadmium	Calcium (Ca)	Chloride	Chromium	Cobalt (Co)	Conductivity	Copper	Dissolved Calcium (Ca)	Dissolved Magnesium (Mg)	Dissolved Organic Carbon
			Units	°C	-	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mS/cm	mg/L	mg/L	mg/L	mg/L
Sample ID:	Sample Date:	LAB ID:	Detecion Limit					1	0.005	0.001	0.001	0.01	0.0005	2	0.01	0.0001	0.2	1	0.001	0.0005	2	0.001	0.05	0.05	0.1
PWQO		--		--	6.5-8.5	--	--	--	0.075	0.02	0.1	--	1.1	--	0.2	0.0002	--	0	0	0.0009	--	0.005	--	--	--
Site A	2006-11-04	--		11.7	8.08	670	12.27	214	0.028	--	ND	0.061	ND	ND	0.012	ND	0.093	112	ND	ND	778	0.001	86.4	9.82	7.3
Site A	2006-07-06	--		21.3	-	965	8.9	310	0.033	--	ND	0.11	ND	--	0.038	ND	0.13	138	ND	ND	1060	0.001	123	18.6	11.7
Site C	2006-10-24	--		--	--	--	--	257	0.11	--	ND	0.075	ND	--	0.04	ND	0.12	163	ND	ND	1070	0.002	104	9.79	--
Site C	2006-07-06	--		25.8	--	960	10.7	277	0.076	--	ND	0.084	ND	--	0.03	ND	0.12	170	ND	ND	1030	0.002	105	7.39	20.2
Site G	2006-11-04	--		18.3	7.72	976	10.25	208	0.032	--	ND	0.059	ND	ND	0.022	ND	0.098	127	ND	ND	875	0.001	93.2	13.5	5.3
Site G	2006-10-24	--		--	--	--	--	548	0.25	0.002	0.002	0.1	ND	--	0.63	0.0002	0.28	193	ND	0.0039	2230	0.017	257	59.4	--
Site J	2006-11-04	--		11.5	8.13	739	13.21	366	0.12	--	0.001	0.077	ND	ND	0.084	ND	0.15	116	ND	0.0005	1050	0.005	135	22.8	10.4
Site J	2006-07-06	--		18.7	-	1019	6.9	246	0.23	--	ND	0.13	ND	--	0.11	ND	0.13	133	ND	0.0006	1130	0.002	116	24.8	4.1

			Field	Lab																			
			Parameter	Dissolved Potassium (K)	Dissolved Sodium (Na)	Escherichia coli	Hardness (CaCO3)	Iron	Lead	Magnesium (Mg)	Manganese (Mn)	Molybdenum (Mo)	Nickel (Ni)	N-NH3 (Ammonia)	N-NH3 (unionized)	N-NO2 (Nitrite)	N-NO3 (Nitrate)	Total Organic Carbon (TOC)	Orthophosphate (P)	pH	Phenols	Phosphorus	Potassium (K)
			Units	mg/L	mg/L	CFU/100 mL	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L
Sample ID:	Sample Date:	LAB ID:	Detecion Limit	1	0.5	10	1	0.03	0.001	0.05	0.002	0.001	0.001	0.02	0.02	0.1	0.1	0.1	0.01		0.001	0.002	0.2
PWQO		--		--	--	100	--	0.3	0.005	--	--	0.04	0.025	--	0.02	--	--	--	--	6.5-8.5	0.001	0.03	--
Site A	2006-11-04	--		2	66.1	-	260	0.06	ND	12	0.012	ND	ND	ND	-	ND	0.50	8.2	0.01	8.30	--	0.012	2
Site A	2006-07-06	--		4	63.8	980	380	0.10	ND	21	0.018	ND	ND	0.05	0.00	ND	ND	12.6	0.04	8.30	--	0.044	4
Site C	2006-10-24	--		3	94.6	740	300	0.17	ND	11	0.02	ND	ND	0.20	0.02	ND	1.60	13.2	0.03	8.10	--	0.031	3.7
Site C	2006-07-06	--		5	92.8	5900	290	0.27	ND	8.7	0.032	ND	ND	0.11	0.01	0.04	0.20	20.6	0.06	8.30	--	0.069	5.4
Site G	2006-11-04	--		4	72.2	--	290	ND	ND	15	0.015	0.001	0.002	ND	--	ND	0.70	5.7	ND	8.30	--	0.007	3.2
Site G	2006-10-24	--		25	127	>20,000	890	0.91	0.0035	68	0.81	0.014	0.019	9.73	1.00	0.29	2.50	50	ND	8.00	--	0.16	26
Site J	2006-11-04	--		4	53.6	-	430	0.27	0.0013	28	0.12	0.003	0.003	0.41	0.01	0.05	0.50	11.4	0.02	8.30	--	0.037	4.3
Site J	2006-07-06	--		6	77.3	3100	390	0.53	ND	28	0.17	0.003	0.005	0.17	0.01	0.04	1.10	4.2	ND	8.10	--	0.016	7.5

			Field														
			Paraneter	Selenium (Se)	Silicon (Si)	Silver (Ag)	Sodium (Na)	Sulphate	Thallium (Tl)	Toltal Dissolved Solids	Total Suspended Solids	Tungsten (W)	Turbidity	Uranium (U)	Vanadium (V)	Zinc	Zirconium (Zr)
			Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L
Sample ID:	Sample Date:	LAB ID:	Detecion Limit	0.002	0.05	0.0005	0.1	1	0.00005	1	2	0.001	0.1	0.0001	0.001	0.01	0.001
PWQO		--		0.1	--	0.0001	--	--	0.0003	--	0.00	0.03	--	0.005	0.006	0.03	0.004
Site A	2006-11-04	--		ND	1.5	ND	66	33.00	ND	503	1.00	ND	0.5	0.0014	ND	ND	ND
Site A	2006-07-06	--		ND	6.5	ND	69	84.00	ND	707	ND	ND	1	0.0017	0.001	0.01	ND
Site C	2006-10-24	--		ND	3.7	ND	110	58.00	ND	--	10.00	ND	1.6	0.0012	0.001	ND	ND
Site C	2006-07-06	--		ND	4.1	ND	100	25.00	ND	664	1.00	ND	1.9	0.0007	0.002	0.009	ND
Site G	2006-11-04	--		ND	2	ND	70	72.00	ND	551	ND	ND	1.1	0.0016	ND	ND	ND
Site G	2006-10-24	--		ND	6.7	0.0003	140	457.00	ND	--	2.00	ND	9.6	0.006	0.003	0.02	0.001
Site J	2006-11-04	--		ND	5.2	ND	59	67.00	ND	672	ND	ND	4.2	0.0026	0.002	0.006	ND
Site J	2006-07-06	--		ND	4.7	ND	84	175.00	0.06	754	ND	ND	12	0.0021	ND	ND	ND

TABLE 9: SURFACE WATER QUALITY (PIL, SIL)
Waste Management Ottawa Landfill

CB2533 Tables 2010.xlsx

Location	Sample Date	Alkalinity mg/L	Ammonia mg/L	Un-ionized ammonia (mg/L)	Barium mg/L	Boron mg/L	Cadmium mg/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Chromium (total) mg/L	Conductivity uS/cm	Cyanide (free) mg/L	Cyanide mg/L	Dissolved Organic Carbon mg/L	Hardness mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nitrate mg/L	Nitrite mg/L	pH unitless	Potassium mg/L	Sodium mg/L	Sulphate mg/L	Total Dissolved Solids mg/L	Total Kjeldahl Nitrogen mg/L
SI	01-Jun-00	417	14.4	0.037	0.62	0.36	< 0.00015	182	112	421	< 0.01	2300		< 0.02			74	< 0.002	33	0.95	0.87	< 0.1		26	264	173		14.4
SI	22-Nov-00	524	15.4	0.024	0.43	0.39	< 0.005	205	92	464	< 0.01	2530		0.03			15.2	< 0.001	41	1.22	< 0.1	< 0.1		28	243	150		16.6
SI	11-May-01	500	15.8	0.023	0.35	0.44	0.0002	177	41	464	0.002	2320		< 0.005			3.94	< 0.001	35	0.61	0.83	< 0.1		29	233	118		16.5
SI FD	11-May-01	499	15.8	0.023	0.35	0.44	0.0002	179	44	462	0.002	2270		< 0.005			3.92	< 0.001	36	0.63	0.83	< 0.1		30	229	118		16
SI	13-Nov-01	531	16.7	0.015	0.36	0.51	< 0.0001	193	54	509	0.002	2690		0.008			10.4	< 0.001	48	0.95	< 0.1	< 0.1		35	268	206		18.8
SI	15-May-02	291	4.51	0.008	0.16	0.24	< 0.0001	145	22	399	< 0.001	2100		< 0.005			0.88	< 0.001	22	0.21	3.42	< 0.1		21	252	161		5.27
SI	12-Nov-02	328	9.3	0.006	0.28	0.3	< 0.0001	172	20	552	< 0.005	2760		< 0.005			11.1	< 0.001	31	0.73	0.7	< 0.1		42	333	235		12.3
SI	22-May-03	308	1.49	0.005	0.18	0.32	< 0.0001	183	21	794	< 0.005	2440		< 0.005			2.24	< 0.001	34	0.21	2.88	< 0.1		21	346	233		2.5
SI	15-Aug-03		5.6	0.005																								
SI	05-Nov-03	419	5.45	0.028	0.32	0.29	< 0.0001	189	33	583	0.001	2910		< 0.005			15.7	< 0.001	33	0.82	0.25	< 0.1		28	367	177		8.15
SI	22-Dec-03		6.01	0.012																								
SI	11-Feb-04		4.63	0.023																								
SI	30-Apr-04	373	5.1	0.018	0.35	0.29	< 0.0001	171	33	336	0.001	2090		< 0.005			15.8	< 0.001	33	0.95	0.18	< 0.1		18	230	205		6.56
SI	08-Sep-04		3.75	0.007																								
SI	05-Nov-04	261	2.58	0.017	0.32	0.39	< 0.0001	104	19	372	0.015	2090		< 0.005			10.7	0.005	33	1.3	1.29	< 0.1		17	233	201		3.87
SI	27-Apr-05	297	2.16	0.002	0.2	0.24	< 0.0001	134	19	345	< 0.001	1960		< 0.005			4.05	< 0.001	35	0.45	1.39	< 0.1		12	266	147		4.2
SI	24-Aug-05		1.91	0.028																								
SI	28-Nov-05	372	3.39	0.005	0.26	0.31	< 0.0001	186	29	547	0.004	2680		< 0.005			10.9	< 0.001	36	1.17	1.42	< 0.1		16	296	129		4.49
SI FD	28-Nov-05	373	3.27	0.005	0.25	0.26	< 0.0001	188	30	550	0.005	2710		< 0.005			10.9	< 0.001	37	1.16	1.5	< 0.1		16	299	131		4.75
SI	26-Apr-06	379	2.56	0.004	0.24	0.33	< 0.0001	180	25	514	< 0.005	2610		< 0.005			2.54	< 0.001	34	0.45	1.26	< 0.1		13	282	174		3.95
SI	29-Aug-06		1.34	0.008																								
SI	07-Nov-06	321	2.02	0.008	0.19	0.43	< 0.0001	161	28	536	0.006	2580		< 0.005			3.98	< 0.001	34	0.64	1	< 0.1		15	386	202		2.62
SI	24-Apr-07	396	1.89	0.005	0.18	0.45	< 0.0001	158	23	389	0.008	2250		< 0.005			2.41	< 0.001	33	0.54	1	< 0.1		13	262	153		2.98
SI	16-Aug-07		1.39	0.009																								
SI	27-Nov-07	286	1.71	0.001	0.16	0.32	< 0.0001	140	16	363	< 0.001	2140		< 0.005			6.04	< 0.001	30	0.61	0.68	< 0.1		13	247	216		2.1
SI	23-May-08	338	1.35	0.006	0.2	0.43	< 0.0001	150	33	490	< 0.005	2520	< 0.002		7.7	520	1	< 0.0005	33	0.37	1.6	0.01	8	12	290	190	1510	2.6
SI FD	23-May-08	339	1.34	0.006	0.2	0.42	< 0.0001	160	30	490	< 0.005	2530	< 0.002		7.9	520	2.8	< 0.0005	33	0.38	1.4	0.01	7.9	12	290	204	1520	3
SI	19-Nov-08	331	2.91	0.003	0.25	0.52	< 0.0001	230	25	500	< 0.005	2810	< 0.002		7.1	660	11	0.0007	46	0.98	0.4	0.01	8	17	340	381	1840	3
SI	29-Apr-09	311	1.19	0.005	0.23	0.49	< 0.0001	240	23	520	< 0.005	2670	0.002		8.1	510	5.2	0.0012	44	0.52	2.6	0.14	7.8	16	350	230	1760	2
SI	29-Oct-09	344	2.82	0.009	0.24	0.49	< 0.0001	190	22	580	< 0.005	2970	< 0.002		8.9	590	5.8	< 0.0005	39	1	0.3	< 0.01	7.6	15	370	250	2000	3.5
SI FD	29-Oct-09	342	2.71	0.009	0.24	0.46	< 0.0001	180	25	580	< 0.005	2970	< 0.002		8.1	570	5.6	< 0.0005	39	0.96	0.3	< 0.01	7.7	15	370	240	1900	3.2
SI	28-Apr-10	332	1.16	0.004	0.24	0.4	< 0.0001	170	26	640	< 0.005	2900	< 0.002		8.5	520	1.4	< 0.0005	35	0.36	1.8	0.01	7.9	14	520	120	1830	2.1
SI Dup	28-Apr-10	333	1.2	0.004	0.24	0.41	< 0.0001	180	26	630	< 0.005	2880	< 0.002		8.2	510	1.5	< 0.0005	36	0.38	1.7	0.02	8	14	430	140	1810	2.4
SI	02-Nov-10	375	3.09	0.047*	0.3	0.46	< 0.0001	200	41	620	< 0.005	3070	< 0.002		8.6	580	8.6	< 0.0005	42	1.1	< 0.1	0.02	7.9	16	440	130	1950	4
SI Dup	02-Nov-10	382	2.75	0.042*	0.29	0.42	0.0002	190	36	710	< 0.005	3200	< 0.002		9.1	550	7.4	< 0.0005	42	1.1	0.1	< 0.01	7.9	16	470	100	1980	3.9

TABLE 9: SURFACE WATER QUALITY (PIL, SIL)
Waste Management Ottawa Landfill

C82533 Tables 2010.xlsx

Location	Sample Date	Alkalinity mg/L	Ammonia mg/L	Un-ionized ammonia (mg/L)	Barium mg/L	Boron mg/L	Cadmium mg/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Chromium (total) mg/L	Conductivity uS/cm	Cyanide (free) mg/L	Cyanide mg/L	Dissolved Organic Carbon mg/L	Hardness mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nitrate mg/L	Nitrite mg/L	pH unitless	Potassium mg/L	Sodium mg/L	Sulphate mg/L	Total Dissolved Solids mg/L	Total Kjeldahl Nitrogen mg/L
S3	01-Jun-00	263	0.42	0.013	0.11	0.05	< 0.00015	112	44	172	< 0.01	1090		< 0.02			0.64	< 0.002	13	0.11	2.39	0.14		3	116	412		1.16
S3	22-Nov-00	392	4.41	0.011	0.33	0.17	< 0.005	177	54	608	< 0.01	2550		< 0.005			1.8	< 0.001	31	1.07	0.62	< 0.1		15	335	79		4.89
S3	11-May-01	445	2.48	0.011	0.4	0.19	0.0002	211	38	720	0.001	2760		< 0.005			1.81	< 0.001	38	1.1	1.59	< 0.1		15	330	124		2.31
S3	13-Nov-01	247	5.75	0.017	0.15	0.33	< 0.0001	197	31	503	< 0.001	2420		< 0.005			0.4	< 0.001	42	0.25	4.5	< 0.1		26	253	298		5.89
S3	15-May-02	225	0.89	0.004	0.1	0.07	< 0.0001	107	34	397	< 0.001	1890		< 0.005			0.27	< 0.001	13	0.06	0.8	< 0.1		4	279	94		1.5
S3	12-Nov-02	404	1.84	0.001	0.29	0.13	< 0.0001	225	31	719	< 0.005	3260		< 0.005			2.58	< 0.001	31	0.7	0.56	< 0.1		27	409	176		2.64
S3	22-May-03	358	1.25	0.010	0.27	0.18	< 0.0001	237	27	830	< 0.005	2970		< 0.005			1.56	< 0.001	39	0.77	2.03	< 0.1		15	410	200		1.7
S3	15-Aug-03		1.07	0.002																								
S3	05-Nov-03	295	2.21	0.016	0.2	0.24	< 0.0001	169	28	498	0.002	2530		< 0.005			1.02	< 0.001	34	0.45	1.44	< 0.1		26	319	253		3.16
S3	22-Dec-03		4.2	0.019																								
S3	30-Apr-04	264	0.45	0.002	0.17	0.12	< 0.0001	135	19	437	0.004	2100		< 0.005			0.33	< 0.001	20	0.22	0.93	< 0.1		8	272	117		1.06
S3	08-Sep-04		0.25	0.002																								
S3	05-Nov-04	257	0.81	0.002	0.15	0.22	< 0.0001	131	28	533	0.002	2480		< 0.005			0.55	< 0.001	26	0.22	1.2	< 0.1		11	311	196		1.51
S3	27-Apr-05	221	0.36	0.002	0.11	0.15	< 0.0001	226	21	440	< 0.001	2080		< 0.005			0.23	< 0.001	25	0.08	1.04	< 0.1		6	253	137		0.94
S3	24-Aug-05		0.72	0.023																								
S3	28-Nov-05	339	1.83	0.002	0.18	0.23	< 0.001	189	26	698	< 0.005	3040		< 0.005			1.68	< 0.01	35	0.62	2.69	< 0.1		14	366	204		2.65
S3	26-Apr-06	258	0.68	0.002	0.16	0.51	< 0.0001	141	15	592	< 0.005	2690		< 0.005			0.24	< 0.001	29	0.16	2.45	< 0.1		10	333	186		1.01
S3	29-Aug-06		0.31	0.003																								
S3	07-Nov-06	388	0.44	0.002	0.23	0.23	< 0.0001	194	23	656	0.007	3040		< 0.005			1.84	< 0.001	32	0.7	1.43	< 0.1		12	473	175		1.15
S3 FD	07-Nov-06	387	0.46	0.002	0.25	0.24	< 0.0001	193	26	686	0.006	3010		< 0.005			2.02	< 0.001	32	0.7	1.34	< 0.1		12	510	165		0.99
S3	24-Apr-07	309	0.58	0.002	0.19	0.3	< 0.0001	155	24	550	0.009	2570		< 0.005			0.76	< 0.001	30	0.47	0.94	< 0.1		10	334	163		1.05
S3	16-Aug-07		0.73	0.006																								
S3	27-Nov-07	378	0.72	<0.001	0.27	0.12	< 0.0001	170	23	837	0.001	3660		0.007			1.24	< 0.001	27	0.62	0.56	< 0.1		8	527	124		1.21
S3	23-May-08	352	0.49	0.002	0.29	0.16	< 0.0001	160	31	690	< 0.005	3040	< 0.002		9.3	500	1.1	< 0.0005	25	0.59	0.6	0.02	8.1	6.9	400	131	1810	1.2
S3	19-Nov-08	386	1.38	0.001	0.73	0.38	< 0.0001	180	67	590	< 0.005	2910	< 0.002		17.3	510	80	0.0008	31	1.7	0.8	0.02	8	10	370	207	1820	< 7
S3	29-Apr-09	271	< 0.15	< 0.002	0.2	0.3	< 0.0001	160	29	660	< 0.005	2790	0.002		11.1	440	0.46	< 0.0005	24	0.16	0.3	0.01	8	4.9	420	100	1780	< 0.7
S3	29-Oct-09	404	0.64	0.003	0.34	0.21	< 0.0001	200	30	750	< 0.005	3460	< 0.002		10.8	590	1.1	< 0.0005	33	0.69	0.7	0.02	7.9	11	500	170	2200	1.3
S3	28-Apr-10	370	0.51	0.003	0.36	0.19	< 0.0001	210	27	820	< 0.005	3520	< 0.002		9.4	580	< 0.1	< 0.0005	33	0.67	0.6	0.03	8.1	9.2	590	140	2220	1.2
S3	02-Nov-10	396	0.65	0.008*	0.3	0.2	< 0.0001	200	40	710	< 0.005	3350	< 0.002		9.5	590	0.95	< 0.0005	34	0.58	0.5	0.01	8	10	520	150	2020	1.4

TABLE 9: SURFACE WATER QUALITY (PIL, SIL)
Waste Management Ottawa Landfill

CB2533 Tables 2010.xlsx

Location	Sample Date	Alkalinity mg/L	Ammonia mg/L	Un-ionized ammonia (mg/L)	Barium mg/L	Boron mg/L	Cadmium mg/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Chromium (total) mg/L	Conductivity uS/cm	Cyanide (free) mg/L	Cyanide mg/L	Dissolved Organic Carbon mg/L	Hardness mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nitrate mg/L	Nitrite mg/L	pH unitless	Potassium mg/L	Sodium mg/L	Sulphate mg/L	Total Dissolved Solids mg/L	Total Kjeldahl Nitrogen mg/L
S10	11-May-01	428	1.03	0.017	0.37	0.18	0.0002	201	41	670	0.001	2880		< 0.005			0.51	< 0.001	36	0.83	2.53	< 0.1		14	349	136		1.78
S10	13-Nov-01	268	5.05	0.023	0.16	0.3	< 0.0001	203	35	571	< 0.001	2580		< 0.005			0.08	< 0.001	45	0.2	4.2	< 0.1		24	279	279		5.28
S10	15-May-02	224	0.7	0.003	0.11	0.07	< 0.0001	108	34	391	< 0.001	1880		< 0.005			0.3	< 0.001	14	0.07	0.84	< 0.1		5	260	105		1.68
S10	12-Nov-02	402	1.34	0.002	0.26	0.12	< 0.0001	223	29	766	< 0.005	3390		< 0.005			0.36	< 0.001	30	0.54	0.64	< 0.1		26	456	166		2.3
S10	22-May-03	348	0.12	0.002	0.24	0.16	< 0.0001	233	32	722	< 0.005	3060		< 0.005			0.34	< 0.001	37	0.36	2.17	< 0.1		16	439	188		0.87
S10	15-Aug-03		0.07	<0.001																								
S10	05-Nov-03	268	1.02	0.015	0.21	0.21	< 0.0001	173	36	545	0.005	2640		< 0.005			1.06	< 0.001	31	0.49	1.38	< 0.1		22	369	247		1.74
S10	22-Dec-03		2.87	0.021																								
S10	30-Apr-04	269	0.21	0.002	0.16	0.12	< 0.0001	138	17	440	0.004	2170		< 0.005			0.2	< 0.001	21	0.16	1.06	< 0.1		8	292	115		0.82
S10	08-Sep-04		0.06	0.001																								
S10	05-Nov-04	263	0.61	0.002	0.15	0.21	< 0.0001	137	27	552	0.002	2520		< 0.005			0.32	< 0.001	29	0.2	1.28	< 0.1		12	327	198		1.24
S10	27-Apr-05	224	0.26	0.003	0.11	0.15	< 0.0001	223	18	432	< 0.001	2070		< 0.005			0.2	< 0.001	24	0.08	0.97	< 0.1		6	251	132		0.94
S10	24-Aug-05		0.08	0.002																								
S10	28-Nov-05	331	1.44	0.004	0.17	0.21	< 0.001	187	31	704	< 0.005	3050		< 0.005			1.14	< 0.01	34	0.46	2.98	< 0.1		13	388	208		2.42
S10	26-Apr-06	265	0.35	0.001	0.17	0.47	< 0.0001	149	19	609	0.007	2750		< 0.005			0.17	< 0.001	30	0.14	2.48	< 0.1		10	349	181		0.63
S10	29-Aug-06		0.2	0.003																								
S10	07-Nov-06	362	0.04	<0.001	0.18	0.27	< 0.0001	189	27	638	0.005	3070		< 0.005			0.6	< 0.001	34	0.35	1.65	< 0.1		13	484	188		0.73
S10	24-Apr-07	292	0.23	0.001	0.17	0.29	0.0018	144	20	500	0.009	2440		< 0.005			0.17	0.002	30	0.21	1.36	< 0.1		10	292	169		0.77
S10	16-Aug-07		0.08	0.001																								
S10	27-Nov-07	368	0.35	<0.001	0.26	0.12	< 0.0001	170	23	778	< 0.001	3320		0.005			0.61	< 0.001	25	0.51	0.62	< 0.1		7	438	123		1.12
S10	23-May-08	345	0.2	0.002	0.26	0.14	< 0.0001	150	42	670	< 0.005	2990	< 0.002		9.7	490	0.41	< 0.0005	22	0.33	0.4	0.02	8.2	5.9	390	117	1810	1.1
S10	19-Nov-08	413	0.53	<0.001	0.3	0.16	< 0.0001	200	34	830	< 0.005	3620	< 0.002		10.3	630	0.46	< 0.0005	34	0.58	0.7	0.04	8.2	9.2	480	179	2300	1
S10 FD	19-Nov-08	411	0.53	<0.001	0.31	0.22	< 0.0001	200	37	840	< 0.005	3650	< 0.002		10.2	630	0.59	< 0.0005	34	0.6	0.7	0.04	8.1	9.3	530	179	2400	1
S10	29-Apr-09	279	< 0.15	<0.002	0.21	0.28	< 0.0001	170	26	680	< 0.005	2850	0.002		10.8	440	0.39	< 0.0005	25	0.18	0.3	0.01	8	5.1	460	100	1830	< 0.7
S10	29-Oct-09	393	< 0.15	<0.002	0.34	0.15	0.0001	190	34	870	< 0.005	3750	< 0.002		11.2	590	0.82	< 0.0005	30	0.6	0.6	0.01	8	8.3	570	140	2390	< 0.7
S10	28-Apr-10	346	< 0.15	<0.004	0.36	0.11	< 0.0001	210	52	960	< 0.005	3770	< 0.002		16	550	0.15	< 0.0005	28	0.43	< 0.1	< 0.01	8.1	6.2	620	100	2400	1
S10	02-Nov-10	372	0.15	0.002*	0.25	0.09	< 0.0001	220	56	930	< 0.005	3970	< 0.002		16.1	620	0.36	< 0.0005	28	0.8	0.1	< 0.01	8.1	5.4	610	160	2440	1.1

* - the calculated values of un-ionized ammonia may be anomalously elevated; due to a pH probe malfunction the lab pH values were used.

TABLE 17: SURFACE WATER QUALITY - BIOSOLIDS PROGRAM - LIL, LILb AND ADDITIONAL PARAMETERS Waste Management Ottawa Landfill

Name	Sample Date	Alkalinity mg/L	Aluminum mg/L	Ammonia mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Biochemical Oxygen Demand mg/L	Boron mg/L	Cadmium mg/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Chromium mg/L	Cobalt mg/L	Conductivity uS/cm	Copper mg/L	Cyanide mg/L	Field Conductivity uS/cm	Field Dissolved Oxygen mg/L	Field pH unitless	Field Temperature °C	Fluoride mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L
Pond	1-Aug-95			0.3			0.08			0.03	nd	47	24	212	nd		783		nd					0.13	0.16	nd	19	0.02
Pond FD	1-Aug-95						0.08			0.05	nd	48		214	nd									0.13	0.41		19	0.02
Pond	20-Oct-95			2			0.13			0.07	nd	99	35	176	nd		1053		nd			8.25	11.3	nd	0.2	nd	20	0.03
Pond	24-Jun-96			0.5			0.09			0.05	nd	78	37	248	nd		1100		nd			7.4	21	nd	0.18	nd	17	0.11
Pond	16-May-97			4.2			0.09			0.04	nd	109	41	252	nd		1232		nd			7.46	12	nd	0.41	nd	18	0.11
Pond	12-Nov-97			5.08			0.13			0.08	nd	117		256	nd		1442		nd			7.78	4	nd	0.87	nd	26	0.21
Pond	12-May-98			3.27			0.05			0.02	nd	80	47	171	nd		1044		nd			7.9	17.7		0.24	nd	19	0.11
Pond	12-May-99	221		5.05			0.06			0.07	nd	124	64	230	nd		1271		nd	960	6.9	8.34	16	0.21	0.27	nd	24	0.1
Pond	1-Jun-00	167		1.95			0.08			0.13	<0.0001	109	73	265	<0.01		1460		<0.02	1500	10.72	7.95	17.6	0.17	0.35	<0.002	26	0.16
Pond FD	1-Jun-00	167		1.93			0.08			0.13	<0.00015	107	73	300	<0.01		1480		<0.02					0.15	0.37	<0.002	26	0.17
Pond	11-May-01	330		11.1			0.1			0.11	0.0002	136	67	683	0.001		1710		<0.005	1100	11.5	7.5	21	0.12	0.57	<0.001	27	0.16
Pond	26-Jun-01	221	<0.05	2.25	<0.001	<0.001	0.11	<0.002	3	0.11	<0.005	111	57	348	<0.01	<0.01	1610	<0.001	<0.005	1820		7.8	24	0.13	0.46	<0.001	28	0.09
Pond	20-Sep-01	132	0.11	0.29	<0.001	<0.001	0.12	<0.002	2	0.14	<0.0001	75	53	443	0.002	0.0004	1660	<0.001	<0.005	1770		8.09	18.9	0.12	0.49	<0.001	33	0.05
Pond	19-Dec-01	207	0.05	0.34	<0.001	<0.001	0.16	<0.002	10	0.14	<0.0001	104	45	419	0.004	0.007	1820	0.001	<0.005	1960		7.72	0.8	0.44	0.45	<0.001	33	0.14
Pond	9-Apr-02	49	<0.05	3.28	<0.001	<0.001	0.02	<0.002	<1	0.07	<0.0001	21	11	34	<0.001	0.0003	271	0.005	<0.005	1880		6.65	5.3	0.49	0.07	0.002	3	0.06
Pond	15-May-02	262		11.6			0.1			0.17	<0.0001	148	78	317	<0.001		1910		<0.005	1830	7.44	7.35	10.3	<0.1	0.28	<0.001	25	0.06
Pond FD	15-May-02	263		12.3			0.1			0.16	<0.0001	139	71	328	<0.001		1880		<0.005					0.46	0.3	<0.001	26	0.06
Pond	26-Jun-02	177	0.02	4.09	<0.001	<0.001	0.1	<0.001	4	0.12	<0.001	127	70	315	<0.001	0.0017	1710	0.007	0.008	1410		7.34	22.4	0.12	0.21	<0.001	30	0.03
Pond	9-Sep-02	126	0.02	0.07	<0.001	0.001	0.08	<0.001	6	0.16	<0.0001	89	67	342	0.01	0.0014	1650	0.006	<0.005	1280		7.76	22.8	0.13	0.24	0.001	28	0.09
Pond	19-Dec-02	216	0.05	0.29	<0.001	<0.001	0.12	<0.001	5	0.15	<0.0001	124	51	383	<0.005	0.0009	1840	0.002	<0.005	1574		9.04	1.4	0.53	0.52	0.002	35	0.2
Pond	22-May-03	219		1.55			0.1			0.14	<0.0001	122	59	355	<0.005		1600		<0.005	1920	9.91	7.83	15.71	0.11	0.12	<0.001	31	0.06
Pond FD	22-May-03	218		1.55			0.1			0.14	<0.0001	128	60	359	<0.005		1610		<0.005					0.11	0.12	<0.001	32	0.06
Pond	30-Jun-03	136	<0.01	0.15	<0.001	<0.001	0.05	<0.001	<1	0.13	<0.0001	79	55	297	<0.005	0.001	1550	0.004	<0.005	1470		8.02	22.5	0.12	0.06	<0.001	29	0.06
Pond	22-Sep-03	171	0.06	0.06	<0.001	<0.001	0.1	<0.001	7	0.18	<0.0001	88	54	351	<0.005	0.0007	1680	0.001	<0.005	1650		7.14	19.1	0.12	0.3	<0.001	31	0.38
Pond	29-Apr-04	214	0.02	2.12	<0.001	<0.001	0.09	<0.001	8	0.11	<0.0001	116	51	223	<0.001	0.0015	1330	0.006	<0.005	1081	11.14	8.21	10.64	0.13	0.13	<0.001	24	0.16
Pond	13-Sep-04	146	<0.01	0.1			0.09	<0.001	8	0.14	<0.0001	69	48	328	0.002	0.0004	1370	0.001	<0.005	1336	11.55	8.39	19.64	0.14	0.02	<0.001	25	0.43
Pond	15-Apr-05	155	0.02	1.4			0.06	<0.001	9	0.07	<0.0001	83	33	202	0.002	0.0015	1060	0.006	<0.005	995	16.66	8.13	8.79	0.14	0.21	<0.001	16	0.26
Pond	27-Apr-05	190		0.86			0.07			0.12	<0.0001	107	45	217	<0.001		1300		<0.005	914	12.87	7.85	10.27	0.17	0.13	<0.001	24	0.19
Pond	27-Jul-05	76	<0.01	0.04			0.06	<0.001	<1	0.12	<0.0001	50	40	288	0.002	0.0006	1300	0.001	<0.005	1329	8.15	8.53	23.4	<0.1	0.05	<0.001	23	0.04
Pond FD	27-Jul-05	76	<0.01	0.03			0.06	<0.001	<1	0.12	<0.0001	48	41	310	0.002	0.0006	1310	0.001	<0.005					<0.1	0.05	<0.001	22	0.04
Pond	25-Oct-05	200	<0.01	0.73			0.13	<0.001	4	0.15	<0.0001	110	49	355	<0.001	0.0005	1610	<0.001	<0.005	1074	9.97	7.77	7.21	0.24	0.46	<0.001	31	0.18
Pond FD	25-Oct-05	201	<0.01	0.55			0.13	<0.001	4	0.16	<0.0001	105	47	361	<0.001	0.0005	1580	0.001	<0.005					0.22	0.47	<0.001	30	0.19
Pond	26-Apr-06	275	<0.01	2.89	<0.001	<0.001	0.1	<0.001	4	0.16	<0.0001	135	57	270	0.005	0.0017	1710	0.005	<0.005	1056	16.96	7.95	9.47	0.12	0.17	<0.001	27	0.23
Pond	18-Jul-06	68	0.05	0.05			0.06	<0.001	2	0.24	<0.0001	54	42	305	0.001	0.0008	1500	0.003	<0.005	1559	4.29	7.88	26.06	<0.1	0.06	<0.001	28	0.02
Pond	30-Oct-06	222	<0.01	1.04			0.13	<0.001	5	0.2	<0.0001	100	58	331	0.002	0.0008	1770	0.002	<0.005	1162	15.9	8.14	5.38	<0.1	0.28	0.002	28	0.14
Pond	24-Apr-07	291	<0.01	3.22			0.1	<0.001	3	0.21	<0.0001	144	55	255	0.005	0.0018	1710	0.006	<0.005	1242	11.8	7.87	11.91	<0.1	0.22	<0.001	30	0.18
Pond FD	24-Apr-07	292	<0.01	3.22			0.1	<0.001	4	0.21	<0.0001	142	53	258	0.006	0.0017	1710	0.006	<0.005	1242	11.8	7.87	11.91	<0.1	0.21	<0.001	29	0.18

nd - non detect

FD - field duplicate

TABLE 17: SURFACE WATER QUALITY - BIOSOLIDS PROGRAM - LIL, LILb AND ADDITIONAL PARAMETERS Waste Management Ottawa Landfill

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Name	Sample Date	Mercury mg/L	Molybdenum mg/L	Nickel mg/L	Nitrate mg/L	Nitrite mg/L	Phenol mg/L	Phosphorus (total) mg/L	Potassium mg/L	Selenium mg/L	Silver mg/L	Sodium mg/L	Sulphate mg/L	Thallium mg/L	Total Kjeldahl Nitrogen mg/L	Total Suspended Solids mg/L	Vanadium mg/L	Zinc mg/L
Pond	1-Aug-95				nd	nd				nd		101	47		1.07			
Pond FD	1-Aug-95				nd	nd				nd		100	47					
Pond	20-Oct-95				2.65	nd						78	86		3			
Pond	24-Jun-96				0.31	nd						117	54		1.73			
Pond	16-May-97				1.38	nd						132	70		5.78			
Pond	12-Nov-97				3.58	nd						130	132		7.12			
Pond	12-May-98				2	0.17						76	84		5.65			
Pond	12-May-99				4.29	1.87			13			133	108		6.57			
Pond	1-Jun-00				4.62	<0.1			13			155	112		5.9			
Pond FD	1-Jun-00				4.62	0.72			13			162	144		2.46			
Pond	11-May-01				<0.1	<0.1			12			157	92		14.2			
Pond	26-Jun-01	<0.0001	<0.01	<0.01	0.11	0.48	<0.001	0.06	12	<0.001	<0.01	177	170	<0.002	6.67	2	<0.001	<0.01
Pond	20-Sep-01	<0.0001	<0.01	<0.01	0.73	<0.1	<0.001	0.07	11	<0.001	<0.0001	214	119	<0.001	2.41	37	0.001	<0.01
Pond	19-Dec-01	<0.0001	<0.01	<0.01	2.22	<0.1	<0.001	0.07	11	<0.001	<0.0001	219	138	<0.001	3.52	17	0.001	0.16
Pond	9-Apr-02	<0.0001	<0.01	<0.01	2.52	0.12	0.001	0.13	2	<0.001	<0.0001	21	22	<0.001	4.43	8	<0.001	<0.01
Pond	15-May-02				11	<0.1			13			185	158		19.1			
Pond FD	15-May-02				12	1.03			14			188	172		15.4			
Pond	26-Jun-02	<0.0001	0.007	0.006	11	1.92	<0.001	0.06	12	<0.001	<0.005	166	324	<0.001	8.87	9	<0.001	0.005
Pond	9-Sep-02	<0.0001	0.005	0.008	2.73	<0.1	<0.001	0.02	14	0.001	<0.0001	197	145	<0.001	1.85	50	<0.001	<0.005
Pond	19-Dec-02	<0.0001	<0.005	<0.005	0.76	<0.1	<0.001	0.06	19	0.001	<0.0001	227	172	<0.001	3.14	38	<0.001	<0.005
Pond	22-May-03				5.65	0.17			11			167	158		4.62			
Pond FD	22-May-03				5.56	0.17			10			161	150		3.92			
Pond	30-Jun-03	<0.0001	<0.005	<0.005	3.33	<0.1	<0.001	0.04	10	<0.001	<0.0001	192	148	<0.001	3.12	12	<0.001	0.007
Pond	22-Sep-03	<0.0001	<0.005	<0.005	<0.1	<0.1	<0.001	0.16	16	<0.001	<0.0001	214	125	<0.001	3.28	24	<0.001	<0.005
Pond	29-Apr-04	<0.0001	<0.005	0.008	4.31	0.74	<0.001	0.09	12	0.001	<0.0001	126	132	<0.001	7.17	18	0.001	0.01
Pond	13-Sep-04		<0.005	0.006	0.15	<0.1	<0.001	0.16	12		<0.0001	165	85	<0.001	4.09	26	<0.001	<0.01
Pond	15-Apr-05		<0.005	0.006	3.99	0.55	<0.001	0.07	6	<0.001	<0.0001	100	75	<0.0001	5.33	11	<0.001	0.01
Pond	27-Apr-05				3.57	0.38			7			143	99		3.22			
Pond	27-Jul-05		<0.005	0.006	<0.1	<0.1	<0.001	0.02	8	<0.001	<0.0001	173	110	<0.0001	1.63	4	<0.001	<0.01
Pond FD	27-Jul-05		<0.005	0.006	<0.1	<0.1	<0.001	0.02	7	<0.001	<0.0001	169	98	<0.0001	1.56	11	<0.001	<0.01
Pond	25-Oct-05		<0.005	0.006	0.45	<0.1	<0.001	0.11	9	<0.001	<0.0001	224	107	<0.0001	2.24	31	0.001	<0.01
Pond FD	25-Oct-05		<0.005	0.007	0.48	<0.1	<0.001	0.11	9	<0.001	<0.0001	221	108	<0.0001	2.4	46	0.001	<0.01
Pond	26-Apr-06	<0.0001	<0.005	0.01	5.19	1.72	<0.001	0.09	9	<0.001	<0.0001	164	135	<0.0001	5.89	9	0.002	<0.01
Pond	18-Jul-06		<0.005	0.009	0.34	<0.1	<0.001	0.03	8	<0.001	<0.0001	188	131	<0.0001	1.75	11	<0.001	<0.01
Pond	30-Oct-06		<0.005	0.009	0.88	<0.1	<0.001	0.18	10	<0.001	<0.0001	195	107	<0.0001	3.08	64	<0.001	0.02
Pond	24-Apr-07		<0.005	0.013	4.77	<0.1	<0.001	0.13	12	0.001	<0.0001	173	149	<0.0001	10.3	9	0.002	<0.01
Pond FD	24-Apr-07		<0.005	0.013	5.14	<0.1	<0.001	0.12	12	0.002	<0.0001	169	154	<0.0001	10.3	13	0.002	<0.01

nd - non detect

FD - field duplicate

TABLE 17: SURFACE WATER QUALITY - BIOSOLIDS PROGRAM - LIL, LILb AND ADDITIONAL PARAMETERS Waste Management Ottawa Landfill

Name	Sample Date	Alkalinity mg/L	Aluminum mg/L	Ammonia mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Biochemical Oxygen Demand mg/L	Boron mg/L	Cadmium mg/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Chromium mg/L	Cobalt mg/L	Conductivity uS/cm	Copper mg/L	Cyanide mg/L	Field Conductivity uS/cm	Field Dissolved Oxygen mg/L	Field pH unitless	Field Temperature °C	Fluoride mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	
Pond	4-Jul-07	137	0.01	0.11			0.06	<0.001	3	0.20	<0.0001	71	57	301	0.003	0.0013	1530		<0.005	981		8.45	19.75	<0.1	0.13	<0.001	28	0.08	
Pond FD	4-Jul-07	135	<0.01	0.07			0.05	<0.001	3	0.2	<0.0001	75	59	299	0.003	0.0013	1530		<0.005	981		8.45	19.75	<0.1	0.12	<0.001	27	0.08	
Pond	5-Oct-07	213	<0.01	0.88			0.12	<0.001	24	0.24	<0.0001	84	70	315	0.003	0.0007	1670	<0.001	<0.005	1572	9.21	7.52	20.77	<0.1	0.36	<0.001	28	0.78	
S5	16-May-97			0.1			0.09			0.01	nd	127	24	442	nd		1620		nd			7.65	12.3	nd	1.09	0.009	17	0.31	
S5	12-May-99	328		0.03			0.12			0.02	nd	178	36	465	nd		1906		nd	1880	8.4	8.94	18.8	0.22	0.32	nd	19	0.13	
S5 FD	12-May-99	330		0.04			0.12			0.02	nd	171	33	434	nd		1964		nd				18.8	0.22	0.47	nd	29	0.13	
S5	6-Jan-00	284		0.15			0.11			0.05	<0.00015	156	76	386	<0.01		1760		<0.02	1820	8.22	7.82	20.7	0.16	1.85	0.005	30	0.19	
S5	11-May-01	240		1.47			0.05			0.06	0.0002	83	97	214	0.001		1160		<0.005	2500	8.8	7.4	24	0.15	0.74	<0.001	36	0.1	
S5	26-Sep-01	144	0.31	1.81	0.001	0.001	0.06	<0.002	23	0.13	<0.0001	249	168	84	<0.001	0.0028	1580	0.02	0.008				<0.1	0.51	0.002	45	0.07		
S5	19-Dec-01	266	0.13	5.44	<0.001	<0.001	0.09	<0.002	2	<0.05	<0.0001	186	34	560	0.003	0.0016	2370	0.005	<0.005	2610		6.89	0.3	0.42	0.75	<0.001	29	0.43	
S5	9-Apr-02	204	0.19	10.6	<0.001	0.001	0.05	<0.002	17	0.06	<0.0001	93	93	346	0.001	0.0015	1700	0.007	<0.005	1770		6.81	4.8	0.59	0.92	<0.001	19	0.18	
S5	15-May-02	241		12.7			0.07			<0.05	<0.005	152	84	338	0.003		2230		<0.005	2280	18	7.69	21.8	0.12	1.87	0.003	23	0.15	
S5	26-Jun-02	391	0.12	16.9	<0.001	0.002	0.12	<0.001	6	<0.02	<0.001	151	85	454	0.001	0.0028	2280	0.006	<0.005	1930		7.05	17.4	0.11	4.35	0.001	25	1.2	
S5	19-Dec-02	2120	0.25	603	0.002	0.01	0.1	<0.001	142	0.24	0.02	649	2350	227	0.005	0.03	8970	0.18	0.04	1930		8.68	0.2	0.28	3.76	0.01	238	0.61	
S5	22-May-03	349		0.13			0.07			<0.05	<0.0001	194	84	471	<0.005		2320		<0.005	2320	13.99	8.19	16.58	0.18	0.32	<0.001	36	0.03	
S5	29-Apr-04	281	0.03	2.15	<0.001	<0.001	0.1	<0.001	3	0.02	<0.0001	153	43	514	<0.005	0.0012	2330	0.005	<0.005	1917	10.24	7.92	12.29	0.16	0.82	<0.001	23	0.24	
S5	13-Sep-04	203	0.09	4.12			0.09	<0.001	5	0.17	<0.0001	229	148	312	0.003	0.0048	2140	0.026	0.005	2793	2.16	7.42	16.52	0.15	0.15	<0.001	35	0.08	
S5	15-Apr-05	265	0.02	3.37			0.09	<0.001	<1	0.03	<0.0001	172	48	506	0.004	0.0019	2370	0.011	<0.005	2164	13.2	7.23	15.46	0.17	0.66	0.001	25	0.15	
S5	27-Apr-05	277		2.25			0.09			0.06	<0.0001	151	54	419	0.001		2170		<0.005	1565	11.74	7.43	10.97	0.19	1.07	0.005	29	0.4	
S5	27-Jul-05	234	0.29	0.31			1.89	<0.001	45	0.72	<0.001	59	263	323	0.01	0.006	1440	0.023	0.016	1273	11.8	7.82	20.2	0.26	6.4	0.01	20	0.72	
S5	25-Oct-05	388	<0.01	7.61			0.11	<0.001	5	0.22	<0.0001	173	106	111	0.003	0.0031	1340	0.019	<0.005	1787	13.38	7.55	7.12	0.33	1.19	0.002	36	0.35	
S5	26-Apr-06	279	<0.01	2.63	<0.001	<0.001	0.09	<0.001		0.03	<0.0001	134	39	494	0.002	0.0015	2250	0.005	<0.005	1374	19.59	7.7	9.27	0.14	1.48	<0.001	20	0.26	
S5	31-May-06								3																				
S5	18-Jul-06	474	0.04	2.14			0.06	<0.001	10	0.28	<0.0001	132	103	282	0.003	0.0021	1760	0.002	<0.005	1761	3.15	7.82	24.23	0.19	1.05	0.002	35	0.68	
S5	30-Oct-06	211	<0.01	1.11			0.07	<0.001	3	0.04	<0.0001	122	52	311	0.001	0.0015	1740	0.008	<0.005	1119	14.09	7.21	3.97	<0.1	0.53	<0.001	19	0.14	
S5 FD	30-Oct-06	211	<0.01	1.34			0.07	<0.001	3	0.04	<0.0001	128	62	302	0.001	0.0014	1760	0.007	<0.005	1119	14.09	7.21	3.97	<0.1	0.43	<0.001	20	0.13	
S5	24-Apr-07	358	<0.01	1.89			0.1	<0.001	6	0.11	<0.0001	181	61	303	0.006	0.0029	2010	0.009	<0.005	1677	17.88	7.81	17.92	0.13	0.87	<0.001	30	0.58	
S8	26-Sep-01	174	0.18	4.49	0.002	0.002	0.08	<0.002	28	0.4	0.0002	255	168	103	<0.001	0.003	1710	0.03	0.006				0.1	0.32	0.002	42	0.06		
S8	19-Dec-01	346	0.22	29.1	<0.001	0.002	0.09	<0.002	3	0.24	0.0002	222	122	538	0.003	0.0034	2680	0.02	0.007	2820		7.12	0.1	0.46	0.81	0.003	45	0.39	
S8	9-Apr-02	238	0.24	16.8	<0.001	0.001	0.06	<0.002	15	0.47	<0.0001	127	113	252	0.002	0.0022	1640	0.01	<0.005	1820		6.83	6.5	0.62	0.86	0.003	23	0.27	
S8	26-Jun-02	351	0.23	14.6	<0.001	0.002	0.09	<0.001	12	0.03	<0.001	169	89	698	<0.001	0.003	2050	0.01	<0.005	1670		7.17	17.3	0.12	2.46	0.002	26	0.77	
S8	9-Sep-02	150	0.08	0.21	<0.001	0.002	0.04	<0.001	2	0.14	<0.0001	92	76	232	<0.005	0.0017	1340	0.009	<0.005	1040		7.32	23.1	0.15	0.35	0.002	23	0.03	
S8	19-Dec-02	219	0.06	5.14	<0.001	0.004	0.17	<0.001	22	0.17	0.001	151	115	291	0.009	0.0092	1880	0.089	<0.005	1710		8.7	0.4	0.56	11.4	0.05	36	0.58	
S8	30-Jun-03	111	0.01	0.34	0.001	0.001	0.03	<0.001	4	0.15	<0.0001	120	97	344	<0.005	0.0025	1850	0.01	0.005	1610		8.28	22.4	0.19	0.28	<0.001	31	0.08	
S8	22-Sep-03	137	0.12	0.72	<0.001	0.001	0.07	<0.001	20	0.3	<0.0001	86	71	278	<0.005	0.0014	1370	0.01	<0.005	1350		8.06	18.8	0.71	0.9	0.004	24	0.25	
S8	29-Apr-04	340	<0.01	1.65	<0.001	0.003	0.24	<0.001	8	0.16	0.0011	179	110	429	<0.005	0.0072	2190	0.064	<0.005	1818	1.38	7.22	10.26	0.16	10.2	0.017	30	1.7	
S8	13-Sep-04	149	0.03	1.45			0.06	<0.001	12	0.34	<0.0001	111	102	149	0.003	0.0021	1160	0.016	0.007	1887	4.33	7.42	15.94	0.17	0.05	<0.001	18	0.04	
S8	15-Apr-05	281	<0.01	4.12			0.09	<0.001	<1	0.08	<0.0001	161	57	327	0.004	0.0027	1870	0.013	0.005	2023	13.3	7.02	9.72	0.16	1.17	0.002	28	0.33	
S8	27-Jul-05	111	0.03	0.72			0.14	<0.001	11	0.2	<0.001	64	111	297	0.017	0.005	1480	0.037	<0.005	1350	6.25	7.54	21.85	0.13	10.4	0.02	23	0.41	
S8	25-Oct-05	461	0.02	7.06			0.12	<0.001	8	0.81	<0.001	170	139	216	<0.005	0.005	1690	0.021	0.006	1150	21.4	7.58	7.02	0.34	3.52	<0.01	41	0.6	

nd - non detect
FD - field duplicate

TABLE 17: SURFACE WATER QUALITY - BIOSOLIDS PROGRAM - LIL, LILb AND ADDITIONAL PARAMETERS Waste Management Ottawa Landfill

B2533Annual2007.xls

Name	Sample Date	Mercury mg/L	Molybdenum mg/L	Nickel mg/L	Nitrate mg/L	Nitrite mg/L	Phenol mg/L	Phosphorus (total) mg/L	Potassium mg/L	Selenium mg/L	Silver mg/L	Sodium mg/L	Sulphate mg/L	Thallium mg/L	Total Kjeldahl Nitrogen mg/L	Total Suspended Solids mg/L	Vanadium mg/L	Zinc mg/L
Pond	4-Jul-07		<0.005	0.011	1.42	<0.1	<0.001	0.07	11	0.001	<0.0001	184	143		2.3	8	0.001	<0.01
Pond FD	4-Jul-07		<0.005	0.011	1.5	<0.1	<0.001	0.07	11	0.001	<0.0001	193	141		2.4	7	0.001	<0.01
Pond	5-Oct-07		<0.005	0.009	0.15	<0.1	<0.001	0.09	11	<0.001	<0.0001	186	127		3.2	25	0.002	<0.01
S5	16-May-97				nd	nd						219	25		0.59			
S5	12-May-99				nd	nd			2			214	64		0.87			
S5 FD	12-May-99				nd	nd			3			210	56		0.8			
S5	6-Jan-00				3.16	<0.1			4			198	62		2.98			
S5	11-May-01				0.4	<0.1			7			99	45		5.76			
S5	26-Sep-01	<0.0001	0.02	<0.01	60.6	0.28	0.001	0.47	14	<0.001	<0.0001	43	416	<0.001	7.69	44	0.002	0.01
S5	19-Dec-01	<0.0001	<0.01	<0.01	7.03	<0.1	<0.001	0.11	6	<0.001	<0.0001	305	151	<0.001	10.7	15	0.001	<0.01
S5	9-Apr-02	<0.0001	<0.01	<0.01	3.52	0.65	0.026	0.39	7	<0.001	<0.0001	210	92	<0.001	15.4	26	0.001	<0.01
S5	15-May-02				19.1	1.58			17			217	178		18.8			
S5	26-Jun-02	<0.0001	<0.005	<0.005	3.63	0.25	0.002	0.5	10	<0.001	<0.005	248	116	<0.001	22.5	26	0.001	<0.005
S5	19-Dec-02	0.0002	0.1	0.2	314	0.38	0.008	3.89	152	0.006	0.0046	141	1800	<0.001	676	448	0.01	0.06
S5	22-May-03				8.75	<0.1			5			275	147		3.33			
S5	29-Apr-04	<0.0001	<0.005	0.007	3.4	0.71	<0.001	0.12	5	<0.001	0.0002	317	80	<0.001	5.19	8	0.002	<0.01
S5	13-Sep-04		0.014	0.019	62	1.89	<0.001	0.48	13		0.0003	175	260	<0.001	11.9	81	0.004	0.02
S5	15-Apr-05		<0.005	0.011	10.6	0.34	<0.001	0.16	6	<0.001	0.0001	265	138	<0.0001	6.42	39	0.002	<0.01
S5	27-Apr-05				8.87	0.36			6			232	121		5.66			
S5	27-Jul-05		0.009	0.032	<0.1	<0.1	<0.001	2.4	14	<0.05	<0.01	190	38	<0.01	14.1	855	0.011	0.13
S5	25-Oct-05		0.008	0.015	5.75	<0.1	<0.001	0.24	14	0.001	0.0004	66	236	<0.0001	13.4	28	0.002	<0.01
S5	26-Apr-06	<0.0001	<0.005	0.008	5.77	0.58	<0.001	0.1	4	<0.001	<0.0001	262	99	<0.0001	5.16		<0.001	<0.01
S5	31-May-06														8			
S5	18-Jul-06		<0.005	0.014	0.11	0.13	<0.001	0.38	11	<0.001	<0.0001	176	8	<0.0001	5.46	708	0.004	0.01
S5	30-Oct-06		<0.005	0.007	14.5	<0.1	<0.001	0.14	4	<0.001	0.0001	187	105	<0.0001	3.02	10	0.001	<0.01
S5 FD	30-Oct-06		<0.005	0.007	15.4	<0.1	<0.001		4	<0.001	<0.0001	192	103	<0.0001		14	0.001	<0.01
S5	24-Apr-07		0.006	0.01	8.42	0.63	<0.001	0.1	8	0.002	<0.0001	196	146	<0.0001	8.62	3	0.002	<0.01
S8	26-Sep-01	<0.0001	0.02	<0.01	98.8	0.31	<0.001	0.47	24	0.001	<0.0001	56	451	<0.001	12.6	37	0.002	0.01
S8	19-Dec-01	<0.0001	<0.01	<0.01	38.9	0.42	<0.001	0.19	20	0.001	0.0001	264	232	<0.001	29.6	13	0.002	0.02
S8	9-Apr-02	<0.0001	<0.01	<0.01	8.71	1.06	0.01	0.4	12	<0.001	<0.0001	152	144	<0.001	21.5	42	0.001	<0.01
S8	26-Jun-02	<0.0001	0.006	<0.005	7.78	0.71	0.001	0.62	12	0.001	<0.005	201	294	<0.001	24.2	48	0.002	0.03
S8	9-Sep-02	<0.0001	0.008	0.005	0.93	<0.1	<0.001	0.05	17	0.001	<0.0001	146	141	<0.001	3.66	19	0.003	0.07
S8	19-Dec-02	<0.0001	<0.005	0.01	12.8	<0.1	<0.001	5.14	26	0.002	0.0002	166	284	<0.001	11.7	1290	0.01	0.9
S8	30-Jun-03	<0.0001	0.008	0.006	13.3	<0.1	<0.001	0.16	13	0.001	<0.0001	217	193	<0.001	5.14	17	0.001	0.14
S8	22-Sep-03	<0.0001	<0.005	<0.005	<0.1	<0.1	<0.001	0.62	18	<0.001	<0.0001	181	142	<0.001	9.52	220	0.002	0.59
S8	29-Apr-04	<0.0001	<0.005	0.022	0.87	0.63	<0.001	1.44	11	<0.001	0.0003	244	160	<0.001	13.2	185	0.011	2.15
S8	13-Sep-04		0.007	0.01	21.4	4.23	<0.001	0.6	13		0.0001	88	144	<0.001	6.88	140	0.002	0.08
S8	15-Apr-05		0.005	0.013	7.86	1	<0.001	0.22	9	<0.001	0.0001	164	171	<0.0001	8.1	77	0.002	0.16
S8	27-Jul-05		<0.005	0.017	<0.1	<0.1	0.013	1.86	9	<0.05	<0.01	170	136	<0.01	6.47	1070	0.013	0.31
S8	25-Oct-05		0.01	0.024	3.41	<0.1	<0.001	0.59	34	<0.05	<0.01	146	211	<0.01	16.6	109	<0.005	0.18

nd - non detect

FD - field duplicate

TABLE 17: SURFACE WATER QUALITY - BIOSOLIDS PROGRAM - LIL, LILb AND ADDITIONAL PARAMETERS Waste Management Ottawa Landfill

Name	Sample Date	Alkalinity mg/L	Aluminium mg/L	Ammonia mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Biochemical Oxygen Demand mg/L	Boron mg/L	Cadmium mg/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Chromium mg/L	Cobalt mg/L	Conductivity uS/cm	Copper mg/L	Cyanide mg/L	Field Conductivity uS/cm	Field Dissolved Oxygen mg/L	Field pH unitless	Field Temperature °C	Fluoride mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L
S8	26-Apr-06	324	<0.01	2.76	<0.001	0.001	0.1	<0.001	2	0.14	<0.0001	161	52	420	0.007	0.0019	2260	0.009	<0.005	1376	19.06	7.49	8.41	0.16	2.22	0.002	25	0.32
S8	18-Jul-06	152	<0.01	1.13			0.11	<0.001	10	0.57	<0.0001	69	53	276	0.002	0.0038	1470	0.008	<0.005	1400	0.22	7.29	22.75	0.11	3.38	0.003	24	1.62
S8	30-Oct-06	301	<0.01	3.19			0.11	<0.001	48	0.21	<0.0001	162	80	262	0.002	0.0033	1880	0.014	<0.005	1225	14.51	7.32	4.06	<0.1	2.57	0.003	27	0.67
S8	24-Apr-07	477	<0.01	9.41			0.15	<0.001	7	0.28	<0.0001	248	87	246	0.006	0.0048	2220	0.012	<0.005	1722	13.65	7.13	14.61	0.11	5.91	0.001	43	1.33
S8	4-Jul-07	552	0.02	17.20			0.22	<0.001	8	0.16	<0.0001	220	94	216	0.007	0.0037	2070		<0.005	391		6.7	18.2	<0.1	11.30	0.002	41	1.90
S17 FD	13-Sep-04	108	<0.01	0.31			0.05	<0.001	8	0.17	<0.0001	64	55	324	0.001	0.0006	1290	0.003	<0.005					0.16	0.04	<0.001	21	0.1
S17 FD	15-Apr-05	242	<0.01	2.68			0.07	<0.001	11	0.11	<0.0001	132	62	241	0.003	0.0023	1530	0.009	0.006					0.16	0.32	<0.001	24	0.18
S17 FD	18-Jul-06	98	1.33	0.05			0.07	<0.001	3	0.36	<0.0001	59	67	322	0.002	0.0018	1590	0.004	<0.005					<0.1	0.27	<0.001	29	0.12
S17	19-Dec-01	236	0.16	15.8	<0.001	0.002	0.08	<0.002	4	0.89	<0.0001	165	109	239	0.002	0.0029	1850	0.02	<0.005	2000		7.56	0.9	0.45	0.29	<0.001	36	0.15
S17	9-Apr-02	77	0.1	6.75	<0.001	<0.001	0.02	<0.002	<1	0.11	<0.0001	41	25	71	<0.001	0.0008	539	0.004	<0.005	510		6.74	3	0.64	0.18	<0.001	7	0.09
S17	26-Jun-02	223	0.08	11.9	<0.001	<0.001	0.07	<0.001	8	0.17	<0.001	142	91	248	<0.001	0.0029	1580	0.01	<0.005	1220		7.31	22.8	0.15	0.35	<0.001	24	0.18
S17	9-Sep-02	93	0.08	0.06	<0.001	0.002	0.05	<0.001	2	0.15	<0.0001	76	81	234	<0.005	0.0024	1290	0.01	<0.005	1050		9.74	26.4	0.18	0.17	<0.001	22	0.01
S17	19-Dec-02	138	0.21	0.97	<0.001	0.001	0.06	<0.001	3	0.14	<0.0001	98	81	267	<0.005	0.0021	1470	0.008	<0.005	1348		9.47	0.9	0.6	0.42	<0.001	30	0.09
S17	30-Jun-03	71	0.06	0.11	<0.001	0.001	0.04	<0.001	8	0.16	<0.0001	94	93	328	<0.005	0.0031	1720	0.01	<0.005	1600		9.61	24.8	0.18	1.01	0.001	30	0.04
S17	22-Sep-03	97	0.02	0.11	<0.001	<0.001	0.05	<0.001	1	0.22	<0.0001	77	78	331	<0.005	0.0012	1540	0.003	<0.005	1500		8.39	19	0.16	0.11	<0.001	28	0.04
S17	29-Apr-04	256	<0.01	2.64	<0.001	<0.001	0.07	<0.001	6	0.1	<0.0001	146	61	298	<0.005	0.002	1680	0.006	<0.005		10.9	8.16	11.68	0.15	0.38	<0.001	27	0.08
S17	13-Sep-04	110	<0.01	0.32			0.05	<0.001	5	0.16	<0.0001	64	56	292	0.001	0.0006	1290	0.003	<0.005	1314	4.64	8.1	18.76	0.17	0.04	<0.001	21	0.11
S17	15-Apr-05	243	<0.01	2.62			0.07	<0.001	10	0.11	<0.0001	130	55	253	0.003	0.0024	1530	0.009	0.006	1367	17.62	8.21	10.7	0.16	0.35	0.001	23	0.2
S17	27-Jul-05	79	0.01	0.04			0.06	<0.001	<1	0.16	<0.0001	59	65	363	0.002	0.0007	1540	<0.001	<0.005	1564	6.25	8.06	23.37	0.1	0.08	<0.001	27	0.08
S17	25-Oct-05	131	<0.01	0.16			0.16	<0.001	10	0.19	<0.001	83	57	294	<0.005	<0.005	1430	0.008	<0.005	1015	14.39	7.86	7.32	0.24	0.92	<0.01	25	0.09
S17	26-Apr-06	270	<0.01	0.73	<0.001	<0.001	0.08	<0.001	2	0.14	<0.0001	150	33	123	0.005	0.0015	1830	0.005	<0.005	1152	14.55	7.91	9.86	0.13	0.16	<0.001	26	0.06
S17	18-Jul-06	96	<0.01	0.05			0.07	<0.001	3	0.28	<0.0001	59	60	314	0.002	0.0018	1590	0.004	<0.005	1654	4.32	7.88	26.37	<0.1	0.3	<0.001	29	0.11
S17	30-Oct-06	245	<0.01	1.67			0.09	<0.001	4	0.4	<0.0001	107	69	272	0.002	0.0017	1680	0.005	<0.005	1094	12.84	7.78	5.06	0.1	0.25	<0.001	29	0.06
S17	24-Apr-07	283	<0.01	4.26			0.08	<0.001	2	0.2	<0.0001	153	54	244	0.003	0.002	1720	0.014	<0.005	1304	6.9	7.4	14.57	<0.1	0.17	<0.001	28	0.04
S17	4-Jul-07	58	0.01	0.10			0.03	<0.001	2	0.13	<0.0001	47	54	291	0.001	0.0019	1430		<0.005	1141		9.31	19.88	<0.1	0.09	<0.001	28	0.05
S17	5-Oct-07	95	0.01	0.10			0.07	<0.001	32	0.31	<0.0001	44	92	254	0.002	0.0009	1330	<0.001	<0.005	1235	10.59	7.32	20.61	0.11	0.70	<0.001	30	0.52

nd - non detect
FD - field duplicate

TABLE 17: SURFACE WATER QUALITY - BIOSOLIDS PROGRAM - LIL, LILb AND ADDITIONAL PARAMETERS Waste Management Ottawa Landfill

B2533Annual2007.xls

Name	Sample Date	Mercury mg/L	Molybdenum mg/L	Nickel mg/L	Nitrate mg/L	Nitrite mg/L	Phenol mg/L	Phosphorus (total) mg/L	Potassium mg/L	Selenium mg/L	Silver mg/L	Sodium mg/L	Sulphate mg/L	Thallium mg/L	Total Kjeldahl Nitrogen mg/L	Total Suspended Solids mg/L	Vanadium mg/L	Zinc mg/L
S8	26-Apr-06	<0.0001	<0.005	0.011	6.04	0.52	<0.001	0.14	8	<0.001	<0.0001	260	131	<0.0001	5.89	72	0.002	<0.01
S8	18-Jul-06		<0.005	0.011	0.13	<0.1	<0.001	0.39	11	<0.001	<0.0001	183	104	<0.0001	3.94	126	0.002	0.26
S8	30-Oct-06		<0.005	0.012	18.9	0.22	<0.001	0.9	9	<0.001	0.0002	162	160	0.0001	13.5	136	0.002	0.04
S8	24-Apr-07		0.009	0.02	11.3	<0.1	<0.001	0.23	17	0.003	<0.0001	161	280	0.0001	16.2	86	0.005	<0.01
S8	4-Jul-07		<0.005	0.013	0.9	<0.1	0.001	0.44	14	0.002	<0.0001	113	204		22.0	59	0.006	0.05
S17 FD	13-Sep-04		<0.005	0.007	1.35	0.5	<0.001	0.09	13		<0.0001	155	96	<0.001	3.05	2	<0.001	<0.01
S17 FD	15-Apr-05		<0.005	0.011	5.77	1.26	<0.001	0.14	10	<0.001	0.0001	129	147	<0.0001	7.73	13	0.001	0.02
S17 FD	18-Jul-06		<0.005	0.012	<0.1	<0.1	<0.001	0.08	13	<0.001	<0.0001	202	142	<0.0001	3.3	134	0.001	<0.01
S17	19-Dec-01	<0.0001	0.01	<0.01	28.9	0.23	<0.001	0.2	22	0.001	<0.0001	149	244	<0.001	18	11	0.002	0.03
S17	9-Apr-02	<0.0001	<0.01	<0.01	5.53	0.41	0.002	0.09	4	<0.001	<0.0001	39	50	<0.001	8.34	15	<0.001	0.01
S17	26-Jun-02	<0.0001	0.01	0.005	14.9	1	<0.001	0.24	14	<0.001	<0.005	134	178	<0.001	15.5	5	0.001	0.02
S17	9-Sep-02	<0.0001	0.01	0.007	0.99	<0.1	<0.001	0.15	15	0.001	<0.0001	149	159	<0.001	1.81	25	0.003	<0.005
S17	19-Dec-02	<0.0001	0.01	0.007	1.61	<0.1	<0.001	0.15	25	0.002	0.0001	159	211	<0.001	6.52	12	0.002	<0.005
S17	30-Jun-03	<0.0001	0.007	0.007	10.4	<0.1	<0.001	0.4	14	0.001	0.0003	205	209	<0.001	5.73	87	0.002	0.007
S17	22-Sep-03	<0.0001	0.008	<0.005	<0.1	<0.1	<0.001	0.1	18	<0.001	<0.0001	195	176	<0.001	4.95	2	<0.001	<0.005
S17	29-Apr-04	<0.0001	0.007	0.011	2.59	0.51	<0.001	0.11	13	<0.001	0.0001	175	158	<0.001	13.4	29	<0.001	<0.01
S17	13-Sep-04		<0.005	0.006	1.32	0.51	<0.001	0.1	13		<0.0001	157	97	<0.001	4.16	8	<0.001	<0.01
S17	15-Apr-05		<0.005	0.012	5.7	1.32	<0.001	0.13	9	<0.001	0.0001	130	145	<0.0001	7.3	37	0.001	0.03
S17	27-Jul-05		<0.005	0.009	<0.1	<0.1	<0.001	0.07	9	0.001	<0.0001	205	133	<0.0001	2.49	4	<0.001	<0.01
S17	25-Oct-05		0.005	0.007	<0.1	<0.1	<0.001	0.22	11	<0.05	<0.01	178	133	<0.01	2.01	93	<0.005	0.11
S17	26-Apr-06	<0.0001	<0.005	0.011	6.68	0.36	<0.001	0.07	9	<0.001	<0.0001	177	162	<0.0001	4.19	21	0.002	<0.01
S17	18-Jul-06		<0.005	0.012	<0.1	<0.1	<0.001	0.22	13	<0.001	<0.0001	203	139	<0.0001	2.5	118	<0.001	<0.01
S17	30-Oct-06		<0.005	0.015	4.57	0.14	<0.001	0.1	18	0.001	<0.0001	173	144	<0.0001	4.48	10	<0.001	0.02
S17	24-Apr-07		0.007	0.014	10.3	<0.1	<0.001	0.05	12	0.002	<0.0001	159	185	0.0002	11.3	10	0.001	<0.01
S17	4-Jul-07		0.01	0.011	<0.1	<0.1	<0.001	0.04	10	0.002	<0.0001	185	152		2.1	3	<0.001	<0.01
S17	5-Oct-07		<0.005	0.01	<0.1	<0.1	<0.001	0.1	15	0.002	<0.0001	154	138		3.3	46	0.001	<0.01

nd - non detect

FD - field duplicate

TABLE 15: SURFACE WATER QUALITY - LIL, LIL_b
Waste Management Ottawa Landfill

B2533Annual2007.xls

Name	Sample Date	Alkalinity mg/L CaCO ₃	Ammonia mg/L	Barium mg/L	Boron mg/L	Cadmium mg/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Chromium mg/L	Conductivity uS/cm	Cyanide mg/L	Fluoride mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nitrate mg/L	Nitrite mg/L	Potassium mg/L	Sodium mg/L	Sulphate mg/L	Total Kjeldahl Nitrogen mg/L
S5	19-Dec-02	2120	603	0.1	0.24	0.02	649	2350	227	0.005	8970	0.04	0.28	3.76	0.01	238	0.61	314	0.38	152	141	1800	676
S5	22-May-03	349	0.13	0.07	<0.05	<0.0001	194	84	471	<0.005	2320	<0.005	0.18	0.32	<0.001	36	0.03	8.75	<0.1	5	275	147	3.33
S5	29-Apr-04	281	2.15	0.1	0.02	<0.0001	153	43	514	<0.005	2330	<0.005	0.16	0.82	<0.001	23	0.24	3.4	0.71	5	317	80	5.19
S5	13-Sep-04	203	4.12	0.09	0.17	<0.0001	229	148	312	0.003	2140	0.005	0.15	0.15	<0.001	35	0.08	62	1.89	13	175	260	11.9
S5	15-Apr-05	265	3.37	0.09	0.03	<0.0001	172	48	506	0.004	2370	<0.005	0.17	0.66	0.001	25	0.15	10.6	0.34	6	265	138	6.42
S5	27-Apr-05	277	2.25	0.09	0.06	<0.0001	151	54	419	0.001	2170	<0.005	0.19	1.07	0.005	29	0.4	8.87	0.36	6	232	121	5.66
S5	27-Jul-05	234	0.31	1.89	0.72	<0.001	59	263	323	0.01	1440	0.016	0.26	6.4	0.01	20	0.72	<0.1	<0.1	14	190	38	14.1
S5	25-Oct-05	388	7.61	0.11	0.22	<0.0001	173	106	111	0.003	1340	<0.005	0.33	1.19	0.002	36	0.35	5.75	<0.1	14	66	236	13.4
S5	26-Apr-06	279	2.63	0.09	0.03	<0.0001	134	39	494	0.002	2250	<0.005	0.14	1.48	<0.001	20	0.26	5.77	0.58	4	262	99	5.16
S5	18-Jul-06	474	2.14	0.06	0.28	<0.0001	132	103	282	0.003	1760	<0.005	0.19	1.05	0.002	35	0.68	0.11	0.13	11	176	8	5.46
S5	30-Oct-06	211	1.11	0.07	0.04	<0.0001	122	52	311	0.001	1740	<0.005	<0.1	0.53	<0.001	19	0.14	14.5	<0.1	4	187	105	3.02
S5 FD	30-Oct-06	211	1.34	0.07	0.04	<0.0001	128	62	302	0.001	1760	<0.005	<0.1	0.43	<0.001	20	0.13	15.4	<0.1	4	192	103	
S5	24-Apr-07	358	1.89	0.1	0.11	<0.0001	181	61	303	0.006	2010	<0.005	0.13	0.87	<0.001	30	0.58	8.42	0.63	8	196	146	8.62
S6	16-May-97		0.07	0.03	0.11	nd	72	130	46	nd	628	nd	0.11	1.47	nd	18	0.3	nd	nd		35	75	4.73
S6	12-May-98		0.05	nd	0.03	nd	78	63	29	nd	651	nd	0.2	0.35	nd	24	nd	nd	nd		5	174	1.65
S6	12-May-99	97	0.19	0.02	0.04	nd	67	64	19	nd	505	nd	0.27	0.11	nd	20	nd	0.65	0.16	12	13	139	1.97
S6	6-Jan-00	106	0.05	0.02	0.19	<0.00015	63	83	32	<0.01	576	<0.02	0.19	0.19	<0.001	23	0.04	<0.1	<0.1	17	23	143	1.79
S6	11-May-01	112	0.04	0.03	0.12	0.0002	50	59	25	0.001	501	<0.005	0.17	0.1	<0.001	18	0.01	<0.1	<0.1	12	18	116	1.67
S6	15-May-02	181	0.57	0.02	0.24	<0.005	78	79	27	0.002	701	<0.005	0.72	0.16	<0.001	21	0.01	0.82	<0.1	9	25	129	2.9
S6	22-May-03	169	0.21	0.03	0.14	<0.0001	54	91	58	<0.005	668	<0.005	0.77	0.51	<0.001	24	0.06	0.18	<0.1	17	42	83	4.34
S6	6-May-04	156	0.11	0.04	0.09	<0.0001	45	39	33	0.001	470	<0.005	0.14	0.09	<0.001	15	0.03	0.23	<0.1	8	26	29	1.62
S6	27-Apr-05	227	0.12	0.03	0.11	<0.0001	69	72	52	<0.001	657	<0.005	0.18	0.23	<0.001	20	0.03	0.47	0.11	10	40	30	2.38
S6	26-Apr-06	225	0.43	0.03	0.2	<0.0001	56	50	65	0.003	695	<0.005	0.14	0.19	<0.001	16	0.04	1.48	0.11	11	48	32	3.25
S6	24-Apr-07	297	20.8	0.05	0.54	<0.0001	48	142	159	0.006	1290	<0.005	0.1	0.68	<0.001	26	0.07	0.63	<0.1	34	130	81	27.9
S10	11-May-01	428	1.03	0.37	0.18	0.0002	201	41	670	0.001	2880	<0.005	0.16	0.51	<0.001	36	0.83	2.53	<0.1	14	349	136	1.78
S10	13-Nov-01	268	5.05	0.16	0.3	<0.0001	203	35	571	<0.001	2580	<0.005	0.45	0.08	<0.001	45	0.2	4.2	<0.1	24	279	279	5.28
S10	15-May-02	224	0.7	0.11	0.07	<0.0001	108	34	391	<0.001	1880	<0.005	0.59	0.3	<0.001	14	0.07	0.84	<0.1	5	260	105	1.68
S10	12-Nov-02	402	1.34	0.26	0.12	<0.0001	223	29	766	<0.005	3390	<0.005	0.13	0.36	<0.001	30	0.54	0.64	<0.1	26	456	166	2.3
S10	22-May-03	348	0.12	0.24	0.16	<0.0001	233	32	722	<0.005	3060	<0.005	0.2	0.34	<0.001	37	0.36	2.17	<0.1	16	439	188	0.87
S10	15-Aug-03		0.07																				
S10	5-Nov-03	268	1.02	0.21	0.21	<0.0001	173	36	545	0.005	2640	<0.005	0.44	1.06	<0.001	31	0.49	1.38	<0.1	22	369	247	1.74
S10	22-Dec-03		2.87																				
S10	30-Apr-04	269	0.21	0.16	0.12	<0.0001	138	17	440	0.004	2170	<0.005	0.27	0.2	<0.001	21	0.16	1.06	<0.1	8	292	115	0.82
S10	8-Sep-04		0.06																				

nd - non detect
FD - field duplicate

TABLE 15: SURFACE WATER QUALITY - LIL, LIL_b
Waste Management Ottawa Landfill

B2533Annual2007.xls

Name	Sample Date	Alkalinity mg/L CaCO ₃	Ammonia mg/L	Barium mg/L	Boron mg/L	Cadmium mg/L	Calcium mg/L	Chemical Oxygen Demand mg/L	Chloride mg/L	Chromium mg/L	Conductivity uS/cm	Cyanide mg/L	Fluoride mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nitrate mg/L	Nitrite mg/L	Potassium mg/L	Sodium mg/L	Sulphate mg/L	Total Kjeldahl Nitrogen mg/L
S10	5-Nov-04	263	0.61	0.15	0.21	<0.0001	137	27	552	0.002	2520	<0.005	0.32	0.32	<0.001	29	0.2	1.28	<0.1	12	327	198	1.24
S10	27-Apr-05	224	0.26	0.11	0.15	<0.0001	223	18	432	<0.001	2070	<0.005	0.33	0.2	<0.001	24	0.08	0.97	<0.1	6	251	132	0.94
S10	24-Aug-05		0.08																				
S10	28-Nov-05	331	1.44	0.17	0.21	<0.001	187	31	704	<0.005	3050	<0.005	0.26	1.14	<0.01	34	0.46	2.98	<0.1	13	388	208	2.42
S10	26-Apr-06	265	0.35	0.17	0.47	<0.0001	149	19	609	0.007	2750	<0.005	0.41	0.17	<0.001	30	0.14	2.48	<0.1	10	349	181	0.63
S10	29-Aug-06		0.2																				
S10	7-Nov-06	362	0.04	0.18	0.27	<0.0001	189	27	638	0.005	3070	<0.005	0.3	0.6	<0.001	34	0.35	1.65	<0.1	13	484	188	0.73
S10	24-Apr-07	292	0.23	0.17	0.29	0.0018	144	20	500	0.009	2440	<0.005	0.35	0.17	0.002	30	0.21	1.36	<0.1	10	292	169	0.77
S10	16-Aug-07		0.08																				
S10	27-Nov-07	368	0.35	0.26	0.12	<0.0001	170	23	778	<0.001	3320	0.005	0.16	0.61	<0.001	25	0.51	0.62	<0.1	7	438	123	1.12
S11	6-Dec-01	214	7.17	0.1	0.3	<0.005	188	16	358	<0.01	2010	<0.005	0.82	0.11	<0.001	40	0.14	3.44	<0.1	24	186	303	7.17
S11	23-May-03	148	2.41	0.09	0.25	<0.0001	123	14	386	<0.005	1960	<0.005	0.49	0.12	<0.001	35	0.04	1.44	<0.1	21	223	237	3.29
S11	5-Nov-03	159	1.84	0.09	0.37	<0.0001	145	14	358	0.003	2130	<0.005	0.82	0.13	<0.001	40	0.05	1.56	<0.1	30	252	371	2.23
S11	30-Apr-04	204	1.35	0.1	0.24	<0.0001	128	15	324	0.001	1850	<0.005	0.52	0.08	<0.001	33	0.06	1.5	<0.1	17	223	206	1.97
S11	5-Nov-04	165	1.35	0.08	0.35	<0.0001	118	12	332	0.002	1970	<0.005	0.53	0.21	<0.001	35	0.05	1.93	<0.1	18	261	299	2.17
S11	27-Apr-05	185	1.12	0.07	0.25	<0.0001	250	14	280	<0.001	1890	<0.005	0.65	0.08	<0.001	41	0.03	2.5	<0.1	12	209	315	1.61
S11	28-Nov-05	272	2.36	0.15	0.45	<0.0001	214	22	417	0.004	2500	<0.005	0.58	0.9	<0.001	46	0.56	2.89	<0.1	17	269	442	2.76
S11	26-Apr-06	166	1.79	0.09	0.42	<0.0001	129	11	420	0.003	2270	<0.005	0.86	0.14	<0.001	41	0.03	3	<0.25	17	241	313	1.96
S11 FD	26-Apr-06	166	1.53	0.09	0.44	<0.0001	132	10	418	0.007	2260	<0.005	0.86	0.13	<0.001	42	0.03	3.01	0.59	17	246	312	1.81
S11	7-Nov-06	172	1.5	0.06	0.44	<0.0001	127	10	370	<0.005	2210	<0.005	0.67	1.52	0.005	38	0.29	1.95	<0.1	19	329	331	1.85
S11	24-Apr-07	183	1.06	0.08	0.4	<0.0001	103	15	319	0.003	1860	<0.005	0.6	<0.03	<0.001	34	<0.01	0.96	<0.1	14	224	239	1.55
S11	29-Nov-07	181	1.44	0.06	0.47	<0.0001	132	7	340	0.001	2180	<0.005	0.71	0.03	<0.001	38	0.05	1.98	<0.1	17	260	334	1.9
S12	6-Dec-01	181	5.85	0.08	0.26	<0.005	169	13	302	<0.01	1790	<0.005	0.76	0.15	<0.001	40	0.08	3.14	<0.1	21	154	272	5.85
S12	22-May-03	158	1.97	0.09	0.39	<0.0001	111	10	430	<0.005	2260	<0.005	0.87	0.12	<0.001	38	0.01	3	0.25	28	292	272	2.72
S12	5-Nov-03	180	3.31	0.1	0.37	<0.0001	138	14	385	0.004	2150	<0.005	0.68	0.08	<0.001	39	0.04	2.59	0.14	31	262	351	3.37
S12	30-Apr-04	183	2.07	0.07	0.28	<0.0001	117	15	361	<0.005	1980	<0.005	0.68	0.13	<0.001	37	0.03	1.84	0.34	18	249	232	2.69
S12	5-Nov-04	168	1.79	0.13	0.39	<0.0001	113	13	346	0.006	2010	<0.005	0.58	1.75	0.006	35	0.28	2.39	<0.1	18	263	312	2.88
S12	27-Apr-05	187	1.52	0.07	0.27	<0.0001	150	5	285	<0.001	1880	<0.005	0.64	0.19	<0.001	44	0.04	3.16	<0.1	13	216	324	1.94
S12 FD	27-Apr-05	187	1.11	0.07	0.26	<0.0001	149	11	280	<0.001	1870	<0.005	0.64	0.21	<0.001	44	0.04	3.13	<0.1	12	212	322	2.05
S12	28-Nov-05	198	0.13	0.05	0.57	<0.0001	258	<5	315	0.002	2520	<0.005	1.21	0.04	<0.001	68	0.01	9.2	<0.1	17	232	702	0.31
S12	26-Apr-06	167	1.85	0.1	0.42	<0.0001	126	8	436	<0.005	2270	<0.005	0.82	1.27	0.002	40	0.17	2.87	<0.25	17	245	310	2.02
S12	7-Nov-06	173	1.42	0.03	0.41	<0.0001	121	14	364	0.01	2210	<0.005	0.63	<0.03	<0.001	39	<0.01	1.96	<0.1	20	315	351	1.96
S12	24-Apr-07	192	1.23	0.08	0.4	<0.0001	105	15	323	0.005	1880	<0.005	0.61	0.33	0.001	35	0.04	1.07	<0.1	15	227	235	1.8
S12	29-Nov-07	221	1.24	0.06	0.51	<0.0001	173	<5	325	0.003	2320	<0.005	1.00	0.06	<0.001	47	0.08	2.03	<0.1	18	261	415	1.67

nd - non detect

FD - field duplicate