

APPENDIX B

Field Parameters and Groundwater Depth Data

Summary of GW Field Parameters - February 2007

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH
MW-01	07-Feb-07	3	140	6.12
MW-02	07-Feb-07	2	374	5.60
MW-03	06-Feb-07	2.4	3	6.70
MW-04	06-Feb-07	0.1	490	6.80
MW-05	06-Feb-07	2.9	163	6.04
MW-06	06-Feb-07	0.3	1100	5.40
MW-07	07-Feb-07	1	139	5.40

Summary of GW Field Parameters - November 2007

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH
MW-01	15-Nov-07	9.1	31	6.31
MW-02	15-Nov-07	9.3	37	6.74
MW-03	15-Nov-07	8.7	781	6.77
MW-04	15-Nov-07	9.1	754	6.89
MW-05	15-Nov-07	8.9	49	6.56
MW-06	15-Nov-07	8.8	457	6.37
MW-07	15-Nov-07	8.3	58	5.18

Summary of GW Field Parameters - May 2008

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH
MW-01	29-May-08	11	37	5.74
MW-02	29-May-08	11.1	46	6.81
MW-03	29-May-08	9.4	171	5.75
MW-04	29-May-08	13.4	452	6.57
MW-05	29-May-08	13.1	26	5.36
MW-06	29-May-08	12.9	338	6.00
MW-07	29-May-08	12.1	25	5.11

Summary of GW Field Parameters - January 2009

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH
MW-01	07-Jan-09	2.7	81	6.59
MW-03	07-Jan-09	3.9	1140	6.48
MW-04	07-Jan-09	3.4	2070	6.65
MW-05	07-Jan-09	1.3	45	6.09
MW-06	07-Jan-09	0.9	130	6.42
MW-07	07-Jan-09	2.2	59	4.98

Summary of GW Field Parameters - March 2009

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH
MW-01	23-Mar-09	3.5	40	6.15
MW-03	23-Mar-09	4.5	734	6.05
MW-04	23-Mar-09	3.8	731	6.37
MW-07	23-Mar-09	3.8	47	4.55

Summary of GW Field Parameters - October 2009

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH	DO (%)	TDS (g/L)
MW-01	08-Oct-09	11.9	41	6.27	16.4	0.027
MW-02	08-Oct-09	13.09	40	6.43	136.7	0.025
MW-03	08-Oct-09	10.49	518	7.22	2	0.337
MW-04	08-Oct-09	9.8	805	7.30	3.1	0.524
MW-05	08-Oct-09	9.1	53	6.61	12	0.034
MW-06	08-Oct-09	11.33	9	7.04	5.6	0.588
MW-07	08-Oct-09	11.06	61	5.72	5.3	0.039

Summary of GW Field Parameters - December 2010

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH	DO (%)
MW-01	02-Dec-10	6.5	46	6.64	20.9
MW-03	02-Dec-10	6.5	123	6.60	25.5
MW-04	02-Dec-10	7.5	348	6.47	12.0
MW-05	02-Dec-10	7.8	276	6.14	13.2
MW-06	02-Dec-10	6.5	385	6.77	13
MW-07	02-Dec-10	7.5	75	5.95	12.5

Summary of GW Field Parameters - December 2011

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH	DO (%)	DO (mg/L)	TDS (g/L)
MW-01	14-Dec-11	4.36	42	5.88	374.0	51.38	0.27
MW-02	14-Dec-11	2.37	64	7.15	264.3	36.28	0.002
MW-03	14-Dec-11	4.63	300	6.93	321.3	40.38	0.194
MW-04	14-Dec-11	5.24	434	6.68	255	32.22	0.289
MW-05	14-Dec-11	4.03	46	6.34	360.6	45.69	0.030
MW-06	14-Dec-11	3.11	254	6.98	98.3	12.73	0.165
MW-07	14-Dec-11	4.44	52	5.59	314.5	41.52	0.034
MW-08	14-Dec-11	5.27	44	5.74	280	35.28	0.28

Summary of SW Field Parameters - November 2007

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH
Pond	15-Nov-07	7.4	1214	7.61
Stream	15-Nov-07	6.1	1041	7.18

Summary of SW Field Parameters - May 2008

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH
Pond	29-May-08	17.8	933	7.09
Stream	29-May-08	11.1	918	6.95

Summary of SW Field Parameters - January 2009

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH
Pond	07-Jan-09	0.2	1051	7.2
Stream	07-Jan-09	1	1277	7.42
Ditch	07-Jan-09	0.9	1302	7.61

Summary of SW Field Parameters - March 2009

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH
Pond	23-Mar-09	1.3	1251	6.55
Stream	23-Mar-09	1.5	1067	6.77
Ditch	23-Mar-09	1.3	3500	4.87

Summary of SW Field Parameters - September 2009

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH	DO (%)	TDS (g/L)
Leachate Pond	01-Sep-09	20.6	627	7.52	42.4	0.445
Stream	01-Sep-09	15.06	362	8.03	35.7	0.289

Summary of SW Field Parameters - November 2010

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH	DO (%)
Leachate Pond	11-Nov-10	5.8	873	7.27	54.4
Stream	11-Nov-10	5.1	635	6.49	24.2

Summary of SW Field Parameters - December 2011

Sample ID	Sample Date	Temperature (°C)	Electrical Conductivity (uS/cm)	pH	DO (%)	DO (mg/L)	TDS (g/L)
Leachate Pond	14-Dec-11	1.08	859	7.02	56.8	6.88	0.559
Stream	14-Dec-11	1.46	541	6.98	248.3	35.13	0.352

Groundwater Field Information - February 2007

Sample ID	Sample Date	Depth of Well	Depth to Water (mtoc)
MW-01	07-Feb-07	3.020	1.225
MW-02	07-Feb-07	3.890	2.250
MW-03	06-Feb-07	3.630	0.780
MW-04	06-Feb-07	3.430	1.060
MW-05	06-Feb-07	2.330	1.430
MW-06	06-Feb-07	3.425	1.078
MW-07	07-Feb-07	3.580	3.225

Note: No free product was detected in any of the wells.

Groundwater Field Information - November 2007

Sample ID	Sample Date	Depth of Well	Depth to Water (mtoc)
MW-01	15-Nov-07	3.074	1.115
MW-02	15-Nov-07	3.822	3.025
MW-03	15-Nov-07	3.575	0.891
MW-04	15-Nov-07	3.690	1.087
MW-05	15-Nov-07	2.160	1.560
MW-06	15-Nov-07	3.417	1.055
MW-07	15-Nov-07	3.508	3.025

Note: No free product was detected in any of the wells.

Groundwater Field Information - May 2008

Sample ID	Sample Date	Depth of Well	Depth to Water (mtoc)
MW-01	29-May-08	3.117	1.105
MW-02	29-May-08	3.505	3.913
MW-03	29-May-08	3.635	0.855
MW-04	29-May-08	3.757	1.025
MW-05	29-May-08	2.190	1.530
MW-06	29-May-08	3.462	1.041
MW-07	29-May-08	3.613	1.260

Note: No free product was detected in any of the wells.

Groundwater Field Information - January 2009

Sample ID	Sample Date	Depth of Well	Depth to Water (mtoc)
MW-01	07-Jan-09	3.080	1.106
MW-02	07-Jan-09	3.830	3.910
MW-03	07-Jan-09	3.660	1.118
MW-04	07-Jan-09	3.680	0.930
MW-05	07-Jan-09	2.200	1.560
MW-06	07-Jan-09	3.375	1.550
MW-07	07-Jan-09	3.580	1.380

Note: No free product was detected in any of the wells.

Groundwater Field Information - March 2009

Sample ID	Sample Date	Depth of Well	Depth to Water (mtoc)
MW-01	23-Mar-09	3.078	1.125
MW-03	23-Mar-09	3.625	1.03
MW-04	23-Mar-09	3.68	1.15
MW-07	23-Mar-09	3.6	1.385

Note: No free product was detected in any of the wells.

Groundwater Field Information - October 2009

Sample ID	Sample Date	Depth of Well	Depth to Water (mtoc)	Elevation (mtoc)	Elevation of water table
MW-01	08-Oct-09	3.07	1.05	120.666	119.61
MW-02	08-Oct-09	3.92	3.80	122.201	118.281
MW-03	08-Oct-09	3.65	1.09	101.323	100.233
MW-04	08-Oct-09	3.73	0.93	117.108	116.178
MW-05	08-Oct-09	4.50	0.91	106.325	105.415
MW-06	08-Oct-09	3.48	1.04	111.300	110.26
MW-07	08-Oct-09	3.55	1.24	125.215	123.975

Note: No free product was detected in any of the wells.

Groundwater Field Information - January 2010

Sample ID	Sample Date	Depth of Well	Depth to Water (mtoc)	Elevation (mtoc)	Elevation of water table
MW-01	01-Jan-10	3.1	1.08	120.666	119.586
MW-02	01-Jan-10	3.88	3.44	122.201	118.761
MW-03	01-Jan-10	3.65	3.66	1.11	101.323
MW-04	01-Jan-10	3.61	0.85	117.108	116.258
MW-05	01-Jan-10	3.79	1.04	106.325	105.285
MW-06	01-Jan-10	3.39	1.05	111.3	110.25
MW-07	01-Jan-10	3.44	1.3	125.215	123.915

Note: No free product was detected in any of the wells.

Groundwater Field Information - December 2010

Sample ID	Sample Date	Depth of Well	Depth to Water (mtoc)
MW-01	07-Dec-10	3.040	1.180
MW-02	07-Dec-10	3.905	3.798
MW-03	07-Dec-10	3.691	1.082
MW-04	07-Dec-10	3.590	1.130
MW-05	07-Dec-10	4.540	1.165
MW-06	07-Dec-10	3.390	1.075
MW-07	07-Dec-10	3.600	1.310

Note: No free product was detected in any of the wells.

Groundwater Field Information - December 2011

Sample ID	Sample Date	Depth of Well	Depth to Water (mtoc)
MW-01	14-Dec-11	3.41	1.11
MW-02	14-Dec-11	3.93	3.68
MW-03	14-Dec-11	3.62	1.13
MW-04	14-Dec-11	3.61	1.00
MW-05	14-Dec-11	4.53	0.91
MW-06	14-Dec-11	3.42	1.50
MW-07	14-Dec-11	3.56	1.28
MW-08	14-Dec-11	5.62	1.37

Note: No free product was detected in any of the wells.

APPENDIX C

Current Analytical Result Tables

TABLE C-1: Metal Concentrations in Groundwater (2007-2011)

Sample ID Sampling Date pH CaCO ₃ (µg/L)	DATA																GUIDELINES 2011 MOE Standards (1) (Table 3) (2)				
	MDL (µg/L)						MW-01						MW-02								
	Feb. 2007	Nov. 2007 / May 2008	Jan 2009	Oct. 2009 / Jan. 2010	Dec. 2010	Dec. 2011	Feb. 2007 6.04	Nov. 2007 7.30	May 2008 5.96	Jan 2009 6.23	Oct. 2009 6.15	Jan. 2010 6.05	Dec. 2010 6.25	Dec. 2011 5.88	Feb 2007 5.62	Nov. 2007 6.05		May 2008 5.94	Oct. 2009 6.1	Jan. 2010 5.59	Dec. 2011 7.15
Parameter	Feb. 2007	Nov. 2007 / May 2008	Jan 2009	Oct. 2009 / Jan. 2010	Dec. 2010	Dec. 2011	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Aluminum	1	5	5	5.0	5.0	5.0	558,000	3,530	75	72.5	176	109	250	234	3,540	70	34	56.9	45.6	432	-
Antimony	1	1	2	2.0	1.0	1.0	<1	<1	<1	<2	<2	<2	<1	<1.0	<1	<1	<1	<2	<2	<1.0	20,000
Arsenic	1	1	2	2.0	1.0	1.0	77	<1	4	<2	<2	<1	<1.0	<1	<1	<1	<1	<2	<2	<1.0	1,900
Barium	0.5	0.5	5	5.0	1.0	1.0	870.0	15.1	2.1	<5	<5	2	1.7	17.6	2.7	3.0	<5	<5	4.7	29,000	
Beryllium	0.1	0.1	2	2.0	1.0	1.0	36.9	0.2	<0.1	<2	<2	<1	<1.0	0.5	<0.1	<0.1	<2	<2	<1.0	67	
Bismuth	0.5	0.5	2	2.0	2.0	2.0	<0.5	<0.5	<0.5	<2	<2	<2	<2.0	<0.5	<0.5	<0.5	<2	<2	<2.0	-	
Boron	-	-	-	5	5.0	5.0	-	-	-	-	5.6	<5	<5	<50	-	-	-	<5	<5	<50	45,000
Cadmium	0.1	0.015	0.017	0.017	0.02**	0.02**	1.792	0.380	0.058	0.021	0.020	0.026	0.020	<0.017	0.158	1.010	0.057	0.039	<0.017	0.056	2.7
Calcium	50	500	-	100	100	100	81,600	2,070	2,400	-	5,200	2,000	2,200	2,040	2,670	1,350	1,330	1,700	1,300	1,910	-
Chromium	1	1	1	1.0	1.0	1.0	82.0	2	<1	<1	<1	<1	<1.0	10.8	<1	<1	<1	<1	<1	<1.0	810
Cobalt	1	1	0.4	0.40	0.40	0.40	80	2	<1	<0.4	<4	<0.4	<0.4	0.4	7	<1	<1	0.86	1.04	0.53	66
Copper	1	1	2	2.0	2.0	2.0	1,250	12	2	5	18.5	3.1	3	<2.0	29	1	4	8.3	<2	7.1	87
Iron	1	1	50	50	50.0	50.0	75,000	2,180	246	140	107	<50	290	167	4,170	64	59	<50	<50	245	-
Lead	2	1	0.5	0.50	0.50	0.50	193	4	<1	<0.5	<0.5	<0.5	<0.5	<0.50	6	<1	<1	<0.5	<0.5	0.62	25
Magnesium	50	20	-	100	100	100	15,500	642	745	-	1,400	600	500	611	1,150	449	479	600	500	258	-
Manganese	1	1	2	2.0	2.0	2.0	2,120	58	31	34	20.5	9.7	17	15.9	150	13	19	8.3	33.4	4.5	-
Mercury	0.01	0.02	0.01	0.013	-	-	<0.02	<0.02	0.13	0.08	0.030	0.11	-	-	<0.01	<0.02	0.03	-	0.015	-	0.29
Molybdenum	5	5	2	2.0	2.0	2.0	16	<5	<5	<2	<2	<2	<2	<2.0	<5	<5	<5	<2	<2	<2.0	9,200
Nickel	1	5	2	2.0	2.0	2.0	43	<5	<5	<2	<2	<2	<2	<2.0	5	<5	<5	<2	<2	<2.0	490
Phosphorus	2	5	-	100	100	100	32,200	127	<5	-	<100	200	140	-	336	<5	<5	<100	200	-	-
Potassium	50	20	-	100	100	100	9,180	595	212	-	2,100	200	150	166	546	239	148	400	200	238	-
Selenium	1	1	1	1.0	1.0	1.0	1	<1	<1	<1	<1	<1	<1	<1.0	<1	<1	<1	<1	<1	<1.0	63
Silver	1	0.1	0.1	0.10	0.10	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	1.5
Sodium	50	500	-	100	100	100	11,800	4,090	4,750	-	12,000	3,700	4,300	4140	12,100	4,510	5,210	5,100	5,200	5,020	-
Strontium	-	-	-	5.0	2.0	2.0	-	-	-	-	13.4	6.9	7	6.9	-	-	-	6	6	5	-
Thallium	-	-	-	0.10	0.10	0.10	-	-	-	-	<0.1	<0.1	<0.1	<0.10	-	-	-	<0.1	<0.1	<0.10	510
Tin	-	-	-	2.0	2.0	2.0	-	-	-	-	<2	<2	<2	<2.0	-	-	-	<2	<2	<2.0	-
Titanium	-	-	-	2.0	2.0	2.0	-	-	-	-	6.4	4.8	6	6.8	-	-	-	<2	<2	24	-
Uranium	-	-	-	0.10	0.10	0.10	-	-	-	-	<0.1	<0.1	<0.1	<0.10	-	-	-	<0.1	<0.1	<0.10	420
Vanadium	2	5	2	2.0	2.0	2.0	108	<5	<5	<2	<2	<2	<2.0	3	<5	<5	<2	<2	<2.0	250	
Zinc	1	1	5	5.0	5.0	5.0	825	12	5	6	37.3	8.4	6	5.5	22	4	6	21.1	<5	19.5	1,100

Notes
MDL: Method Detection Limit
<X: Below MDL
MOE: Ontario Ministry of Environment
-: Value not established
Shaded Data exceeds the MOE Standards
(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011
(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils
Dup-1 is a blind field duplicate of groundwater sample MW-03 (Nov 2008)
**Method Detection Limit exceeds the guidelines

TABLE C-1: Metal Concentrations in Groundwater (2007-2011)

Sample ID Sampling Date pH CaCO ₃ (µg/L)	DATA																			GUIDELINES 2011 MOE Standards (1) (Table 3) (2)				
	MDL (µg/L)						MW-03		Dup-1	MW-03					MW-04									
	Feb. 2007	Nov. 2007 / May 2008	Jan 2009	Oct. 2009 / Jan. 2010	Dec. 2010	Dec. 2011	Feb 2007	Nov. 2007	Nov. 2007	May 2008	Jan 2009	Oct. 2009	Jan. 2010	Dec. 2010	Dec. 2011	Feb 2007	Nov. 2007	July 2008	Jan 2009		Oct. 2009	Jan. 2010	Dec. 2010	Dec. 2011
							(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Aluminum	1	5	5	5.0	5.0	5.0	5,450	129	145	45	146	120	87.9	190	163	275,000	1,580	41	105	197	131	60	84.1	-
Antimony	1	1	2	2.0	1.0	1.0	<1	<1	<1	<1	<2	<2	<2	<1	<1.0	<1	<1	<1	<2	<2	<2	<1	<1.0	20,000
Arsenic	1	1	2	2.0	1.0	1.0	3	1	1	<1	6	<2	7.8	4	7.4	15	2	13	8	11.1	3.1	2	2	1,900
Barium	0.5	0.5	5	5.0	1.0	1.0	64.8	25.5	25.0	7.7	12	29.3	13.4	6	9.8	356.0	14.7	34.8	92	20.4	25.8	12	14.9	29,000
Beryllium	0.1	0.1	2	2.0	1.0	1.0	1.6	<0.1	0.2	0.3	<2	<2	<2	<1	<1.0	40.5	0.3	<0.1	<2	<2	<2	<1	<1.0	67
Bismuth	0.5	0.5	2	2.0	2.0	2.0	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<2	<2.0	<0.5	<0.5	0.8	<2	<2	<2	<2	<2.0	-
Boron	-	-	-	5	5.0	5.0	-	-	-	-	-	29.2	22.9	11	<50	-	-	-	-	22.4	37.1	22	<50	45,000
Cadmium	0.1	0.015	0.017	0.017	0.02**	0.02**	0.109	0.067	0.221	0.102	<0.017	0.049	0.018	<0.02**	0.063	1.013	0.059	0.166	<0.017	<0.017	<0.017	<0.02**	<0.017	2.7
Calcium	50	500	-	100	100	100	15,800	11,300	10,500	5,060	-	15,000	13,000	7,000	8,780	34,600	17,500	32,500	-	19,000	9,400	6,700	8,710	-
Chromium	1	1	1	1.0	1.0	1.0	7.0	<1	<1	<1	<1	1.7	<1	<1	<1.0	37.0	1	1	<1	1.1	<1	<1	<1.0	810
Cobalt	1	1	0.4	0.40	0.40	0.40	12	5	5	9	6	1.98	5.49	4.6	4.75	100	4	14	8.38	7.21	2.87	1.9	2.42	66
Copper	1	1	2	2.0	2.0	2.0	3	4	4	4	<2	5.0	<2	<2	3.5	137	6	<1	2	2.6	<2	<2	<2.0	87
Iron	1	1	50	50	50.0	50.0	6,680	2,410	2230	312	1,400	4,390	1,590	1,500	1,030	64,100	1,170	2,430	7,600	2,030	2,020	1100	1950	-
Lead	2	1	0.5	0.50	0.50	0.50	19	4	4	<1	<0.5	1.11	<0.5	<0.5	<0.50	63	2	3	0.8	<0.5	1.14	0.6	0.68	25
Magnesium	50	20	-	100	100	100	4,000	2,470	2,410	1,140	-	3,200	3,600	1,600	2,160	7,680	5,380	10,100	-	5,000	1,900	1,200	1,740	-
Manganese	1	1	2	2.0	2.0	2.0	2,040	1,010	964	171	3,800	721	3,930	1,900	2,090	8,950	2,370	6,740	2,500	4,510	925	370	549	-
Mercury	0.01	0.02	0.01	0.013	-	-	0.02	<0.02	<0.02	0.04	0.68	0.037	0.46	-	-	<0.01	<0.02	0.02	0.01	0.18	0.083	-	-	0.29
Molybdenum	5	5	2	2.0	2.0	2.0	<5	<5	<5	<5	<2	<2	<2	<2	<2.0	8	<5	<5	<2	2.4	<2	<2	<2.0	9,200
Nickel	1	5	2	2.0	2.0	2.0	5	<5	<5	<5	<2	<2	<2	<2	6	22	<5	<5	3	<2	<2	<2	<2.0	490
Phosphorus	2	5	-	100	100	100	1,090	312	199	20	-	200	<100	110	-	11,100	93	28	-	<100	100	130	-	-
Potassium	50	20	-	100	100	100	6,560	3,630	3,540	633	-	4,800	2,400	1,100	1,350	4,810	3,150	4,440	-	3,600	2,900	1,500	2,130	-
Selenium	1	1	1	1.0	1.0	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<1	<1	<1	<1	<1	<1	<1	<1.0	63
Silver	1	0.1	0.1	0.10	0.10	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	0.1	<0.1	0.7	<0.1	<0.1	<0.1	<0.10	<0.10	1.5
Sodium	50	500	-	100	100	100	189,000	102,000	103,000	24,500	-	96,000	73,000	32,000	32,300	60,700	91,200	149,000	-	88,000	77,000	40,000	41,900	-
Strontium	-	-	-	5.0	2.0	2.0	-	-	-	-	-	56.2	38.0	21	22.9	-	-	-	-	51.9	34	24	29	-
Thallium	-	-	-	0.10	0.10	0.10	-	-	-	-	-	<0.1	<0.1	<0.1	<0.10	-	-	-	-	<0.1	<0.1	<0.1	<0.10	510
Tin	-	-	-	2.0	2.0	2.0	-	-	-	-	-	<2	<2	<2	<2.0	-	-	-	-	<2	<2	<2	<2.0	-
Titanium	-	-	-	2.0	2.0	2.0	-	-	-	-	-	11.9	2.9	4	7.4	-	-	-	-	10.2	30.6	6	8.6	-
Uranium	-	-	-	0.10	0.10	0.10	-	-	-	-	-	<0.1	0.11	<0.1	<0.10	-	-	-	-	<0.1	<0.1	<0.1	<0.10	420
Vanadium	2	5	2	2.0	2.0	2.0	9	<5	<5	<5	<2	2.4	<2	<2	<2.0	43	<5	5	4	<2	3	<2	<2.0	250
Zinc	1	1	5	5.0	5.0	5.0	41	6	5	30	<5	58.2	7.4	9	18.3	212	4	8	6	16.2	<5	7	7.7	1,100

Notes

MDL: Method Detection Limit
 <X: Below MDL
 MOE: Ontario Ministry of Environment
 -: Value not established

Shaded Data exceeds the MOE Standards

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

Dup-1 is a blind field duplicate of groundwater sample MW-03 (Nov 2007)

**Method Detection Limit exceeds the guidelines

TABLE C-1: Metal Concentrations in Groundwater (2007-2011) - Continued

Sample ID Sampling Date pH CaCO ₃ (µg/L)	DATA																				GUIDELINES 2011 MOE Standards (1) (Table 3) (2)			
	MDL (µg/L)						MW-05								MW-06							DUP-1		
	Feb. 2007	Nov. 2007 / May 2008	Jan 2009	Oct. 2009 / Jan. 2010	Dec. 2010	Dec. 2011	Feb. 2007 6.09	Nov. 2007 6.10	May 2008 6.30	Jan 2009 6.09	Oct. 2009 6.18	Jan. 2010 5.92	Dec. 2010 6.70	Dec. 2011 6.34	Feb 2007 6.13	Nov. 2007 6.11	May 2008 6.31	Jan 2009 6.42	Oct. 2009 6.36	Jan. 2010* 6.82		Dec. 2010 7.10	Dec. 2010 7.02	Dec. 2011 6.98
Parameter	Feb. 2007	Nov. 2007 / May 2008	Jan 2009	Oct. 2009 / Jan. 2010	Dec. 2010	Dec. 2011	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	
Aluminum	1	5	5	5.0	5.0	5.0	57,100	7,880	288	209	168	95.7	200	133	8,540	485	179	44.1	112	<50	160	180	176	-
Antimony	1	1	2	2.0	1.0	1.0	<1	<1	<1	<2	<2	<2	<1	<1.0	<1	<1	<2	<2	<2	<20	<1	<1	<1.0	20,000
Arsenic	1	1	2	2.0	1.0	1.0	17	1	<1	<2	<2	<2	<1	<1.0	3	<1	<1	<2	<2	<20	2	2	1.7	1,900
Barium	0.5	0.5	5	5.0	1.0	1.0	114.0	23.4	1.4	<5	<5	<5	2	4	55.9	9.6	6.9	16	26.4	<50	8	8	4.6	29,000
Beryllium	0.1	0.1	2	2.0	1.0	1.0	20.8	0.2	<0.1	<2	<2	<2	<1	<1.0	0.7	<0.1	<0.1	<2	<2	<20	<1	<1	<1.0	67
Bismuth	0.5	0.5	2	2.0	2.0	2.0	<0.5	<0.5	<0.5	<2	<2	<2	<2	<2.0	<0.5	<0.5	<0.5	<2	<2	<20	<2	<2	<2.0	-
Boron	-	-	-	5	5.0	5.0	-	-	-	-	<5	<5	<5	<50	-	-	-	-	468	693	170	180	142	45,000
Cadmium	0.1	0.015	0.017	0.017	0.02**	0.02**	0.627	0.192	0.059	0.020	0.067	<0.017	<0.02**	0.061	0.364	0.122	0.082	0.051	0.038	<0.17	<0.02**	<0.02**	<0.017	2.7
Calcium	50	500	-	100	100	100	14,300	2,330	1,310	-	3,700	2,300	2,800	3,740	52,000	30,900	26,600	-	79,000	150,000	28,000	28,000	22,400	-
Chromium	1	1	1	1.0	1.0	1.0	15.0	5.0	<1	<1	<1	<1	<1	<1.0	14.6	<1	<1	<1	<1	<10	<1	<1	<1.0	810
Cobalt	1	1	0.4	0.40	0.40	0.40	27	4	<1	1.06	0.63	<0.4	<0.4	0.48	12	6	4	3.68	6.35	<4	4.2	4	2.93	66
Copper	1	1	2	2.0	2.0	2.0	237	39	7	7	16.0	2.8	3	9.2	42	5	7	7	5.5	<20	2	2	2.7	87
Iron	1	1	50	50	50.0	50.0	12,390	2,940	124	120	105	<50	79	65	10,276	513	178	<50	637	<500	3,100	3,200	2,870	-
Lead	2	1	0.5	0.50	0.50	0.50	57	11	<1	0.5	<0.5	<0.5	<0.5	<0.50	26	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.50	25
Magnesium	50	20	-	100	100	100	3,490	616	502	-	1,300	800	790	825	11,400	5,840	5,210	-	15,000	30,000	4,600	4,800	3,920	-
Manganese	1	1	2	2.0	2.0	2.0	487	77	15	35	26.3	11.8	20	10.7	1,830	905	520	890	1,060	889	380	400	355	-
Mercury	0.01	0.02	0.01	0.13	-	-	<0.01	0.06	1.44	0.85	0.013	0.078	-	-	<0.01	<0.02	0.04	<0.01	0.11	0.047	-	-	-	0.29
Molybdenum	5	5	2	2.0	2.0	2.0	3	<5	<5	<2	13.6	<2	<2	<2.0	<5	<5	<5	<2	<2	<20	<2	<2	<2.0	9,200
Nickel	1	5	2	2.0	2.0	2.0	20	<5	<5	<2	<2	<2	<2	<2.0	6	<5	<5	<2	2.3	<20	<2	<2	<2.0	490
Phosphorus	2	5	-	100	100	100	3,550	373	6	-	<100	100	<100	-	1,340	60	30	-	100	<100	<100	180	-	-
Potassium	50	20	-	100	100	100	1,530	405	446	-	900	100	210	524	20,100	9,220	10,200	-	22,000	33,000	9,000	9,000	5,180	-
Selenium	1	1	1	1.0	1.0	1.0	<1	<1	<1	<1	<1	<1	<1	<1.0	<1	<1	<1	<1	<1	<10	<1	<1	<1.0	63
Silver	1	0.1	0.1	0.10	0.10	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.10	1.5
Sodium	50	500	-	100	100	100	6,800	10,200	4,030	-	8,200	4,900	5,400	5,200	53,400	27,600	21,800	-	56,000	72,000	20,000	20,000	11,800	-
Strontium	-	-	-	5.0	2.0	2.0	-	-	-	-	10.2	7.8	8	8.1	-	-	-	-	228	392	70	71	56	-
Thallium	-	-	-	0.10	0.10	0.10	-	-	-	-	<0.1	<0.1	<0.1	<0.10	-	-	-	-	<0.1	<1	<0.1	<0.1	<0.10	510
Tin	-	-	-	2.0	2.0	2.0	-	-	-	-	<2	<2	<2	<2.0	-	-	-	-	<2	<20	<2	<2	<2.0	-
Titanium	-	-	-	2.0	2.0	2.0	-	-	-	-	3.3	<2	4	2	-	-	-	-	7.0	<20	6	6	5.6	-
Uranium	-	-	-	0.10	0.10	0.10	-	-	-	-	<0.1	<0.1	<0.1	0.1	-	-	-	-	<0.1	<1	<0.1	<0.1	<0.10	420
Vanadium	2	5	2	2.0	2.0	2.0	19	6	<5	<2	<2	<2	<2	<2.0	10	<5	<5	<2	<2	<20	<2	<2	<2.0	250
Zinc	1	1	5	5.0	5.0	5.0	163	25	6	10	20.2	5.2	12	28	52	10	14	8	46.5	<50	15	14	8.9	1,100

Notes

MDL: Method Detection Limit

<X: Below MDL

MOE: Ontario Ministry of Environment

-: Value not established

Shaded Data exceeds the MOE Standards

*RDL increased by a factor of 10 for this sample

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

DUP-1 (Dec. 2010) is a blind field duplicate of groundwater sample MW-06

**Method Detection Limit exceeds the guidelines

TABLE C-1: Metal Concentrations in Groundwater (2007-2011) - Continued

Sample ID	DATA																GUIDELINES					
	MDL (µg/L)						MW-07							MW-08			2011 MOE					
	Feb. 2007	Nov. 2007 / May 2008	Jan 2009	Oct. 2009 / Mar. 2010	Dec. 2010	Dec. 2011	Feb. 2007	Nov. 2007	May 2008	DUP-1 May 2008	Jan 2009	DUP-1 Jan 2009	Oct. 2009	Jan. 2010	Dec. 2010	Dec. 2011	DUP (MW-09) Dec. 2011	Mar. 2010	Dec. 2010	Dec. 2011	Standards (1)	(Table 3) (2)
Sampling Date																						
pH																						
CaCO ₃ (µg/L)																						
Parameter	Feb. 2007	Nov. 2007 / May 2008	Jan 2009	Oct. 2009 / Mar. 2010	Dec. 2010	Dec. 2011	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Aluminum	1	5	5	5.0	5.0	5.0	4,527	1,740	982	1,170	830	822	2,460	1,100	2,900	1,760	1,860	626	640	1,210	-	-
Antimony	1	1	2	2.0	1.0	1.0	<1	<1	<1	<1	<2	<2	<2	<2	<1	<1.0	<1.0	<2	<1	<1.0	20,000	20,000
Arsenic	1	1	2	2.0	1.0	1.0	2	<1	2	1	<2	<2	<2	<2	1	<1.0	<1.0	<2	<1	<1.0	1,900	1,900
Barium	0.5	0.5	5	5.0	1.0	1.0	18.7	4.8	2.4	2.8	<5	<5	<5	<5	5	3.5	3.4	<5	6	7.2	29,000	29,000
Beryllium	0.1	0.1	2	2.0	1.0	1.0	0.4	0.1	<0.1	<0.1	<2	<2	<2	<2	<1	<1.0	<1.0	<2	<1	<1.0	67	67
Bismuth	0.5	0.5	2	2.0	2.0	2.0	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<2	<2	<2.0	<2.0	<2	<2	<2.0	-	-
Boron	-	-	-	5	5.0	5.0	-	-	-	-	-	-	<10	<5	<5	<50	<50	6	<5	<50	45,000	45,000
Cadmium	0.1	0.015	0.017	0.017	0.02**	0.02**	0.122	0.024	0.118	0.103	0.020	0.019	0.032	<0.017	0.03	<0.017	<0.017	0.018	0.02	0.022	2.7	2.7
Calcium	50	500	-	100	100	100	3,690	1,040	791	758	-	-	1,200	500	2,000	1,130	1,080	800	810	840	-	-
Chromium	1	1	1	1.0	1.0	1.0	4.0	1	<1	1	<1	<1	2.4	<1	2	1.4	1.3	<1	<1	<1.0	810	810
Cobalt	1	1	0.4	0.40	0.40	0.40	4	2	<1	1	0.93	0.93	0.87	0.48	0.7	0.64	0.60	0.58	1.1	0.61	66	66
Copper	1	1	2	2.0	2.0	2.0	14	5	3	3	<2	3	4.0	<2	2	2.9	2.7	8.8	7	15.4	87	87
Iron	1	1	50	50	50.0	50.0	2,910	1,130	2,120	2,490	1,200	1,200	1,820	1,280	2,300	1,990	1,980	411	590	513	-	-
Lead	2	1	0.5	0.50	0.50	0.50	3	1	<1	1	<0.5	<0.5	2.26	0.63	1.9	1.64	1.66	1.2	<0.5	0.6	25	25
Magnesium	50	20	-	100	100	100	962	837	490	354	-	-	700	500	450	312	323	34.7	560	546	-	-
Manganese	1	1	2	2.0	2.0	2.0	67	19	38	45	23	22	28.9	18.7	36	30.3	29.2	200	41	30.9	-	-
Mercury	0.01	0.02	0.01	0.13	-	-	<0.01	<0.02	0.13	0.09	0.07	0.08	0.13	0.043	-	-	-	<0.013	-	-	0.29	0.29
Molybdenum	5	5	2	2.0	2.0	2.0	<5	<5	<5	<5	<2	<2	<2	<2	<2	<2.0	<2.0	<2	<2	<2.0	9,200	9,200
Nickel	1	5	2	2.0	2.0	2.0	7	<5	<5	<5	<2	<2	<2	<2	<2	<2.0	<2.0	2.7	6	5	490	490
Phosphorus	2	5	-	100	100	100	383	104	55	66	-	-	100	100	<1,000*	-	-	<100	<100	-	-	-
Potassium	50	20	-	100	100	100	463	221	170	290	-	-	300	<100	<1,000*	180	190	500	310	334	-	-
Selenium	1	1	1	1.0	1.0	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1	<1	<1.0	63	63
Silver	1	0.1	0.1	0.10	0.10	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.1	<0.1	0.2	1.5	1.5
Sodium	50	500	-	100	100	100	4,220	4,680	3,830	3,950	-	-	9,200	5,800	9,300*	8,270	8,090	5,400	4,400	4,340	-	-
Strontium	-	-	-	5.0	2.0	2.0	-	-	-	-	-	-	9.1	<5	13	7.6	7.8	<5	8	7.1	-	-
Thallium	-	-	-	0.10	0.10	0.10	-	-	-	-	-	-	<0.1	<0.1	<0.10	<0.10	<0.10	<0.1	<0.1	<0.10	510	510
Tin	-	-	-	2.0	2.0	2.0	-	-	-	-	-	-	<2	<2	<2	<2.0	<2.0	<2	<2	<2.0	-	-
Titanium	-	-	-	2.0	2.0	2.0	-	-	-	-	-	-	54.8	19.1	49	40.4	40.6	7.8	8	18.2	-	-
Uranium	-	-	-	0.10	0.10	0.10	-	-	-	-	-	-	0.14	<0.1	0.2	0.17	0.18	0.1	<0.1	0.1	420	420
Vanadium	2	5	2	2.0	2.0	2.0	6	<5	<5	<5	<2	<2	2.6	<2	<2	<2.0	<2.0	<2	<2	<2.0	250	250
Zinc	1	1	5	5.0	5.0	5.0	15	9	8	19	11	15	24	8.6	17	8.3	10.8	16.5	30	20.2	1,100	1,100

Notes
 MDL: Method Detection Limit
 <X: Below MDL
 MOE: Ontario Ministry of Environment
 -: Value not established

Shaded Data exceeds the MOE Standards
 (1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011
 (2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils
 DUP-1 (May 2008, Jan. 2009) is a blind field duplicate of groundwater sample MW-07
 MW-09 is a blind field duplicate of MW-07
 *Method Detection Limit elevated
 **Method Detection Limit exceeds the guidelines

TABLE C-2: PCB Concentrations in Groundwater (2007-2011)

Sample ID Sampling Date	DATA																GUIDELINES		
	MDL (µg/L)			MW-01									MW-02				2011 MOE Standards (1) (Table 3) (2)		
				Feb. 2007	Nov. 2007	May 2008	Mar.2009 (AMEC)	Mar.2008 (MAX)	Oct. 2009	Jan. 2010	Dec. 2010	Dec. 2011	Feb. 2007	Nov. 2007	May 2008	Oct. 2009		Jan. 2010	Dec. 2011
Parameter	2007 - 2009	2009 - 2010	2011	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(ug/L)	
Polychlorinated Biphenyls	0.04	0.05	0.06/0.05	NA	<0.04	<0.04	<0.04	<0.05	0.07	<0.05	<0.05	<0.06	NA	<0.04	<0.04	<0.05	<0.06	<0.05	7.8

Notes

MDL: Method Detection Limit

<X: Below MDL

MOE: Ontario Ministry of the Environment

(AMEC) = Sample analyzed at the AMEC Lab

(MAX) = Sample analyzed at the Maxxam Lab

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

NA: Sample not analyzed for PCBs

Shaded and bold data exceeds the MOE Standards

* Higher method detection limit reported due to dilution caused by 3 non-PCB peaks which masked the chromatogram

TABLE C-2: PCB Concentrations in Groundwater (2007-2011)

Sample ID Sampling Date	DATA																		GUIDELINES	
	MDL (µg/L)			MW-03								MW-04							2011 MOE Standards (1) (Table 3) (2)	
	2007 - 2009	2009 - 2010	2011	Feb. 2007	Nov. 2007	May 2008	Mar.2009	Oct. 2009	Jan. 2010	Dec. 2010	Dec. 2011	Feb. 2007	Nov. 2007	May 2008	Mar. 2009	Oct. 2009	Jan. 2010	Dec. 2010		Dec. 2011
Parameter				(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(ug/L)
Polychlorinated Biphenyls	0.04	0.05	0.05	<0.4*	<0.04	<0.04	<0.04	<0.05	<0.06	<0.05	<0.05	NA	<0.04	<0.04	<0.04	<0.05	<0.05	<0.05	<0.05	7.8

Notes

MDL: Method Detection Limit

<X: Below MDL

MOE: Ontario Ministry of the Environment

(AMEC) = Sample analyzed at the AMEC Lab

(MAX) = Sample analyzed at the Maxxam Lab

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

NA: Sample not analyzed for PCBs

Shaded and bold data exceeds the MOE Standards

* Higher method detection limit reported due to dilution caused by 3 non-PCB peaks which masked the chromatogram

TABLE C-2: PCB Concentrations in Groundwater (2007-2011) - Continued

Sample ID Sampling Date	DATA																GUIDELINES	
	MDL (µg/L)			MW-05							MW-06						2011 MOE Standards (1) (Table 3) (2)	
				Feb 2007	Nov. 2007	May 2008	Oct. 2009	Jan. 2010	Dec. 2010	Dec. 2011	Feb. 2007	Nov. 2007	May 2008	Oct. 2009	Jan. 2010	Dec. 2010		Dec. 2011
Parameter	2007 - 2009	2009 - 2010	2011	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(ug/L)
Polychlorinated Biphenyls	0.04	0.05	0.05/0.06	<0.04	<0.04	<0.04	<0.05	<0.05	<0.05	<0.05	NA	<0.04	<0.04	<0.05	<0.05	<0.05	<0.06	7.8

Notes

MDL: Method Detection Limit

<X: Below MDL

MOE: Ontario Ministry of the Environment

(AMEC) = Sample analyzed at the AMEC Lab

(MAX) = Sample analyzed at the Maxxam Lab

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

NA: Sample not analyzed for PCBs

Shaded and bold data exceeds the MOE Standards

* Higher method detection limit reported due to dilution caused by 3 non-PCB peaks which masked the chromatogram

TABLE C-2: PCB Concentrations in Groundwater (2007-2011) - Continued

Sample ID Sampling Date	MDL (µg/L)		DATA													GUIDELINES		
			MW-07											MW-08		2011 MOE Standards (1) (Table 3) (2)		
			Feb. 2007	Nov. 2007	May 2008	Mar. 2009 (AMEC)	Mar. 2009 (DUP-2)	Mar. 2009 (MAX)	Oct. 2009	Jan. 2010	Jan. 2010 (MW-07-D)	Dec. 2010	Dec. 2011	Dec. 2011 MW-09	Dec. 2010		Dec. 2011	
Parameter	2007 - 2009	2009 - 2010	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(ug/L)
Polychlorinated Biphenyls	0.04	0.05	NA	<0.04	<0.04	<0.04	<0.04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	7.8

Notes

MDL: Method Detection Limit

<X: Below MDL

MOE: Ontario Ministry of the Environment

(AMEC) = Sample analyzed at the AMEC Lab

(MAX) = Sample analyzed at the Maxxam Lab

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

NA: Sample not analyzed for PCBs

Shaded and bold data exceeds the MOE Standards

* Higher method detection limit reported due to dilution caused by 3 non-PCB peaks which masked the chromatogram

MW-09 (Dec. 2011), MW-07-D (Jan. 2010) and DUP-2 (Mar. 2009) are blind field duplicates of groundwater sample MW-07

TABLE C-4: PCB Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2011)

Sample ID Sampling Date	DATA																			GUIDELINES	
	MDL (µg/L)			SW-POND									STREAM							Ditch	1999 CCME-FAL (Updated 2011)
	2007-2008	Aug. 2009 / Jan. 2010	Dec. 2011	Nov. 2007	May 2008	Mar. 2009	Sept. 2009	Sept. 2009	Jan. 2010	Nov. 2010	Dec. 2011	Dec. 2011	Nov. 2007	May 2008	Mar. 2009	Sept. 2009	Jan. 2010	Nov. 2010	Dec. 2011	Mar. 2009	
Parameter				(µg/L)	(µg/L)	(µg/L)	(µg/L)	SW-POND-D (µg/L)	(µg/L)	(µg/L)	(µg/L)	SW-POND-1 (µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Polychlorinated Biphenyls	0.04	0.05	0.05	<0.04	<0.04	<0.04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.06	<0.04	<0.04	<0.04	<0.05	<0.06	<0.05	<0.05	0.05	-

Notes

MDL: Method Detection Limit

<X: Below MDL

CCME = Canadian Council of Ministers of the Environment

FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

SW-POND-1 is a blind field duplicates of surface water sample SW-POND

TABLE C-5: Dioxins and Furans Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2011)

Sample ID Sampling Date Parameter	DATA									GUIDELINE	
	Nov. 2007			May 2008			Jan 2009			TEF (WHO) 1997 ²	1999 CCME-FAL (UPDATED 2011) (µg/L)
	SW-POND (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	SW-POND (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	SW-POND (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	-	
2,3,7,8-Tetra CDD *	ND	0.697	0.697	ND	0.520	.520	ND	0.796	0.796	1.00	
1,2,3,7,8-Penta CDD	ND	0.782	0.782	ND	0.536	0.536	ND	0.855	0.855	1.00	
1,2,3,4,7,8-Hexa CDD	ND	0.715	0.0715	ND	0.635	0.0635	ND	0.842	0.0842	0.100	
1,2,3,6,7,8-Hexa CDD	ND	0.67	0.067	ND	0.603	0.0603	ND	0.874	0.0874	0.100	
1,2,3,7,8,9-Hexa CDD	ND	0.663	0.0663	ND	0.661	0.0661	ND	0.806	0.0806	0.100	
1,2,3,4,6,7,8-Hepta CDD	1.5	0.671	0.015	1.28	0.601	0.0128	ND	0.966	0.00966	0.0100	
Octa CDD	6.36	0.635	0.00191	4.26	1.21	0.00128	3.38	1.19	0.00101	0.000300	
Total Tetra CDD	ND	0.697	-	ND	0.520	-	ND	1.08	-	-	
Total Penta CDD	ND	0.961	-	ND	0.536	-	ND	0.855	-	-	
Total Hexa CDD	ND	2	-	ND	0.632	-	ND	0.840	-	-	
Total Hepta CDD	2.88	0.671	-	2.22	0.601	-	ND	0.966	-	-	
2,3,7,8-Tetra CDF **	ND	1.08	0.108	1.46	0.840	0.146	1.38	0.915	0.138	0.100	
1,2,3,7,8-Penta CDF	ND	0.699	0.021	ND	1.24	0.0372	ND	0.898	0.0269	0.0300	
2,3,4,7,8-Penta CDF	1.41	0.635	0.423	ND	1.23	0.369	1.40	0.866	0.420	0.300	
1,2,3,4,7,8-Hexa CDF	0.769	0.654	0.0769	ND	0.574	0.0574	ND	0.795	0.0795	0.100	
1,2,3,6,7,8-Hexa CDF	ND	0.617	0.0617	ND	0.518	0.0518	ND	0.760	0.0760	0.100	
2,3,4,6,7,8-Hexa CDF	ND	0.731	0.0731	ND	0.676	0.0676	ND	0.866	0.0866	0.100	
1,2,3,7,8,9-Hexa CDF	ND	0.749	0.0749	ND	0.808	0.0808	ND	0.945	0.0945	0.100	
1,2,3,4,6,7,8-Hepta CDF	ND	2.57	0.0257	ND	0.863	0.00863	ND	0.957	0.00957	0.0100	
1,2,3,4,7,8,9-Hepta CDF	ND	0.755	0.00755	ND	0.626	0.00626	ND	1.24	0.0124	0.0100	
Octa CDF	0.742	0.589	0.000223	ND	1.11	0.000333	ND	1.50	0.000450	0.000300	
Total Tetra CDF	3.59	0.93	-	3.02	0.841	-	4.35	0.915	-	-	
Total Penta CDF	1.41	0.665	-	ND	1.23	-	1.40	0.882	-	-	
Total Hexa CDF	0.769	0.683	-	ND	0.626	-	ND	0.835	-	-	
Total Hepta CDF	ND	2.85	-	ND	0.863	-	ND	1.08	-	-	
Total Toxic Equivalency	-	-	2.57	-	-	2.09	-	-	2.86	-	

Notes:

MDL: Method detection limit

ND: Not detected

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

WHO: World Health Organisation

-: Value not established

TABLE C-5: Dioxins and Furans Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2011)

Sample ID Sampling Date Parameter	DATA									GUIDELINE 1999 CCME-FAL (UPDATED 2011) (µg/L)
	Sept. 2009			Jan. 2010			Nov. 2010			
	SW-POND (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	SW-POND (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	SW-POND (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	-
2,3,7,8-Tetra CDD *	ND	0.57	0.570	ND (A)	0.660	0.660	ND	0.57	0.570	1.00
1,2,3,7,8-Penta CDD	ND	0.55	0.55	ND (A)	0.58	0.580	ND	0.56	0.560	1.00
1,2,3,4,7,8-Hexa CDD	ND	0.53	0.053	ND	0.57	0.0570	ND	0.67	0.0670	0.100
1,2,3,6,7,8-Hexa CDD	ND	0.47	0.047	ND	0.48	0.0480	ND	0.60	0.0600	0.100
1,2,3,7,8,9-Hexa CDD	ND	0.51	0.051	0.60	0.51	0.0600	ND	0.59	0.059	0.100
1,2,3,4,6,7,8-Hepta CDD	2.16	0.50	0.0216	1.93	0.49	0.0193	ND(A)	0.71	0.00710	0.0100
Octa CDD	8.6	1.1	0.00258	13.4	0.99	0.00402	4	1.1	0.00120	0.000300
Total Tetra CDD	ND	0.57	-	ND (A)	0.66	-	ND	0.57	-	-
Total Penta CDD	ND	0.55	-	ND (A)	0.58	-	ND	0.56	-	-
Total Hexa CDD	ND	0.50	-	0.60	0.52	-	ND(A)	0.84	-	-
Total Hepta CDD	4.03	0.50	-	3.60	0.49	-	ND(A)	0.71	-	-
2,3,7,8-Tetra CDF **	1.15	0.58	0.115	1.47	0.570	0.147	ND	0.57	0.0570	0.100
1,2,3,7,8-Penta CDF	0.64	0.49	0.0192	1.10	0.55	0.0330	ND	0.67	0.0201	0.0300
2,3,4,7,8-Penta CDF	0.67	0.51	0.201	1.10	0.56	0.330	1	0.69	0.300	0.300
1,2,3,4,7,8-Hexa CDF	ND	0.47	0.0470	0.94	0.51	0.0940	ND	0.51	0.0510	0.100
1,2,3,6,7,8-Hexa CDF	ND	0.46	0.0460	0.80	0.51	0.0800	ND	0.52	0.0520	0.100
2,3,4,6,7,8-Hexa CDF	ND	0.54	0.0540	0.67	0.58	0.0670	ND	0.58	0.0580	0.100
1,2,3,7,8,9-Hexa CDF	ND	0.70	0.0700	ND	0.66	0.0660	ND	0.66	0.0660	0.100
1,2,3,4,6,7,8-Hepta CDF	ND(A)	3.0	0.0300	ND (A)	2.8	0.0280	ND(A)	0.84	0.00840	0.0100
1,2,3,4,7,8,9-Hepta CDF	ND	0.68	0.00680	ND	0.57	0.00570	ND	0.71	0.00710	0.0100
Octa CDF	1.5	1.1	0.000450	ND (A)	1.4	0.000420	ND	1.20	0.000360	0.000300
Total Tetra CDF	7.16	0.58	-	1.47	0.57	-	3	0.57	-	-
Total Penta CDF	1.97	0.50	-	2.2	0.55	-	1	0.68	-	-
Total Hexa CDF	ND	0.53	-	2.41	0.56	-	ND	0.56	-	-
Total Hepta CDF	ND (A)	3.6	-	ND (A)	3.2	-	ND (A)	0.98	-	-
Total Toxic Equivalency	-	-	1.88	-	-	2.28			1.94	-

Notes:

MDL: Method detection limit

ND: Not detected

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

WHO: World Health Organisation

-: Value not established

(A) EMPC/ NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

TABLE C-5: Dioxins and Furans Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2011)

Sample ID Sampling Date Parameter	DATA				GUIDELINE
	Dec. 2011			TEF (WHO) 1997 ² -	1999 CCME-FAL (UPDATED 2011) (µg/L)
	SW-POND (pg / L)	EDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	<0.68	0.68	0.680	1.00	-
1,2,3,7,8-Penta CDD	<0.55	0.55	0.550	1.00	
1,2,3,4,7,8-Hexa CDD	<0.67	0.67	0.0670	0.100	
1,2,3,6,7,8-Hexa CDD	<0.56	0.56	0.0560	0.100	
1,2,3,7,8,9-Hexa CDD	<0.57	0.57	0.0570	0.100	
1,2,3,4,6,7,8-Hepta CDD	2	0.60	0.0200	0.0100	
Octa CDD	9	1.1	0.00270	0.000300	
Total Tetra CDD	<1.1 (A)	1.1	-	-	
Total Penta CDD	<0.55	0.55	-	-	
Total Hexa CDD	<3.6 (A)	3.6	-	-	
Total Hepta CDD	3	0.60	-	-	
2,3,7,8-Tetra CDF **	<0.60	0.60	0.0600	0.100	
1,2,3,7,8-Penta CDF	<0.63	0.63	0.0189	0.0300	
2,3,4,7,8-Penta CDF	<0.69 (A)	0.69	0.207	0.300	
1,2,3,4,7,8-Hexa CDF	<0.59	0.54	0.0540	0.100	
1,2,3,6,7,8-Hexa CDF	<0.50	0.50	0.0500	0.100	
2,3,4,6,7,8-Hexa CDF	<0.58	0.58	0.0580	0.100	
1,2,3,7,8,9-Hexa CDF	<0.68	0.68	0.0680	0.100	
1,2,3,4,6,7,8-Hepta CDF	<1.2 (A)	1.2	0.0120	0.0100	
1,2,3,4,7,8,9-Hepta CDF	<0.67	0.67	0.00670	0.0100	
Octa CDF	2	1.1	0.000600	0.000300	
Total Tetra CDF	<0.61 (A)	0.61	-	-	
Total Penta CDF	<0.68 (A)	0.68	-	-	
Total Hexa CDF	<0.57	0.57	-	-	
Total Hepta CDF	<1.3 (A)	1.3	-	-	
Total Toxic Equivalency	-	-	1.97	-	

Notes:

EDL: Estimated detection limit

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

WHO: World Health Organisation

-: Value not established

(A) EMPC/ NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

TABLE C-5: Dioxins and Furans Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2011)

Sample ID Sampling Date Parameter	DATA									GUIDELINE	
	Nov. 2007			May 2008			Jan 2009			TEF (WHO) 1997 ²	1999 CCME-FAL (UPDATED 2011) (µg/L)
	STREAM (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	STREAM (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	STREAM (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	-	
2,3,7,8-Tetra CDD *	ND	0.645	0.645	ND	0.589	0.589	ND	0.797	0.797	1.00	
1,2,3,7,8-Penta CDD	ND	0.647	0.647	ND	0.720	0.720	ND	1.03	1.03	1.00	
1,2,3,4,7,8-Hexa CDD	ND	0.825	0.0825	ND	0.748	0.0748	ND	0.941	0.0941	0.100	
1,2,3,6,7,8-Hexa CDD	ND	0.774	0.0774	ND	0.710	0.0710	ND	0.977	0.0977	0.100	
1,2,3,7,8,9-Hexa CDD	ND	0.766	0.0766	ND	0.778	0.0778	ND	0.901	0.0901	0.100	
1,2,3,4,6,7,8-Hepta CDD	1.11	0.593	0.0111	ND	1.68	0.0168	ND	0.681	0.00681	0.0100	
Octa CDD	3.35	0.848	0.00101	6.75	1.20	0.00203	1.64	1.04	0.000492	0.000300	
Total Tetra CDD	ND	0.645	-	ND	0.589	-	ND	0.983	-	-	
Total Penta CDD	ND	1.05	-	ND	0.720	-	ND	1.03	-	-	
Total Hexa CDD	ND	1.66	-	ND	0.744	-	ND	0.939	-	-	
Total Hepta CDD	1.72	0.593	-	0.961	0.747	-	ND	0.681	-	-	
2,3,7,8-Tetra CDF **	ND	0.794	0.0794	1.46	0.594	0.146	1.42	0.991	0.142	0.100	
1,2,3,7,8-Penta CDF	ND	0.736	0.0221	ND	0.828	0.0248	ND	0.768	0.0230	0.0300	
2,3,4,7,8-Penta CDF	ND	1.21	0.363	ND	0.822	0.247	ND	1.55	0.465	0.300	
1,2,3,4,7,8-Hexa CDF	ND	0.621	0.0621	ND	0.683	0.0683	ND	0.595	0.0595	0.100	
1,2,3,6,7,8-Hexa CDF	ND	0.586	0.0586	ND	0.617	0.0617	ND	0.569	0.0569	0.100	
2,3,4,6,7,8-Hexa CDF	ND	0.694	0.0694	ND	0.806	0.0806	ND	0.649	0.0649	0.100	
1,2,3,7,8,9-Hexa CDF	ND	0.711	0.0711	ND	0.962	0.0962	ND	0.708	0.0708	0.100	
1,2,3,4,6,7,8-Hepta CDF	ND	3.04	0.0304	ND	1.91	0.0191	ND	0.851	0.00851	0.0100	
1,2,3,4,7,8,9-Hepta CDF	ND	0.688	0.00688	ND	0.837	0.00837	ND	1.10	0.0110	0.0100	
Octa CDF	ND	0.749	0.000225	ND	3.67	0.00110	ND	1.05	0.000315	0.000300	
Total Tetra CDF	1.8	0.794	-	3.75	0.594	-	3.58	0.991	-	-	
Total Penta CDF	ND	1.27	-	ND	0.825	-	ND	1.55	-	-	
Total Hexa CDF	ND	0.649	-	ND	0.746	-	ND	0.626	-	-	
Total Hepta CDF	ND	3.44	-	ND	2.28	-	ND	0.961	-	-	
Total Toxic Equivalency	-	-	2.30	-	-	2.30	-	-	3.02	-	

Notes:

MDL: Method detection limit

ND: Not detected

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

WHO: World Health Organisation

-: Value not established

TABLE C-5: Dioxins and Furans Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2011)

Sample ID Sampling Date Parameter	DATA									GUIDELINE	
	Sept. 2009			Jan. 2010			Nov. 2010			TEF (WHO) 1997 ²	1999 CCME-FAL (UPDATED 2011) (µg/L)
	STREAM (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	STREAM (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	STREAM (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	-	
2,3,7,8-Tetra CDD *	ND	0.49	0.490	0.77	0.59	0.770	ND	0.73	0.730	1.00	
1,2,3,7,8-Penta CDD	ND	0.52	0.520	0.81	0.54	0.810	ND	0.58	0.580	1.00	
1,2,3,4,7,8-Hexa CDD	ND	0.57	0.0570	ND	0.57	0.0570	ND	0.60	0.0600	0.100	
1,2,3,6,7,8-Hexa CDD	ND	0.50	0.0500	0.56	0.49	0.0560	ND	0.53	0.0530	0.100	
1,2,3,7,8,9-Hexa CDD	ND	0.55	0.0550	0.67	0.51	0.0670	ND	0.52	0.0520	0.100	
1,2,3,4,6,7,8-Hepta CDD	ND (A)	1.9	0.0190	1.46	0.59	0.0146	1	0.56	0.0100	0.0100	
Octa CDD	8.9	1.1	0.00267	5.0	1.0	0.00150	4	1.1	0.00120	0.000300	
Total Tetra CDD	ND	0.49	-	0.77	0.59	-	ND	0.73	-	-	
Total Penta CDD	ND (A)	0.72	-	0.81	0.54	-	ND	0.58	-	-	
Total Hexa CDD	ND	0.54	-	1.23	0.52	-	ND(A)	1.2	-	-	
Total Hepta CDD	1.56	0.71	-	1.46	0.59	-	2	0.56	-	-	
2,3,7,8-Tetra CDF **	0.94	0.51	0.0940	1.66	0.57	0.166	ND	0.62	0.0620	0.100	
1,2,3,7,8-Penta CDF	ND (A)	0.59	0.0177	0.96	0.51	0.0288	ND	0.89	0.0267	0.0300	
2,3,4,7,8-Penta CDF	ND (A)	0.67	0.201	1.24	0.52	0.372	ND	0.92	0.276	0.300	
1,2,3,4,7,8-Hexa CDF	ND (A)	0.50	0.0500	ND (A)	0.68	0.0680	ND	0.51	0.0510	0.100	
1,2,3,6,7,8-Hexa CDF	0.5	0.46	0.0500	0.66	0.47	0.0660	ND	0.52	0.0520	0.100	
2,3,4,6,7,8-Hexa CDF	ND	0.54	0.0540	0.62	0.54	0.0620	ND	0.58	0.0580	0.100	
1,2,3,7,8,9-Hexa CDF	ND	0.70	0.0700	0.68	0.61	0.0680	ND	0.66	0.0660	0.100	
1,2,3,4,6,7,8-Hepta CDF	ND (A)	2.9	0.0290	ND (A)	2.0	0.0200	ND(A)	1.1	0.0110	0.0100	
1,2,3,4,7,8,9-Hepta CDF	ND	0.67	0.00670	ND	0.62	0.00620	ND	0.64	0.00640	0.0100	
Octa CDF	1.8	1.1	0.000540	1.55	0.98	0.000465	ND	1.1	0.000330	0.000300	
Total Tetra CDF	5.47	0.51	-	2.4	0.57	-	6	0.62	-	-	
Total Penta CDF	ND (A)	3.9	-	2.2	0.51	-	ND(A)	3.1	-	-	
Total Hexa CDF	ND	0.52	-	1.96	0.52	-	ND	0.56	-	-	
Total Hepta CDF	ND (A)	3.5	-	ND (A)	2.3	-	ND(A)	1.3	-	-	
Total Toxic Equivalency			1.77			2.63			2.10	-	

Notes:

MDL: Method detection limit

ND: Not detected

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

WHO: World Health Organisation

-: Value not established

(A) EMPC/ NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

TABLE C-5: Dioxins and Furans Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2011)

Sample ID Sampling Date Parameter	DATA				GUIDELINE
	Dec. 2011			TEF (WHO) 1997 ² -	1999 CCME-FAL (UPDATED 2011) (µg/L)
	STREAM (pg / L)	EDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	<0.56	0.56	0.560	1.00	
1,2,3,7,8-Penta CDD	<0.56	0.56	0.560	1.00	
1,2,3,4,7,8-Hexa CDD	<0.66	0.66	0.0660	0.100	
1,2,3,6,7,8-Hexa CDD	<0.56	0.56	0.0560	0.100	
1,2,3,7,8,9-Hexa CDD	<0.57	0.57	0.0570	0.100	
1,2,3,4,6,7,8-Hepta CDD	1	0.56	0.0100	0.0100	
Octa CDD	3	1.0	0.000900	0.000300	
Total Tetra CDD	<0.56	0.56	-	-	
Total Penta CDD	<0.56	0.56	-	-	
Total Hexa CDD	<3.7 (A)	3.7	-	-	
Total Hepta CDD	1	0.56	-	-	
2,3,7,8-Tetra CDF **	<0.54	0.54	0.0540	0.100	
1,2,3,7,8-Penta CDF	<0.61	0.61	0.0183	0.0300	
2,3,4,7,8-Penta CDF	1	0.63	0.300	0.300	
1,2,3,4,7,8-Hexa CDF	<0.49	0.49	0.0490	0.100	
1,2,3,6,7,8-Hexa CDF	<0.46	0.46	0.0460	0.100	
2,3,4,6,7,8-Hexa CDF	<0.54	0.54	0.0540	0.100	
1,2,3,7,8,9-Hexa CDF	<0.62	0.62	0.0620	0.100	
1,2,3,4,6,7,8-Hepta CDF	<0.78 (A)	0.78	0.00780	0.0100	
1,2,3,4,7,8,9-Hepta CDF	<0.61	0.61	0.00610	0.0100	
Octa CDF	<1.0	1.0	0.000300	0.000300	
Total Tetra CDF	1	0.54	-	-	
Total Penta CDF	1	0.62	-	-	
Total Hexa CDF	<0.52	0.52	-	-	
Total Hepta CDF	<0.88 (A)	0.88	-	-	
Total Toxic Equivalency	-	-	1.91	-	

Notes:

<X: Below EDL

EDL: Estimated detection limit

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

WHO: World Health Organisation

-: Value not established / not analyzed

(A) EMPC/ NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

TABLE C-6: General Chemistry Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2011)

Sample ID Sampling Date	Unit	DATA																		GUIDELINES 1999 CCME-FAL (UPDATED 2011)	
		SW-POND												STREAM							
		MDL			Nov. 2007	May 2008	Mar. 2009	Sept. 2009	Jan 2010	Nov. 2010	Nov. 2010	Dec. 2011	Dec. 2011	Nov. 2007	May 2008	Mar. 2009	Sept. 2009	Jan. 2010	Nov. 2010		Dec. 2011
Parameter		2007 - 2009	Oct. 2009 / Jan. 2010	Dec 2011							(SW-DUP1)		Duplicate (SW- POND-1)								
Ammonia	(ug/L)	10	50	300/500/50	33,000	641	30,000	13,000	24,000	12,000	13,000	9,000	11,000	10,800	24,100	26,500	<50	8,200	780	1.6	-
Chloride	(ug/L)	100	1,000	1,000	165,000	195,000	104,000	110,000	110,000	63,000	63,000	46,000	46,000	213,000	134,000	206,000	84,000	110,000	77,000	45,000	-
Colour	(TCU)	5	30	30/5	98	77	34	110	75	68	76	72	64	96	72	49	100	58	57	42	-
Conductivity	(µS/cm)	5	1	1	1,190	927	1,010	1,100	1,100	720	720	850	850	1,070	936	1190	470	810	540	530	-
DOC	(ug/L)	500	-	-	22,900	19,600	12,500	-	-	-	-	-	-	21,700	17,800	17,900	-	-	-	-	-
Fluoride	(ug/L)	100	-	-	<100	<100	<100	-	-	-	-	-	-	<100	<100	<100	-	-	-	-	-
Hardness as CaCO3	(ug/L)	300	1,000	1,000	157,000	99,100	190,000	160,000	210,000	220,000	220,000	280,000	280,000	101,000	144,000	155,000	64,000	140,000	120,000	130,000	-
Nitrate as N	(ug/L)	50	30	100/300	8,650	8,480	8,360	5,200	7,700	6,900	6,900	4,600	4,700	7,710	7,400	12,500	1,200	13,000	8,000	8,000	13,000
Nitrite as N	(ug/L)	15	10	10	84	369	69	220	120	190	190	100	90	35	492	31	<10	110	100	50	60
pH	-	-	-	-	7.38	6.92	7.45	7.13	7.35	7.79	7.87	7.66	7.65	6.92	7.43	7.16	6.93	6.32	7.12	7.21	6.5-9
Sulphate	(ug/L)	100	2,000	10,000	85,300	68,100	121,000	97,000	160,000	160,000	160,000	190,000	190,000	59,000	90,100	107,000	57,000	110,000	96,000	100,000	-
Total Alkalinity (CaCO3)	(ug/L)	5,000	5,000	30,000/5,000	214,000	76,600	167,000	150,000	190,000	130,000	130,000	130,000	140,000	90,900	143,000	129,000	50,000	65,000	41,000	44,000	-
Total Dissolved Solids	(ug/L)	10,000	1,000	1,000	771,000	549,000	658,000	493,000	638,000	518,000	520,000	529,000	532,000	698,000	496,000	775,000	274,000	493,000	371,000	321,000	-
Total Organic Carbon	(ug/L)	500	500	3,000	26,500	19,200	12,900	11,000	16000 (1)	12,000	12,000	10,000	10,000	23,600	17,700	18,100	14,000	19,000	13,000	8,000	-
Total Suspended Solids	(ug/L)	2,000	-	-	6,000	2,000	3,000	-	-	-	-	-	-	<2,000	5,000	2,000	-	-	-	-	-
Turbidity	(NTU)	0.1	0.1	0.1	5.7	1.4	2.0	4.20	9.40	2.1	1.7	7.0	6.1	1.6	3.8	1.8	1.30	13	2	1.8	-
Calcium	(ug/L)	500	100	100	51,500	30,600	63,000	55,000	70,000	77,100	77,400	99,000	97,500	31,100	46,700	48,300	20,000	45,000	41,200	43,200	-
Magnesium	(ug/L)	20	100	100	6,970	5,520	7,910	6,100	7,800	6,200	6,190	9,100	8,890	5,590	6,620	8,270	3,100	6,900	5,020	5,720	-
Potassium	(ug/L)	20	100	100	16,900	12,900	16,100	12,000	15,000	13,600	14,000	12,900	12,700	13,900	12,900	18,600	8,100	14,000	11,800	9,530	-
Sodium	(ug/L)	500	100	100	145,000	129,000	80,700	78,000	98,000	63,600	65,300	48,700	48,700	152,000	94,000	139,000	61,000	96,000	71,200	42,600	-
Dissolved Phosphorus (P)	(ug/L)	-	100	-	-	-	-	-	<100	<100	120	-	-	-	-	-	-	<100	<100	-	-
Total Phosphorus (P)	(ug/L)	-	-	100	-	-	-	-	-	-	-	<100	<100	-	-	-	-	-	-	<100	-
Reactive Silica (SiO2)	(ug/L)	-	500	500	-	-	-	6,100	6,600	6,800	6,900	6,200	6,300	-	-	-	4,700	5,500	5,200	5,500	-

Notes:

MDL: Method Detection Limit

<X: Below MDL

CCME: Canadian Council of Ministers of the Environment

CEQGs: Canadian Environment Quality Guidelines

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

Shaded and bold data exceeds the CCME-FAL Guidelines

Bold faced guidelines reflect those most applicable to current land use designation

SW-DUP1 (Nov. 2010) are blind field duplicates of surface water sample SW-POND

SW-POND1 (Dec. 2011) are blind field duplicates of surface water sample SW-POND

APPENDIX D

Historical Analytical Result Tables

TABLE D-1: BTEX/TPH Concentrations in Groundwater (2007-2010)

Sample ID Sampling Date Parameter	DATA															GUIDELINES				
	MDL (µg/L)		MW-01								MW-02					10x CCME-FAL (Updated 2007)	2003 ATLANTIC PIRI - TIER I RBCA RBSL*			2009 MOE Standards (1) (Table 3) (2)
	2007 - 2008	2009	Feb. 2007	Nov. 2007	May 2008	Jan 2009	Oct. 2009	Jan. 2010	Jan. 2010 MW-01-D	Dec. 2010	Feb. 2007	Nov. 2007	May 2008	Oct. 2009	Dec. 2010		(µg/L)	GASOLINE	DIESEL/#2	
Benzene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	3,700	6,900	6,900	6,900	44
Toluene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	20	20,000	20,000	20,000	1,800
Ethylbenzene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	900	20,000	20,000	20,000	2,300
Total Xylene	0.6	2.0	<0.6	<0.6	<0.6	<2.0	<2.0	<2.0	<2.0	<2.0	<0.6	<0.6	<0.6	<2.0	<2.0	-	20,000	20,000	20,000	4,200
TPH (C ₆ -C ₁₀)	50	10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<50	<10	<10	-	-	-	-	-
TPH (>C ₁₀ -C ₂₁)	50	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	BB	<50	<50	-	-	-	-	-
TPH (>C ₂₁ -<C ₃₂)	50	100	<50	<50	<50	<100	<100	<100	<100	<100	<50	<50	BB	<100	<100	-	-	-	-	-
Modified TPH (C ₆ -C ₃₂)	150	100	<150	<150	<150	<100	<100	<100	<100	<100	<150	<150	BB	<100	<100	-	20,000	20,000	20,000	-
Hydrocarbon Identification			-	-	-	-	A	A	B		-	-	-	A	A					

Notes:

MDL: Method detection limit

<X: not detected above MDL

CCME: Canadian Council of Ministers of the Environment

CEQG: Canadian Environment Quality Guidelines

FAL: Freshwater Aquatic Life

PIRI: Partnership in RBCA Implementation

RBCA: Risk Based Corrective Action

RBSL: Risk Based Screening Level

MOE: Ontario Ministry of Environment

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Blue shaded data exceeds the recommended 2003 Atlantic PIRI RBCA RBSLs

Black shaded data exceeds the recommended MOE SCSs

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

BB: Broken Bottle

*: Tier I RBCA criteria for gasoline, diesel/#2 and #6 oil in coarse grained soils at commercial sites where groundwater is non-potable

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

A) TEH sample contained Sediment

B) Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to sediment interference



TABLE D-1: BTEX/TPH Concentrations in Groundwater (2007-2010)

Sample ID Sampling Date Parameter	DATA															GUIDELINES					
	MDL (µg/L)		MW-03							MW-04							10x CCME-FAL (Updated 2007)	2003 ATLANTIC PIRI - TIER I RBCA RBSL*			2009 MOE Standards (1) (Table 3) (2) (µg/L)
	2007 - 2008	2009	Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan 2009 (µg/L)	Oct. 2009 (µg/L)	Jan. 2010 (µg/L)	Dec. 2010 (µg/L)	Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan 2009 (µg/L) ^a	Oct. 2009 (µg/L)	Jan. 2010 (µg/L)	Dec. 2010 (µg/L)		GASOLINE (µg/L)	DIESEL/#2 (µg/L)	#6 OIL (µg/L)	
Benzene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<10	<1.0	<1.0	<1.0	3,700	6,900	6,900	6,900	44
Toluene	0.2	1.0	0.5	4.3	14.4	<1.0	6	<1.0	<1.0	<0.2	<0.2	<0.2	470	<1.0	<1.0	<1.0	20	20,000	20,000	20,000	1,800
Ethylbenzene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<10	<1.0	<1.0	<1.0	900	20,000	20,000	20,000	2,300
Total Xylene	0.6	2.0	<0.6	<0.6	<0.6	<2.0	<2.0	<2.0	<2.0	<0.6	<0.6	<0.6	<20	<2.0	<2.0	<2.0	-	20,000	20,000	20,000	4,200
TPH (C ₆ -C ₁₀)	50	10	<50	<50	<50	<10	<10	<10	<10	<50	<50	<50	<10	<10	<10	<10	-	-	-	-	-
TPH (>C ₁₀ -C ₂₁)	50	50	<50	<50	<50	<50	80	<50	<50	<50	<50	<50	70	50	<50	<50	-	-	-	-	-
TPH (>C ₂₁ -C ₃₂)	50	100	<50	<50	<50	<100	<100	<100	<100	<50	<50	<50	<100	<100	<100	<100	-	-	-	-	-
Modified TPH (C ₆ -C ₃₂)	150	100	<150	<150	<150	<100	<100	<100	<100	<150	<150	<150	<100	<100	<100	<100	-	20,000	20,000	20,000	-
Hydrocarbon Identification			-	-	-	-	C	B		-	-	-	-	D	A						

Notes:
 MDL: Method detection limit
 <X: not detected above MDL
 CCME: Canadian Council of Ministers of the Environment
 CEQG: Canadian Environment Quality Guidelines
 FAL: Freshwater Aquatic Life
 PIRI: Partnership in RBCA Implementation
 RBCA: Risk Based Corrective Action
 RBSL: Risk Based Screening Level
 MOE: Ontario Ministry of Environment

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Blue shaded data exceeds the recommended 2003 Atlantic PIRI RBCA RBSLs

Black shaded data exceeds the recommended MOE SCSs

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

BB: Broken Bottle

*: Tier I RBCA criteria for gasoline, diesel/#2 and #6 oil in coarse grained soils at commercial sites where groundwater is non-potable

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

A) TEH sample contained Sediment

B) Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to sediment interference

C) No resemblance to petroleum products in fuel oil range. Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to sediment interference

D) No resemblance to petroleum products in fuel oil range. TEH sample contained sediment



TABLE D-1: BTEX/TPH Concentrations in Groundwater (2007-2010) - Continued

Sample ID Sampling Date Parameter	DATA																GUIDELINES				
	MDL (µg/L)		MW-05								MW-06						10x CCME-FAL (Updated 2007)	2003 ATLANTIC PIRI - TIER I RBCA RBSL*			2009 MOE Standards (1) (Table 3) (2)
	2007 - 2008	2009	Feb. 2007	Nov. 2007	May 2008	Jan 2009	Oct. 2009	Jan. 2010	Dec. 2010	Nov. 2007	May 2008	Jan 2009	Oct. 2009	Jan. 2010	Dec. 2010	Dec. 2010 DUP-1		(µg/L)	GASOLINE	DIESEL/#2	
Benzene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	3,700	6,900	6,900	6,900	44
Toluene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<0.2	1.6	<1.0	30	<1.0	<1.0	<1.0	20	20,000	20,000	20,000	1,800
Ethylbenzene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	900	20,000	20,000	20,000	2,300
Total Xylene	0.6	2.0	<0.6	<0.6	<0.6	<2.0	<2.0	<2.0	<2.0	<0.6	<0.6	<2.0	<2.0	<2.0	<2.0	<2.0	-	20,000	20,000	20,000	4,200
TPH (C ₆ -C ₁₀)	50	10	<50	<50	<51	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	-	-	-	-	-
TPH (>C ₁₀ -C ₂₁)	50	50	<50	<50	BB	<50	<50	<50	<50	<50	<50	<50	50	<50	<50	<50	-	-	-	-	-
TPH (>C ₂₁ -C ₃₂)	50	100	<50	<50	BB	<100	<100	<100	<100	<50	<50	<100	<100	<100	<100	<100	-	-	-	-	-
Modified TPH (C ₆ -C ₃₂)	150	100	<150	<150	BB	<100	<100	<100	<100	<150	<150	<100	<100	<100	<100	<100	-	20,000	20,000	20,000	-
Hydrocarbon Identification			-	-	-	-	A	A		-	-	-	D	E							

Notes:

MDL: Method detection limit

<X: not detected above MDL

CCME: Canadian Council of Ministers of the Environment

CEQG: Canadian Environment Quality Guidelines

FAL: Freshwater Aquatic Life

PIRI: Partnership in RBCA Implementation

RBCA: Risk Based Corrective Action

RBSL: Risk Based Screening Level

MOE: Ontario Ministry of Environment

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Blue shaded data exceeds the recommended 2003 Atlantic PIRI RBCA RBSLs

Black shaded data exceeds the recommended MOE SCSs

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

a: higher MDL due to sample dilution.

*: Tier I RBCA criteria for gasoline, diesel/#2 and #6 oil in coarse grained soils at commercial sites where groundwater is non-potable

DUP-1 (Dec. 2010) is a blind field duplicate of groundwater sample MW-06

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

A) TEH sample contained Sediment.

B) Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to sediment interference

C) No resemblance to petroleum products in fuel oil range. Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to sediment interference

D) No resemblance to petroleum products in fuel oil range. TEH sample contained sediment

E) Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to matrix/co-extractive interference. Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to sediment interference



TABLE D-1: BTEX/TPH Concentrations in Groundwater (2007-2010) - Continued

Sample ID Sampling Date Parameter	DATA												GUIDELINES					
	MDL (µg/L)		Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan 2009 (µg/L)	MW-07 Jan 2009 DUP-1 (µg/L)	Oct. 2009 (µg/L)	Jan. 2010 (µg/L)	Jan. 2010 MW-07-D (µg/L)	Dec. 2010 (µg/L)	MW-08		10x CCME-FAL (Updated 2007) (µg/L)	2003 ATLANTIC PIRI - TIER I GASOLINE (µg/L)	RBCA RBSL* DIESEL/#2 (µg/L)	#6 OIL (µg/L)	2009 MOE Standards (1) (Table 3) (2) (µg/L)
	2007 - 2008	2009										Mar. 2010 (µg/L)	Dec. 2010 (µg/L)					
Benzene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3,700	6,900	6,900	6,900	44
Toluene	0.2	1.0	<0.2	<0.2	2.0	5	5	3	3	3	<5**	<1.0	<1.0	20	20,000	20,000	20,000	1,800
Ethylbenzene	0.2	1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	900	20,000	20,000	20,000	2,300
Total Xylene	0.6	2.0	<0.6	<0.6	<0.6	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-	20,000	20,000	20,000	4,200
TPH (C ₆ -C ₁₀)	50	10	<50	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	-	-	-	-	-
TPH (>C ₁₀ -C ₂₁)	50	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	-	-	-	-
TPH (>C ₂₁ -<C ₃₂)	50	100	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	-	-	-	-	-
Modified TPH (C ₆ -C ₃₂)	150	100	<150	<150	<150	200	200	<100	<100	<100	<100	<100	<100	-	20,000	20,000	20,000	-
Hydrocarbon Identification			-	-	-	Lube Oil	Lube Oil	B	F	A		F						

Notes:

MDL: Method detection limit

<X: not detected above MDL

CCME: Canadian Council of Ministers of the Environment

CEQG: Canadian Environment Quality Guidelines

FAL: Freshwater Aquatic Life

PIRI: Partnership in RBCA Implementation

RBCA: Risk Based Corrective Action

RBSL: Risk Based Screening Level

MOE: Ontario Ministry of Environment

Blue shaded data exceeds the recommended 2003 Atlantic PIRI RBCA RBSLs

Black shaded data exceeds the recommended MOE SCSS

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

*: Tier I RBCA criteria for gasoline, diesel/#2 and #6 oil in coarse grained soils at commercial sites where groundwater is non-potable

** Elevated method detection limit for toluene due to matrix interference. Method detection limit does not exceed the applicable guidelines.

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

DUP-1 (Jan. 2009) is a blind field duplicate of groundwater sample MW-07

MW-07-D (Jan. 2010) is a blind field duplicate of groundwater sample MW-07

A) TEH sample contained Sediment

B) Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to sediment interference

C) No resemblance to petroleum products in fuel oil range. Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to sediment interference

D) No resemblance to petroleum products in fuel oil range. TEH sample contained sediment

E) Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to matrix/co-extractive interference. Isobutylbenzene/n-Dotriacontane recovery(ies) not within acceptance limits due to sediment interference

F) TEH sample decanted due to sediment



TABLE D-2: PAH Concentrations in Groundwater (2007-2010)

Sample ID Sampling Date Parameter	DATA															GUIDELINES		
	MDL (µg/L)			MW-01								MW-02					10x CCME-FAL (Updated 2007) (µg/L)	2009 MOE SCS ¹ (Table 3) ² (µg/L)
	2007-2008	2009	Oct. 2009 / Dec. 2010	Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan. 2009 (µg/L)	Oct. 2009* (µg/L)	Jan. 2010 (µg/L)	Jan. 2010 MW-01-D (µg/L)	Dec. 2010 (µg/L)	Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Oct. 2009 (µg/L)	Jan. 2010 (µg/L)		
1-Methylnaphthalene	0.03	0.05	0.05	NA	-	<0.03	<0.05	<0.1	<0.05	<0.05	<0.05	NA	-	<0.03	<0.05	<0.05	-	1,800
2-Methylnaphthalene	0.03	0.05	0.05	NA	-	<0.03	<0.05	<0.1	<0.05	<0.05	<0.05	NA	-	<0.03	<0.05	<0.05	-	1,800
Acenaphthene	0.04	0.01	0.01	NA	<0.04	<0.04	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.04	<0.04	<0.01	<0.01	58	600
Acenaphthylene	0.03	0.01	0.01	NA	<0.03	<0.03	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	-	1.8
Acridine	-	-	0.05	-	-	-	-	<0.1	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	-	-
Anthracene	0.01	0.01	0.01	NA	<0.01	<0.01	<0.01	<0.02**	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01	<0.01	0.12	2.4
Benzo(a)anthracene	0.01	0.01	0.01	NA	<0.01	<0.01	<0.01	<0.02**	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01	<0.01	0.18	4.7
Benzo(a)pyrene	0.005	0.01	0.01	NA	<0.005	<0.005	<0.01	<0.02**	<0.01	<0.01	<0.01	NA	<0.005	<0.005	<0.01	<0.01	0.15	0.81
Benzo(b)fluoranthene	0.05	0.01	0.01	NA	<0.05	<0.05	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	-	0.75
Benzo(g,h,i)perylene	0.03	0.01	0.01	NA	<0.03	<0.03	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	-	0.2
Benzo(k)fluoranthene	0.05	0.01	0.01	NA	<0.05	<0.05	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	-	0.4
Chrysene	0.04	0.01	0.01	NA	<0.04	<0.04	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.04	<0.04	<0.01	<0.01	-	1
Dibenzo(a,h)anthracene	0.05	0.01	0.01	NA	<0.05	<0.05	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	-	0.52
Fluoranthene	0.03	0.01	0.01	NA	<0.03	<0.03	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	0.4	130
Fluorene	0.03	0.01	0.01	NA	<0.03	<0.03	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	30	400
Indeno(1,2,3-cd)pyrene	0.05	0.01	0.01	NA	<0.05	<0.05	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	-	0.2
Naphthalene	0.03	0.2	0.2	NA	<0.03	<0.03	<0.2	<0.5	<0.2	<0.2	<0.2	NA	<0.03	<0.03	<0.2	<0.2	11	1,400
Perylene	-	-	0.01	-	-	-	-	0.03	<0.01	<0.01	<0.01	-	-	-	<0.01	<0.01	-	-
Phenanthrene	0.04	0.01	0.01	NA	<0.04	<0.04	0.03	<0.02	<0.01	<0.01	<0.01	NA	<0.04	<0.04	<0.01	<0.01	4	580
Pyrene	0.01	0.01	0.01	NA	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01	<0.01	0.25	68
Quinoline	-	-	0.05	-	-	-	-	<0.1	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	30	-

Notes

MDL: Method Detection Limit

<X: Below MDL

CCME = Canadian Council of Ministers of the Environment

FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

-: Value not established or Parameter not analyzed

NA: Sample not analyzed for PAHs

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Shaded Data exceeds the MOE Standards

MW-01-D (Jan. 2010) is a blind field duplicate of groundwater sample MW-01

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

Bold faced guidelines reflect those most applicable to current land use designation

*Elevated Method Detection Limit due to insufficient sample

**Method Detection Limit exceeds the guidelines



TABLE D-2: PAH Concentrations in Groundwater (2007-2010) - Continued

Sample ID Sampling Date Parameter	MDL (µg/L)			DATA												GUIDELINES				
	2007-2008	2009	Oct. 2009 / Dec. 2010	MW-03				MW-04				Feb. 2007	Nov. 2007	May 2008	Jan 2009	Oct. 2009	Jan. 2010	Dec. 2010	10x CCME-FAL (Updated 2007)	2009 MOE SCS ¹ (Table 3) ²
				Feb. 2007	Nov. 2007	May 2008	Jan 2009	Oct. 2009	Jan. 2010	Dec. 2010	Feb. 2007									
1-Methylnaphthalene	0.03	0.05	0.05	-	-	<0.03	<0.05	0.05	<0.05	<0.05	NA	-	<0.03	0.06	<0.05	<0.05	<0.05	-	1,800	
2-Methylnaphthalene	0.03	0.05	0.05	-	-	<0.03	<0.05	0.07	<0.05	<0.05	NA	-	<0.03	0.08	<0.05	<0.05	<0.05	-	1,800	
Acenaphthene	0.04	0.01	0.01	0.04	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	NA	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	58	600	
Acenaphthylene	0.03	0.01	0.01	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	-	1.8	
Acridine	-	-	0.05	-	-	-	-	<0.05	<0.05	<0.05	-	-	-	-	<0.05	<0.05	<0.05	-	-	
Anthracene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	2.4	
Benzo(a)anthracene	0.01	0.01	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.18	4.7	
Benzo(a)pyrene	0.005	0.01	0.01	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	NA	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	0.15	0.81	
Benzo(b)fluoranthene	0.05	0.01	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	0.75	
Benzo(g,h,i)perylene	0.03	0.01	0.01	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	-	0.2	
Benzo(k)fluoranthene	0.05	0.01	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	0.4	
Chrysene	0.04	0.01	0.01	<0.04	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	NA	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	-	1	
Dibenzo(a,h)anthracene	0.05	0.01	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	0.52	
Fluoranthene	0.03	0.01	0.01	<0.03	<0.03	<0.03	<0.01	0.02	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	0.4	130	
Fluorene	0.03	0.01	0.01	<0.03	<0.03	<0.03	0.03	0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	30	400	
Indeno(1,2,3-cd)pyrene	0.05	0.01	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	0.2	
Naphthalene	0.03	0.2	0.2	0.08	0.05	0.05	<0.2	<0.2	<0.2	<0.2	NA	<0.03	<0.03	<0.2	<0.2	<0.2	<0.2	11	1,400	
Perylene	-	-	0.01	-	-	-	-	0.07	<0.01	<0.01	-	-	-	-	<0.01	<0.01	<0.01	-	-	
Phenanthrene	0.04	0.01	0.01	<0.04	<0.04	<0.04	0.03	0.02	<0.01	<0.01	NA	<0.04	<0.04	0.03	<0.01	<0.01	<0.01	4	580	
Pyrene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.25	68	
Quinoline	-	-	0.05	-	-	-	-	<0.05	<0.05	<0.05	-	-	-	-	<0.05	<0.05	<0.05	30	-	

Notes

MDL: Method Detection Limit

<X: Below MDL

CCME = Canadian Council of Ministers of the Environment

FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

-: Value not established or Parameter not analyzed

NA: Sample not analyzed for PAHs

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Shaded Data exceeds the MOE Standards

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

Bold faced guidelines reflect those most applicable to current land use designation

*Elevated Method Detection Limit due to insufficient sample

**Method Detection Limit exceeds the guidelines



TABLE D-2: PAH Concentrations in Groundwater (2007-2010) - Continued

Sample ID Sampling Date Parameter	MDL (µg/L)			DATA														GUIDELINES	
				MW-05							MW-06							10x CCME-FAL (Updated 2007) (µg/L)	2009 MOE SCS ¹ (Table 3) ² (µg/L)
				Feb. 2007	Nov. 2007	May 2008	Jan 2009	Oct. 2009	Jan. 2010	Dec. 2010	Feb. 2007	Nov. 2007	May 2008	Jan 2009	Jan. 2010	Dec. 2010	Dec.2010 DUP-1		
1-Methylnaphthalene	0.03	0.05	0.05	-	-	<0.03	<0.06	<0.05	<0.05	<0.05	NA	-	<0.03	<0.05	<0.05	<0.05	<0.05	-	1,800
2-Methylnaphthalene	0.03	0.05	0.05	-	-	<0.03	<0.06	<0.05	<0.05	<0.05	NA	-	<0.03	<0.05	<0.05	<0.05	<0.05	-	1,800
Acenaphthene	0.04	0.01	0.01	<0.04	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	NA	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	58	600
Acenaphthylene	0.03	0.01	0.01	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	-	1.8
Acridine	-	-	0.05	-	-	-	-	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-
Anthracene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	2.4
Benzo(a)anthracene	0.01	0.01	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.18	4.7
Benzo(a)pyrene	0.005	0.01	0.01	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	NA	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	0.15	0.81
Benzo(b)fluoranthene	0.05	0.01	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	0.75
Benzo(g,h,i)perylene	0.03	0.01	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	0.2
Benzo(k)fluoranthene	0.05	0.01	0.01	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	-	0.4
Chrysene	0.04	0.01	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	1
Dibenzo(a,h)anthracene	0.05	0.01	0.01	<0.04	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	NA	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	-	0.52
Fluoranthene	0.03	0.01	0.01	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	0.4	130
Fluorene	0.03	0.01	0.01	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	30	400
Indeno(1,2,3-cd)pyrene	0.05	0.01	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	0.2
Naphthalene	0.03	0.2	0.2	<0.03	<0.03	<0.03	<0.2	<0.2	<0.2	<0.2	NA	<0.03	<0.03	<0.2	<0.2	<0.2	<0.2	11	1,400
Perylene	-	-	0.01	-	-	-	-	0.03	<0.01	<0.01	-	-	-	-	<0.01	<0.01	<0.01	-	-
Phenanthrene	0.04	0.01	0.01	<0.04	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	NA	<0.04	<0.04	0.03	<0.01	<0.01	<0.01	4	580
Pyrene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.25	68
Quinoline	-	-	0.05	-	-	-	-	<0.05	<0.05	<0.05	-	-	-	-	<0.05	<0.05	<0.05	30	-

Notes

MDL: Method Detection Limit

<X: Below MDL

CCME = Canadian Council of Ministers of the Environment

FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

-: Value not established or Parameter not analyzed

NA: Sample not analyzed for PAHs

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Shaded Data exceeds the MOE Standards

DUP-1 (Dec. 2010) is a blind field duplicate of groundwater sample MW-06

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

Bold faced guidelines reflect those most applicable to current land use designation

*Elevated Method Detection Limit due to insufficient sample

**Method Detection Limit exceeds the guidelines



TABLE D-2: PAH Concentrations in Groundwater (2007-2010) - Continued

Sample ID Sampling Date Parameter	MDL (µg/L) 2007-2008 2009 Oct. 2009 / Dec. 2010			DATA										GUIDELINES		
				MW-07					MW-08					10x CCME-FAL (Updated 2007) (µg/L)	2009 MOE SCS ¹ (Table 3) ² (µg/L)	
				Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan 2009 (µg/L)	Jan 2009 DUP-1 (µg/L)	Jan. 2010 (µg/L)	Jan. 2010 MW-07-D (µg/L)	Dec. 2010 (µg/L)	Mar. 2010 (µg/L)	Dec. 2010 (µg/L)			
1-Methylnaphthalene	0.03	0.05	0.05	NA	-	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	1,800
2-Methylnaphthalene	0.03	0.05	0.05	NA	-	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	1,800
Acenaphthene	0.04	0.01	0.01	NA	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	58	600
Acenaphthylene	0.03	0.01	0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	1.8
Acridine	-	-	0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-
Anthracene	0.01	0.01	0.01	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	2.4
Benzo(a)anthracene	0.01	0.01	0.01	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.18	4.7
Benzo(a)pyrene	0.005	0.01	0.01	NA	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.15	0.81
Benzo(b)fluoranthene	0.05	0.01	0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.75
Benzo(g,h,i)perylene	0.03	0.01	0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.2
Benzo(k)fluoranthene	0.05	0.01	0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.4
Chrysene	0.04	0.01	0.01	NA	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	1
Dibenzo(a,h)anthracene	0.05	0.01	0.01	NA	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.52
Fluoranthene	0.03	0.01	0.01	NA	<0.03	<0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.4	130
Fluorene	0.03	0.01	0.01	NA	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	30	400
Indeno(1,2,3-cd)pyrene	0.05	0.01	0.01	NA	<0.05	<0.05	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.2
Naphthalene	0.03	0.2	0.2	NA	<0.03	<0.03	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	11	1,400
Perylene	-	-	0.01	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Phenanthrene	0.04	0.01	0.01	NA	<0.04	<0.04	0.04	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	4	580
Pyrene	0.01	0.01	0.01	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.25	68
Quinoline	-	-	0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	30	-

Notes

MDL: Method Detection Limit

<X: Below MDL

CCME = Canadian Council of Ministers of the Environment

FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

-: Value not established or Parameter not analyzed

NA: Sample not analyzed for PAHs

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Shaded Data exceeds the MOE Standards

MW-07-D (Jan. 2010) and DUP-1 (Jan. 2009) are blind field duplicates of groundwater sample MW-07

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

Bold faced guidelines reflect those most applicable to current land use designation

*Elevated Method Detection Limit due to insufficient sample

**Method Detection Limit exceeds the guidelines



TABLE D-3: VOC Concentrations in Groundwater (2007-2010)

Sample ID Sampling Date Parameter	DATA															GUIDELINES		
	MDL (µg/L)			MW-01					MW-02					10x CCME-FAL (Updated 2007)	2009 MOE SCS ¹ (Table 3) ²			
	2007-2008	2009	Oct. 2009 / Dec. 2010	Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan 2009 (µg/L)	Oct. 2009 (µg/L)	Jan. 2010 (µg/L)	Jan. 2010 MW-01-D (µg/L)	Dec. 2010 (µg/L)	Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Oct. 2009 (µg/L)	Jan. 2010 (µg/L)	(µg/L)	(µg/L)
Methyl Chloride	0.3	3	-	NA	< 0.3	< 0.3	-	-	-	-	NA	< 0.3	< 0.3	-	-	-	-	610
Vinyl Chloride	0.2	1	0.5	NA	< 0.2	< 0.2	<1	<0.5	<0.5	<0.5	NA	< 0.2	< 0.2	<0.5	<0.5	-	-	0.5
Bromomethane	0.4	8	3	NA	< 0.4	< 0.4	<8	<3	<3	<3	NA	< 0.4	< 0.4	<3	<3	-	-	5.6
Chloroethane	0.4	8	8	NA	< 0.4	< 0.4	<8	<8	<8	<8	NA	< 0.4	< 0.4	<8	<8	-	-	-
Trichlorofluoromethane	0.3	8	8	NA	< 0.3	< 0.3	<8	<8	<8	<8	NA	< 0.3	< 0.3	<8	<8	-	-	2,500
1,1-Dichloroethene	0.3	-	-	NA	< 0.3	< 0.3	-	-	-	-	NA	< 0.3	< 0.3	-	-	-	-	-
Methylene Chloride	5	-	3	NA	<5	<5	<3	<3	<3	<3	NA	<5	<5	<3	<3	981	-	-
Methyl-t-butyl ether	0.5	-	-	NA	<0.5	<0.5	-	-	-	-	NA	<0.5	<0.5	-	-	-	-	190
T1,2-Dichloroethylene	0.2	2	2	NA	< 0.2	< 0.2	<2**	<2**	<2**	<2**	NA	< 0.2	< 0.2	<2**	<2**	-	-	1.6
1,1-Dichloroethane	0.6	2	2	NA	< 0.6	< 0.6	<2**	<2**	<2**	<2**	NA	< 0.6	< 0.6	<2**	<2**	-	-	1.6
C1,2-Dichloroethylene	0.7	2	2	NA	< 0.7	< 0.7	<2**	<2**	<2**	<2**	NA	< 0.7	< 0.7	<2**	<2**	-	-	1.6
Chloroform	0.5	1	1	NA	< 0.5	< 0.5	<1	<1	<1	<1	NA	< 0.5	< 0.5	<1	<1	18	-	2.4
1,1,1-Trichloroethane	0.5	1	1	NA	< 0.5	< 0.5	<1	<1	<1	<1	NA	< 0.5	< 0.5	<1	<1	-	-	640
Carbon Tetrachloride	0.3	1	1	NA	< 0.3	< 0.3	<1**	<1**	<1**	<1**	NA	< 0.3	< 0.3	<1**	<1**	133	-	0.79
Benzene	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	NA	< 0.4	< 0.4	<1	<1	3,700	-	44
1,2-Dichloroethane	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	NA	< 0.4	< 0.4	<1	<1	1,000	-	1.6
Trichloroethylene	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	NA	< 0.4	< 0.4	<1	<1	210	-	1.6
1,2-Dichloropropane	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	NA	< 0.4	< 0.4	<1	<1	-	-	16
Bromodichloromethane	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	NA	< 0.3	< 0.3	<1	<1	-	-	85,000
C1,3-Dichloropropane	0.4	2	2	NA	< 0.4	< 0.4	<2	<2	<2	<2	NA	< 0.4	< 0.4	<2	<2	-	-	5.2
Toluene	0.3	1	1	NA	< 0.3	0.5	<1	<1	<1	<1	NA	< 0.3	< 0.3	<1	<1	20	-	18,000
T1,3-Dichloropropane	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	NA	< 0.3	< 0.3	<1	<1	-	-	5.2
1,1,2-Trichloroethane	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	NA	< 0.4	< 0.4	<1	<1	-	-	4.7
Tetrachloroethylene	0.3	1	1	NA	0.6	< 0.3	<1	<1	<1	<1	NA	0.4	< 0.3	<1	<1	1,110	-	1.6
Dibromochloromethane	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	NA	< 0.4	< 0.4	<1	<1	-	-	82,000
Ethylene Dibromide	0.3	1	1	NA	<0.3**	<0.3**	<1**	<1**	<1**	<1**	NA	<0.3**	<0.3**	<1**	<1**	-	-	0.25
Chlorobenzene	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	NA	< 0.3	< 0.3	<1	<1	13	-	630
1,1,1,2-Tetrachloroethane	0.3	-	-	NA	< 0.3	< 0.3	-	-	-	-	NA	< 0.3	< 0.3	-	-	-	-	3.4
Ethylbenzene	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	NA	< 0.3	< 0.3	<1	<1	900	-	28,000
Bromoform	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	NA	< 0.3	< 0.3	<1	<1	-	-	380
1,1,2,2-Tetrachloroethane	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	NA	< 0.3	< 0.3	<1	<1	-	-	3.2
1,3-Dichlorobenzene	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	NA	< 0.3	< 0.3	<1	<1	-	-	9,600
1,4-Dichlorobenzene	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	NA	< 0.4	< 0.4	<1	<1	260	-	8
1,2-Dichlorobenzene	0.4	0.5	0.5	NA	< 0.4	< 0.4	<0.5	<0.5	<0.5	<0.5	NA	< 0.4	< 0.4	<0.5	<0.5	7	-	4,600
m/p-Xylene	0.6	2	2	NA	< 0.6	< 0.6	<2	<2	<2	<2	NA	< 0.6	< 0.6	<2	<2	-	-	4,200
o-Xylene	0.2	1	1	NA	< 0.2	< 0.2	<1	<1	<1	<1	NA	< 0.2	< 0.2	<1	<1	-	-	-
Styrene	0.2	1	1	NA	< 0.2	< 0.2	<1	<1	<1	<1	NA	< 0.2	< 0.2	<1	<1	720	-	1,300
1,2,4-Trichlorobenzene	0.5	-	-	NA	< 0.5	< 0.5	-	-	-	-	NA	< 0.5	< 0.5	-	-	-	-	180
Acetone	10	-	-	NA	<10	12	-	-	-	-	NA	<10	<10	-	-	-	-	130,000
Methyl Ethyl Ketone	10	-	-	NA	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	470,000
MIBK	10	-	-	NA	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	-
2-Chloroethylvinyl Ether	10	-	-	NA	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	-
1,1-Dichloroethylene	-	2	0.5	-	-	-	<2**	<0.4	<0.4	<0.4	-	-	-	<0.4	<0.4	-	-	1.6
Chloromethane	-	8	8	-	-	-	<8	<8	<8	<8	-	-	-	<8	<8	-	-	-

Notes

MDL: Method Detection Limit
 <X: Below MDL
 CCME: Canadian Council of Ministers of the Environment
 FAL: Canadian Water Quality Guidelines for Freshwater Aquatic Life
 MOE: Ontario Ministry of Environment
 SCS: Site Condition Standards
 NA: Sample not analyzed for VOCs

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Shaded Data exceeds the MOE Standards

Bold faced guidelines reflect those most applicable to current land use designation

**Method Detection Limit exceeds the guidelines

1 - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

2 - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

-: Value not established



TABLE D-3: VOC Concentrations in Groundwater (2007-2010)

Sample ID Sampling Date Parameter	DATA																GUIDELINES		
	MDL (µg/L)			MW-03								MW-04					10x CCME-FAL (Updated 2007) (µg/L)	2009 MOE SCS ¹ (Table 3) ² (µg/L)	
	2007-2008	2009	Oct. 2009 / Dec. 2010	Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan 2009 (µg/L)	Oct. 2009 (µg/L)	Jan. 2010 (µg/L)	Dec. 2010 (µg/L)	Feb. 2007 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan 2009 (µg/L)	Oct. 2009 (µg/L)	Jan. 2010 (µg/L)			Dec. 2010 (µg/L)
Methyl Chloride	0.3	3	-	<0.3	<0.3	<0.3	-	-	-	-	NA	<0.3	<0.3	-	-	-	-	-	610
Vinyl Chloride	0.2	1	0.5	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5	NA	<0.2	<0.2	<1**	<0.5	<0.5	<0.5	-	0.5
Bromomethane	0.4	8	3	<0.4	<0.4	<0.4	<8**	<3	<3	<3	NA	<0.4	<0.4	<8**	<3	<3	<3	-	5.6
Chloroethane	0.4	8	8	<0.4	<0.4	<0.4	<8	<8	<8	<8	NA	<0.4	<0.4	<8	<8	<8	<8	-	-
Trichlorofluoromethane	0.3	8	8	<0.3	<0.3	<0.3	<8	<8	<8	<8	NA	<0.3	<0.3	<8	<8	<8	<8	-	2,500
1,1-Dichloroethene	0.3	-	-	<0.3	<0.3	<0.3	-	-	-	-	NA	<0.3	<0.3	-	-	-	-	-	-
Methylene Chloride	5	-	3	<5	<5	<5	<3	<3	<3	<3	NA	<5	<5	<3	<3	<3	<3	981	-
Methyl-t-butyl ether	0.5	-	-	-	<0.5	<0.5	-	-	-	-	NA	<0.5	<0.5	-	-	-	-	-	190
T1,2-Dichloroethylene	0.2	2	2	<0.2	<0.2	<0.2	<2**	<2**	<2**	<2**	NA	<0.2	<0.2	<2**	<2**	<2**	<2**	-	1.6
1,1-Dichloroethane	0.6	2	2	<0.3	<0.6	<0.6	<2**	<2**	<2**	<2**	NA	<0.6	<0.6	<2**	<2**	<2**	<2**	-	1.6
C1,2-Dichloroethylene	0.7	2	2	<0.7	<0.7	<0.7	<2**	<2**	<2**	<2**	NA	<0.7	<0.7	<2**	<2**	<2**	<2**	-	1.6
Chloroform	0.5	1	1	<0.5	<0.5	<0.5	<1	<1	<1	<1	NA	<0.5	<0.5	<1	<1	<1	<1	18	2.4
1,1,1-Trichloroethane	0.5	1	1	<0.5	<0.5	<0.5	<1	<1	<1	<1	NA	<0.5	<0.5	<1	<1	<1	<1	-	640
Carbon Tetrachloride	0.3	1	1	<0.3	<0.3	<0.3	<1**	<1**	<1**	<1**	NA	<0.3	<0.3	<1**	<1**	<1**	<1**	133	0.79
Benzene	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	3,700	44
1,2-Dichloroethane	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	1,000	1.6
Trichloroethylene	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	210	1.6
1,2-Dichloropropane	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	-	16
Bromodichloromethane	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	85,000
C1,3-Dichloropropene	0.4	2	2	<0.4	<0.4	<0.4	<2	<2	<2	<2	NA	<0.4	<0.4	<2	<2	<2	<2	-	5.2
Toluene	0.3	1	1	0.4	3.7	10.5	<1	11	<1	<1	NA	<0.3	<0.3	490	<1	<1	<1	20	18,000
T1,3-Dichloropropene	0.3	1	1	-	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	5.2
1,1,2-Trichloroethane	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	-	4.7
Tetrachloroethylene	0.3	1	1	<0.3	0.8	<0.3	<1	<1	<1	<1	NA	0.7	<0.3	<1	<1	<1	<1	1,110	1.6
Dibromochloromethane	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	-	82,000
Ethylene Dibromide	0.3	1	1	<0.3**	<0.3**	<0.3**	<1**	<1**	<1**	<1**	NA	<0.3**	<0.3**	<1**	<1**	<1**	<1**	-	0.25
Chlorobenzene	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	13	630
1,1,1,2,-Tetrachloroethane	0.3	-	-	<0.3	<0.3	<0.3	-	-	-	-	NA	<0.3	<0.3	-	-	-	-	-	3.4
Ethylbenzene	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	900	28,000
Bromoform	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	380
1,1,2,2,-Tetrachloroethane	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	3.2
1,3-Dichlorobenzene	0.3	1	1	-	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	9,600
1,4-Dichlorobenzene	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	260	8
1,2-Dichlorobenzene	0.4	0.5	0.5	<0.4	<0.4	<0.4	<0.5	<0.5	<0.5	<0.5	NA	<0.4	<0.4	<0.5	<0.5	<0.5	<0.5	7	4,600
m/p-Xylene	0.6	2	2	<0.6	<0.6	<0.6	<2	<2	<2	<2	NA	<0.6	<0.6	<2	<2	<2	<2	-	4,200
o-Xylene	0.2	1	1	<0.2	<0.2	<0.2	<1	<1	<1	<1	NA	<0.2	<0.2	<1	<1	<1	<1	-	-
Styrene	0.2	1	1	<0.2	<0.2	<0.2	<1	<1	<1	<1	NA	<0.2	<0.2	<1	<1	<1	<1	720	1,300
1,2,4-Trichlorobenzene	0.5	-	-	<0.5	<0.5	<0.5	-	-	-	-	NA	<0.5	<0.5	-	-	-	-	-	180
Acetone	10	-	-	<10	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	-	130,000
Methyl Ethyl Ketone	10	-	-	<10	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	-	470,000
MIBK	10	-	-	<10	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	-	-
2-Chloroethylvinyl Ether	10	-	-	<10	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	-	-
1,1-Dichloroethylene	-	2	0.5	-	-	-	<2**	<0.4	<0.4	<0.4	-	-	-	<2**	<0.4	<0.4	<0.4	-	1.6
Chloromethane	-	8	8	-	-	-	<8	<8	<8	<8	-	-	-	<8	<8	<8	<8	-	-

Notes

- MDL: Method Detection Limit
- <X: Below MDL
- CCME: Canadian Council of Ministers of the Environment
- FAL: Canadian Water Quality Guidelines for Freshwater Aquatic Life
- MOE: Ontario Ministry of Environment
- SCS: Site Condition Standards
- NA: Sample not analyzed for VOCs

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Shaded Data exceeds the MOE Standards

Bold faced guidelines reflect those most applicable to current land use designation

**Method Detection Limit exceeds the guidelines

1 - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

2 - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

-: Value not established



TABLE D-3: VOC Concentrations in Groundwater (2007-2010) - Continued

Sample ID Sampling Date Parameter	DATA																	GUIDELINES	
	MDL (µg/L)			MW-05				MW-06				10x CCME-FAL (Updated 2007) (µg/L)	2009 MOE SCS ¹ (Table 3) ² (µg/L)						
	2007-2008	2009.00	Oct. 2009 / Dec. 2010	Feb. 2007	Nov. 2007	May 2008	Jan 2009	Oct. 2009	Jan. 2010	Dec. 2010	Feb. 2007			Nov. 2007	May 2009	Jan 2008	Oct. 2009	Jan. 2010	Dec. 2010
Methyl Chloride	0.3	3	-	<0.3	<0.3	<0.3	-	-	-	-	NA	<0.3	<0.3	-	-	-	-	-	610
Vinyl Chloride	0.2	1	0.5	<0.2	<0.2	<0.2	<1**	<0.5	<0.5	<0.5	NA	<0.2	<0.2	<1**	<0.5	<0.5	<0.5	-	0.5
Bromomethane	0.4	8	3	<0.4	<0.4	<0.4	<8**	<3	<3	<3	NA	<0.4	<0.4	<8**	<3	<3	<3	-	5.6
Chloroethane	0.4	8	8	<0.4	<0.4	<0.4	<8	<8	<8	<8	NA	<0.4	<0.4	<8	<8	<8	<8	-	-
Trichlorofluoromethane	0.3	8	8	<0.3	<0.3	<0.3	<8	<8	<8	<8	NA	<0.3	<0.3	<8	<8	<8	<8	-	2,500
1,1-Dichloroethene	0.3	-	-	<0.3	<0.3	<0.3	-	-	-	-	NA	<0.3	<0.3	-	-	-	-	-	-
Methylene Chloride	5	-	3	<5	<5	<5	<3	<3	<3	<3	NA	<5	<5	<3	<3	<3	<3	981	-
Methyl-t-butyl ether	0.5	-	-	-	<0.5	<0.5	-	-	-	-	NA	<0.5	<0.5	-	-	-	-	-	190
1,1,2-Dichloroethylene	0.2	2	2	<0.2	<0.2	<0.2	<2**	<2**	<2**	<2**	NA	<0.2	<0.2	<2**	<2**	<2**	<2**	-	1.6
1,1-Dichloroethane	0.6	2	2	<0.3	<0.6	<0.6	<2**	<2**	<2**	<2**	NA	<0.6	<0.6	<2**	<2**	<2**	<2**	-	1.6
C1,2-Dichloroethylene	0.7	2	2	<0.7	<0.7	<0.7	<2**	<2**	<2**	<2**	NA	<0.7	<0.7	<2**	<2**	<2**	<2**	-	1.6
Chloroform	0.5	1	1	<0.5	<0.5	<0.5	<1	<1	<1	<1	NA	<0.5	<0.5	<1	<1	<1	<1	18	2.4
1,1,1-Trichloroethane	0.5	1	1	<0.5	<0.5	<0.5	<1	<1	<1	<1	NA	<0.5	<0.5	<1	<1	<1	<1	-	640
Carbon Tetrachloride	0.3	1	1	<0.3	<0.3	<0.3	<1**	<1**	<1**	<1**	NA	<0.3	<0.3	<1**	<1**	<1**	<1**	133	0.79
Benzene	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	3,700	44
1,2-Dichloroethane	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	1,000	1.6
Trichloroethylene	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	210	1.6
1,2-Dichloropropane	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	-	16
Bromodichloromethane	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	85,000
C1,3-Dichloropropene	0.4	2	2	<0.4	<0.4	<0.4	<2	<2	<2	<2	NA	<0.4	<0.4	<2	<2	<2	<2	-	5.2
Toluene	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	1.1	<1	51	<1	<1	20	18,000
1,1,3-Dichloropropane	0.3	1	1	-	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	5.2
1,1,2-Trichloroethane	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	-	4.7
Tetrachloroethylene	0.3	1	1	<0.3	0.5	<0.3	<1	<1	<1	<1	NA	0.7	<0.3	<1	<1	<1	<1	1,110	1.6
Dibromochloromethane	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	-	82,000
Ethylene Dibromide	0.3	1	1	<0.3**	<0.3**	<0.3**	<1**	<1**	<1**	<1**	NA	<0.3**	<0.3**	<1**	<1**	<1**	<1**	-	0.25
Chlorobenzene	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	13	630
1,1,1,2,-Tetrachloroethane	0.3	-	-	<0.3	<0.3	<0.3	-	-	-	-	NA	<0.3	<0.3	-	-	-	-	-	3.4
Ethylbenzene	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	900	28,000
Bromoform	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	380
1,1,2,2,-Tetrachloroethane	0.3	1	1	<0.3	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	3.2
1,3-Dichlorobenzene	0.3	1	1	-	<0.3	<0.3	<1	<1	<1	<1	NA	<0.3	<0.3	<1	<1	<1	<1	-	9,600
1,4-Dichlorobenzene	0.4	1	1	<0.4	<0.4	<0.4	<1	<1	<1	<1	NA	<0.4	<0.4	<1	<1	<1	<1	260	8
1,2-Dichlorobenzene	0.4	0.5	0.5	<0.4	<0.4	<0.4	<0.5	<0.5	<0.5	<0.5	NA	<0.4	<0.4	<0.5	<0.5	<0.5	<0.5	7	4,600
m/p-Xylene	0.6	2	2	<0.6	<0.6	<0.6	<2	<2	<2	<2	NA	<0.6	<0.6	<2	<2	<2	<2	-	4,200
o-Xylene	0.2	1	1	<0.2	<0.2	<0.2	<1	<1	<1	<1	NA	<0.2	<0.2	<1	<1	<1	<1	-	-
Styrene	0.2	1	1	<0.2	<0.2	<0.2	<1	<1	<1	<1	NA	<0.2	<0.2	<1	<1	<1	<1	720	1,300
1,2,4-Trichlorobenzene	0.5	-	-	<0.5	<0.5	<0.5	-	-	-	-	NA	<0.5	<0.5	-	-	-	-	-	180
Acetone	10	-	-	<10	<10	11	-	-	-	-	NA	<10	<10	-	-	-	-	-	130,000
Methyl Ethyl Ketone	10	-	-	<10	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	-	470,000
MIBK	10	-	-	<10	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	-	-
2-Chloroethylvinyl Ether	10	-	-	<10	<10	<10	-	-	-	-	NA	<10	<10	-	-	-	-	-	-
1,1-Dichloroethylene	-	2	0.5	-	-	-	<2**	<0.4	<0.4	<0.4	-	-	-	<2**	<0.4	<0.4	<0.4	-	1.6
Chloromethane	-	8	8	-	-	-	<8	<8	<8	<8	-	-	-	<8	<8	<8	<8	-	-

Notes

MDL: Method Detection Limit
 <X: Below MDL
 CCME: Canadian Council of Ministers of the Environment
 FAL: Canadian Water Quality Guidelines for Freshwater Aquatic Life
 MOE: Ontario Ministry of Environment
 SCS: Site Condition Standards
 NA: Sample not analyzed for VOCs
Bold and underlined data exceeds 10 x the CCME-FAL Guidelines
Shaded Data exceeds the MOE Standards
Bold faced guidelines reflect those most applicable to current land use designation
 -: Value not established
 **Method Detection Limit exceeds the guidelines
 1 - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009
 2 - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils



TABLE D-3: VOC Concentrations in Groundwater (2007-2010) - Continued

Sample ID Sampling Date Parameter	DATA												GUIDELINES		
	MDL (µg/L)			Feb. 2007	Nov. 2007	May 2008	Jan 2009	MW-07 Jan 2009 DUP-1	Oct. 2009	Jan. 2010	Jan. 2010 MW-07-D	Dec. 2010	MW-08 Dec. 2010	10x CCME-FAL (Updated 2007)	2009 MOE SCS ¹ (Table 3) ²
	2007-2008	2009.00	Oct. 2009 / Jan. 2010	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Methyl Chloride	0.3	3	-	NA	< 0.3	< 0.3	-	-	-	-	-	-	-	-	610
Vinyl Chloride	0.2	1	0.5	NA	< 0.2	< 0.2	<1**	<1**	<0.5	<0.5	<0.5	<0.5	<0.5	-	0.5
Bromomethane	0.4	8	3	NA	< 0.4	< 0.4	<8**	<8**	<3	<3	<3	<3	<3	-	5.6
Chloroethane	0.4	8	8	NA	< 0.4	< 0.4	<8	<8	<8	<8	<8	<8	<8	-	-
Trichlorofluoromethane	0.3	8	8	NA	< 0.3	< 0.3	<8	<8	<8	<8	<8	<8	<8	-	2,500
1,1-Dichloroethene	0.3	-	-	NA	< 0.3	< 0.3	-	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	3	NA	<5	<5	<3	<3	<3	<3	<3	<3	<3	981	-
Methyl-t-butyl ether	0.5	-	-	NA	<0.5	<0.5	-	-	-	-	-	-	-	-	190
T1,2-Dichloroethylene	0.2	2	2	NA	< 0.2	< 0.2	<2**	<2**	<2**	<2**	<2**	<2**	<2**	-	1.6
1,1-Dichloroethane	0.6	2	2	NA	< 0.6	< 0.6	<2**	<2**	<2**	<2**	<2**	<2**	<2**	-	1.6
C1,2-Dichloroethylene	0.7	2	2	NA	< 0.7	< 0.7	<2**	<2**	<2**	<2**	<2**	<2**	<2**	-	1.6
Chloroform	0.5	1	1	NA	< 0.5	< 0.5	<1	<1	<1	<1	<1	<1	<1	18	2.4
1,1,1-Trichloroethane	0.5	1	1	NA	< 0.5	< 0.5	<1	<1	<1	<1	<1	<1	<1	-	640
Carbon Tetrachloride	0.3	1	1	NA	< 0.3	< 0.3	<1**	<1**	<1**	<1**	<1**	<1**	<1**	133	0.79
Benzene	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	<1	<1	<1	3,700	44
1,2-Dichloroethane	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	<1	<1	<1	1,000	1.6
Trichloroethylene	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	<1	<1	<1	210	1.6
1,2-Dichloropropane	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	<1	<1	<1	-	16
Bromodichloromethane	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	<1	<1	<1	-	85,000
C1,3-Dichloropropene	0.4	2	2	NA	< 0.4	< 0.4	<2	<2	<2	<2	<2	<2	<2	-	5.2
Toluene	0.3	1	1	NA	< 0.3	0.9	5	6	6	4	4	<1	<1	20	18,000
T1,3-Dichloropropene	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	<1	<1	<1	-	5.2
1,1,2-Trichloroethane	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	<1	<1	<1	-	4.7
Tetrachloroethylene	0.3	1	1	NA	0.7	< 0.3	<1	<1	<1	<1	<1	<1	<1	1,110	1.6
Dibromochloromethane	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	<1	<1	<1	-	82,000
Ethylene Dibromide	0.3	1	1	NA	<0.3**	<0.3**	<1**	<1**	<1**	<1**	<1**	<1**	<1**	-	0.25
Chlorobenzene	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	<1	<1	<1	13	630
1,1,1,2,-Tetrachloroethane	0.3	-	-	NA	< 0.3	< 0.3	-	-	-	-	-	-	-	-	3.4
Ethylbenzene	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	<1	<1	<1	900	28,000
Bromoform	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	<1	<1	<1	-	380
1,1,2,2,-Tetrachloroethane	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	<1	<1	<1	-	3.2
1,3-Dichlorobenzene	0.3	1	1	NA	< 0.3	< 0.3	<1	<1	<1	<1	<1	<1	<1	-	9,600
1,4-Dichlorobenzene	0.4	1	1	NA	< 0.4	< 0.4	<1	<1	<1	<1	<1	<1	<1	260	8
1,2-Dichlorobenzene	0.4	0.5	0.5	NA	< 0.4	< 0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7	4,600
m/p-Xylene	0.6	2	2	NA	< 0.6	< 0.6	<2	<2	<2	<2	<2	<2	<2	-	4,200
o-Xylene	0.2	1	1	NA	< 0.2	< 0.2	<1	<1	<1	<1	<1	<1	<1	-	-
Styrene	0.2	1	1	NA	< 0.2	< 0.2	<1	<1	<1	<1	<1	<1	<1	720	1,300
1,2,4-Trichlorobenzene	0.5	-	-	NA	< 0.5	< 0.5	-	-	-	-	-	-	-	-	180
Acetone	10	-	-	NA	<10	<10	-	-	-	-	-	-	-	-	130,000
Methyl Ethyl Ketone	10	-	-	NA	<10	<10	-	-	-	-	-	-	-	-	470,000
MIBK	10	-	-	NA	<10	<10	-	-	-	-	-	-	-	-	-
2-Chloroethylvinyl Ether	10	-	-	NA	<10	<10	-	-	-	-	-	-	-	-	-
1,1-Dichloroethylene	-	2	0.5	-	-	-	<2**	<2**	<0.5	<0.5	<0.5	<0.4	<0.4	-	1.6
Chloromethane	-	8	8	-	-	-	<8	<8	<8	<8	<8	<8	<8	-	-

Notes

MDL: Method Detection Limit

<X: Below MDL

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FAL: Canadian Water Quality Guidelines for Freshwater Aquatic Life

MOE: Ontario Ministry of Environment

SCS: Site Condition Standards

NA: Sample not analyzed for VOCs

Bold and underlined data exceeds 10 x the CCME-FAL Guidelines

Shaded Data exceeds the MOE Standards

Bold faced guidelines reflect those most applicable to current land use designation

**Method Detection Limit exceeds the guidelines

-: Value not established

DUP-1 is a blind field duplicate of groundwater sample MW-07

1 - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009

2 - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils



TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010)

Sampling Date Sample ID Parameter	DATA									GUIDELINE	
	Nov. 2007			May 2008			Jan 2009			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-01 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-01 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-01 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	4.23	4.23	ND	0.815	0.815	ND	0.834	0.834	1	14,000 ¹
1,2,3,7,8-Penta CDD	ND	0.858	0.858	1.95	0.794	1.95	ND	0.750	0.750	1	
1,2,3,4,7,8-Hexa CDD	ND	0.666	0.0666	ND	1.21	0.121	ND	1.02	0.102	0.1	
1,2,3,6,7,8-Hexa CDD	0.706	0.625	0.0706	ND	1.15	0.115	ND	1.06	0.106	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.619	0.0619	1.76	1.26	0.176	ND	0.981	0.0981	0.1	
1,2,3,4,6,7,8-Hepta CDD	ND	2.39	0.0239	2.65	0.737	0.0265	ND	1.09	0.0109	0.01	
Octa CDD	13.5	0.664	0.00405	11.5	1.18	0.00345	2.29	1.28	0.000687	0.0001 / 0.0003	
Total Tetra CDD	53.2	4.23	-	2.84	0.815	-	ND	1.06	-	-	
Total Penta CDD	ND	0.858	-	1.95	0.794	-	ND	0.750	-	-	
Total Hexa CDD	2.18	0.636	-	1.76	1.21	-	ND	1.02	-	-	
Total Hepta CDD	ND	2.39	-	2.65	0.737	-	ND	1.09	-	-	
2,3,7,8-Tetra CDF **	ND	0.888	0.0888	ND	2.22	0.222	1.43	0.942	0.143	0.1	
1,2,3,7,8-Penta CDF	ND	0.724	0.0217	ND	0.754	0.0226	ND	0.893	0.0268	0.05 / 0.03	
2,3,4,7,8-Penta CDF	1.18	0.658	0.354	ND	0.749	0.225	1.74	0.861	0.522	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	0.887	0.584	0.0887	ND	1.46	0.146	ND	0.692	0.0692	0.1	
1,2,3,6,7,8-Hexa CDF	0.616	0.551	0.0616	ND	1.32	0.132	ND	0.662	0.0662	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.653	0.0653	ND	1.72	0.172	ND	0.755	0.0755	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.669	0.0669	ND	2.06	0.206	ND	0.823	0.0823	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND	1.49	0.0149	ND	4.94	0.0494	ND	1.82	0.0182	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND	0.632	0.00632	ND	1.16	0.0116	ND	0.881	0.00881	0.01	
Octa CDF	1.59	0.641	0.000477	4.26	1.31	0.00128	ND	1.14	0.000342	0.0001 / 0.0003	
Total Tetra CDF	82.2	0.888	-	22.6	1.22	-	3.98	0.942	-	-	
Total Penta CDF	3.07	0.69	-	ND	109	-	1.74	0.877	-	-	
Total Hexa CDF	1.50	0.61	-	ND	1.60	-	ND	0.728	-	-	
Total Hepta CDF	ND	1.65	-	ND	4.94	-	ND	1.82	-	-	
Total Toxic Equivalency	-	-	6.08	-	-	4.39	-	-	2.91	-	

Notes:

MDL: Method detection limit

ND: Not detected

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

3 - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009.

4 - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

Shaded and bold data exceeds the MOE SCS

Bold faced guidelines reflect those most applicable to current land use designation

WHO: World Health Organisation

-: Value not established



TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010)

Sampling Date Sample ID Parameter	DATA									GUIDELINE	
	Oct. 2009			Jan. 2010			Dec. 2010			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-01 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-01 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-01 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	0.59	0.590	ND	0.94	0.94	ND	0.87	0.870	1	14,000 ¹
1,2,3,7,8-Penta CDD	ND	0.59	0.590	2.31	0.59	2.31	ND	0.70	0.700	1	
1,2,3,4,7,8-Hexa CDD	ND	0.61	0.0610	1.07	0.77	0.107	ND	0.75	0.0750	0.1	
1,2,3,6,7,8-Hexa CDD	ND	0.56	0.0560	1.52	0.65	0.152	ND	0.65	0.0650	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.55	0.0550	2.05	0.69	0.205	ND	0.65	0.0650	0.1	
1,2,3,4,6,7,8-Hepta CDD	4.70	0.61	0.0470	9.39	0.95	0.0939	2	0.55	0.0200	0.01	
Octa CDD	23.6	1.2	0.00708	44.3	0.99	0.0133	10	1.1	0.00300	0.0001 / 0.0003	
Total Tetra CDD	ND	0.59	-	16.5	0.94	-	3	0.87	-	-	
Total Penta CDD	ND	0.59	-	6.54	0.59	-	ND	0.70	-	-	
Total Hexa CDD	0.64	0.57	-	10.9	0.7	-	3	0.68	-	-	
Total Hepta CDD	7.800	0.61	-	17.9	0.95	-	4	0.55	-	-	
2,3,7,8-Tetra CDF **	0.7	0.56	0.0660	5.06	0.64	0.506	1	0.82	0.100	0.1	
1,2,3,7,8-Penta CDF	1.6	0.56	0.0480	4.44	0.6	0.133	ND	0.64	0.0192	0.05 / 0.03	
2,3,4,7,8-Penta CDF	ND (A)	0.55	0.165	2.98	0.61	0.894	1	0.66	0.300	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	1.11	0.55	0.111	5.14	0.69	0.514	1	0.52	0.100	0.1	
1,2,3,6,7,8-Hexa CDF	1.10	0.56	0.110	3.9	0.69	0.390	ND	0.48	0.0480	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.62	0.0620	2.04	0.78	0.204	ND	0.54	0.0540	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.68	0.0680	1.35	0.89	0.135	ND	0.60	0.0600	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND (A)	2.6	0.0260	ND(A)	11	0.110	ND (A)	1.80	0.0180	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND (A)	0.95	0.00950	ND	0.61	0.00610	ND	0.63	0.00630	0.01	
Octa CDF	4.6	1.1	0.00138	4.5	1	0.00135	2	1.10	0.000600	0.0001 / 0.0003	
Total Tetra CDF	6.24	0.56	-	89.1	0.64	-	25	0.82	-	-	
Total Penta CDF	2.89	0.56	-	29.7	0.60	-	2	0.65	-	-	
Total Hexa CDF	4.67	0.6	-	20.7	0.76	-	2	0.53	-	-	
Total Hepta CDF	3.8	0.59	-	ND (A)	13	-	ND (A)	1.90	-	-	
Total Toxic Equivalency			2.07			6.71			2.5	-	

Notes:

MDL: Method detection limit

ND: Not detected

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

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TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

Shaded and bold data exceeds the MOE SCS

Bold faced guidelines reflect those most applicable to current land use designation

WHO: World Health Organisation

-: Value not established

(A) - EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(B) - EMPC / DPE - Diphenylether interference present caused dibenzofuran detected to become a "non-detect" with an elevated detection limit.



TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010)

Sampling Date Sample ID Parameter	DATA									GUIDELINE	
	Nov. 2007			May 2008			Oct. 2009			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-02 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-02 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-02 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	0.656	0.656	ND	0.620	.620	ND	0.39	0.390	1	14,000¹
1,2,3,7,8-Penta CDD	ND	0.508	0.508	ND	0.640	.640	ND	0.43	0.430	1	
1,2,3,4,7,8-Hexa CDD	ND	0.617	0.0617	ND	0.814	0.0814	ND	0.61	0.0610	0.1	
1,2,3,6,7,8-Hexa CDD	ND	0.579	0.0579	ND	0.773	0.0773	ND	0.56	0.0560	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.573	0.0573	ND	0.848	0.0848	ND	0.55	0.0550	0.1	
1,2,3,4,6,7,8-Hepta CDD	1.16	0.75	0.0116	1.93	0.580	0.0193	3.39	0.55	0.0339	0.01	
Octa CDD	3.46	0.781	0.00104	7.95	1.22	0.00239	17.2	1.1	0.00516	0.0001 / 0.0003	
Total Tetra CDD	ND	0.656	-	ND	0.620	-	ND	0.39	-	-	
Total Penta CDD	ND	0.508	-	ND	0.640	-	ND	0.43	-	-	
Total Hexa CDD	ND	1.57	-	ND	0.811	-	ND	0.57	-	-	
Total Hepta CDD	1.16	0.75	-	3.17	0.580	-	5.77	0.55	-	-	
2,3,7,8-Tetra CDF **	ND	0.617	0.0617	1.40	0.955	0.140	ND	0.56	0.0560	0.1	
1,2,3,7,8-Penta CDF	ND	0.583	0.0175	ND	0.633	0.0190	ND	0.56	0.0168	0.05 / 0.03	
2,3,4,7,8-Penta CDF	ND	0.639	0.192	ND	0.629	0.189	ND	0.57	0.171	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	ND	0.513	0.0513	ND	0.688	0.0688	ND	0.53	0.0530	0.1	
1,2,3,6,7,8-Hexa CDF	ND	0.484	0.0484	ND	0.622	0.0622	ND	0.54	0.0540	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.574	0.0574	ND	0.811	0.0811	ND	0.60	0.0600	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.588	0.0588	ND	0.969	0.0969	ND	0.66	0.0660	0.1	
1,2,3,4,6,7,8-Hepta CDF	NG	0.636	0.00636	ND	3.85	0.0385	ND (A)	2.0	0.0200	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND	0.684	0.00684	ND	0.669	0.00669	ND	0.67	0.00670	0.01	
Octa CDF	ND	0.82	0.000246	2.81	1.34	0.000843	4.0	1.1	0.00120	0.0001 / 0.0003	
Total Tetra CDF	0.844	0.617	-	1.40	0.955	-	ND (B)	0.93	-	-	
Total Penta CDF	ND	0.669	-	ND	0.631	-	ND	0.56	-	-	
Total Hexa CDF	ND	0.536	-	ND	0.751	-	ND	0.58	-	-	
Total Hepta CDF	ND	0.705	-	ND	3.85	-	3.19	0.58	-	-	
Total Toxic Equivalency	-	-	1.85	-	-	2.23	-	-	1.54	-	

Notes:

MDL: Method detection limit

ND: Not detected

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

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TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

Shaded and bold data exceeds the MOE SCS

Bold faced guidelines reflect those most applicable to current land use designation

WHO: World Health Organisation

-: Value not established

(A) - EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(B) - EMPC / DPE - Diphenylether interference present caused dibenzofuran detected to become a "non-detect" with an elevated detection limit.



TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010)

Sampling Date	DATA				GUIDELINE 2009 MOE SCS ³ (Table 3) ⁴
	Jan. 2010			TEF (WHO) 1997 ²	
Sample ID	MW-02	MDL	TEF Equivalent		
Parameter	(pg / L)	(pg / L)	(pg / L)		
2,3,7,8-Tetra CDD *	ND	0.66	0.660	1	
1,2,3,7,8-Penta CDD	ND	0.67	0.670	1	
1,2,3,4,7,8-Hexa CDD	0.65	0.58	0.0650	0.1	
1,2,3,6,7,8-Hexa CDD	ND	0.49	0.0490	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.52	0.0520	0.1	
1,2,3,4,6,7,8-Hepta CDD	1.29	0.81	0.0129	0.01	
Octa CDD	6.4	1.1	0.00192	0.0001 / 0.0003	
Total Tetra CDD	ND	0.66	-	-	
Total Penta CDD	ND	0.67	-	-	
Total Hexa CDD	0.65	0.53	-	-	
Total Hepta CDD	1.29	0.81	-	-	
2,3,7,8-Tetra CDF **	1.56	0.56	0.156	0.1	
1,2,3,7,8-Penta CDF	0.70	0.59	0.0210	0.05 / 0.03	
2,3,4,7,8-Penta CDF	1.31	0.60	0.393	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	0.73	0.49	0.0730	0.1	
1,2,3,6,7,8-Hexa CDF	0.70	0.48	0.0700	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.55	0.0550	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.63	0.063	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND (A)	1.6	0.0160	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND	0.83	0.00830	0.01	
Octa CDF	1.75	0.98	0.000525	0.0001 / 0.0003	
Total Tetra CDF	3.490	0.56	-	-	
Total Penta CDF	2.01	0.60	-	-	
Total Hexa CDF	1.44	0.53	-	-	
Total Hepta CDF	ND (A)	1.9	-	-	
Total Toxic Equivalency			2.37	-	

Notes:

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ND: Not detected

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SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

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TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

Shaded and bold data exceeds the MOE SCS

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WHO: World Health Organisation

-: Value not established

(A) - EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(B) - EMPC / DPE - Diphenylether interference present caused dibenzofuran detected to become a "non-detect" with an elevated detection limit.



TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010) - Continued

Sampling Date Sample ID Parameter	DATA												GUIDELINE	
	Feb. 2007			Nov. 2007			May 2008			Jan 2009			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-03 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-03 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-03 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-03 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	1.25	1.25	ND	1.19	1.19	ND	0.597	0.597	ND	1.01	1.01	1	14,000 ¹
1,2,3,7,8-Penta CDD	ND	2.71	2.71	ND	0.696	0.696	ND	0.522	0.522	ND	1.16	1.16	1	
1,2,3,4,7,8-Hexa CDD	ND	0.759	0.0759	ND	0.72	0.072	ND	0.685	0.0685	ND	0.822	0.0822	0.1	
1,2,3,6,7,8-Hexa CDD	ND	0.691	0.069	ND	0.675	0.0675	ND	0.651	0.0651	ND	0.854	0.0854	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.713	0.0713	ND	0.668	0.0668	ND	0.713	0.0713	ND	0.787	0.0787	0.1	
1,2,3,4,6,7,8-Hepta CDD	0.792	0.532	0.00792	1.32	0.639	0.0132	1.63	0.622	0.0163	2.84	0.943	0.0284	0.01	
Octa CDD	3.20	0.525	0.00032	7.67	0.649	0.00230	ND	5.63	0.00169	16.5	1.16	0.00495	0.0001 / 0.0003	
Total Tetra CDD	ND	1.25	-	ND	1.19	-	ND	0.597	-	3.97	1.01	-	-	
Total Penta CDD	ND	2.71	-	ND	0.696	-	ND	0.522	-	ND	1.16	-	-	
Total Hexa CDD	ND	0.724	-	ND	1.55	-	ND	0.682	-	2.44	0.820	-	-	
Total Hepta CDD	0.792	0.532	-	2.20	0.639	-	2.40	0.622	-	4.79	0.943	-	-	
2,3,7,8-Tetra CDF **	ND	1.46	0.146	1.07	0.72	0.107	1.31	0.974	0.131	1.85	0.863	0.185	0.1	
1,2,3,7,8-Penta CDF	ND	1.03	0.0515	ND	0.651	0.0195	ND	0.691	0.0207	ND	1.33	0.0399	0.05 / 0.03	
2,3,4,7,8-Penta CDF	ND	0.988	0.494	0.907	0.591	0.272	ND	0.685	0.206	1.86	1.28	0.558	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	ND	0.884	0.0884	ND	0.612	0.0612	ND	0.784	0.0784	ND	1.01	0.101	0.1	
1,2,3,6,7,8-Hexa CDF	ND	0.78	0.078	ND	0.578	0.0578	ND	0.708	0.0708	ND	0.961	0.0961	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.952	0.0952	ND	0.685	0.0685	ND	0.924	0.0924	ND	1.10	0.110	0.1	
1,2,3,7,8,9-Hexa CDF	ND	1.01	0.101	ND	0.702	0.0702	ND	1.10	.110	ND	1.20	0.120	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND	0.635	0.00635	ND(1)	0.687	0.00687	ND	1.07	0.0107	ND	2.31	0.0231	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND	0.737	0.00737	ND	0.738	0.00738	ND	0.688	0.00688	ND	0.993	0.00993	0.01	
Octa CDF	0.669	0.557	0.0000669	0.951	0.703	0.000285	ND	1.59	0.000477	ND	1.06	0.000318	0.0001 / 0.0003	
Total Tetra CDF	9.64	1.46	-	7.66	0.72	-	7.80	0.974	-	63.3	0.863	-	-	
Total Penta CDF	ND	1.01	-	0.907	0.619	-	ND	2.65	-	4.46	1.30	-	-	
Total Hexa CDF	ND	0.898	-	ND	0.64	-	ND	0.855	-	ND	1.06	-	-	
Total Hepta CDF	ND	0.682	-	ND	0.761	-	ND	1.07	-	ND	2.31	-	-	
Total Toxic Equivalency	-	-	5.25	-	-	2.78	-	-	2.07	-	-	3.69	-	

Notes:

MDL: Method detection limit

ND: Not detected

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

3 - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009.

4 - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

Shaded and bold data exceeds the MOE SCS

Bold faced guidelines reflect those most applicable to current land use designation

(A) - EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(B) - EMPC / DPE - Diphenylether interference present caused dibenzofuran detected to become a "non-detect" with an elevated detection limit.



TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010) - Continued

Sampling Date Sample ID Parameter	DATA										GUIDELINE
	Oct. 2009			Jan. 2010			Dec. 2010			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-03 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-03 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-03 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	0.44	0.440	ND (A)	0.89	0.890	ND	0.63	0.630	1	14,000 ¹
1,2,3,7,8-Penta CDD	ND	0.58	0.580	2.6	1.1	2.60	ND	0.56	0.560	1	
1,2,3,4,7,8-Hexa CDD	ND	0.61	0.0610	1.41	0.83	0.141	ND	0.65	0.0650	0.1	
1,2,3,6,7,8-Hexa CDD	ND	0.56	0.0560	1.33	0.70	0.133	ND	0.56	0.0560	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.55	0.0550	1.04	0.74	0.104	ND	0.57	0.0570	0.1	
1,2,3,4,6,7,8-Hepta CDD	4.90	0.56	0.0490	10.0	0.91	0.100	1	0.56	0.0100	0.01	
Octa CDD	24.6	1.1	0.00738	63.2	1.8	0.0190	7	1.1	0.00210	0.0001 / 0.0003	
Total Tetra CDD	ND	0.44	-	19.0	0.72	-	ND(A)	2.7	-	-	
Total Penta CDD	ND	0.58	-	4.7	1.1	-	ND	0.56	-	-	
Total Hexa CDD	ND	0.57	-	5.57	0.76	-	ND	0.59	-	-	
Total Hepta CDD	8.14	0.56	-	10.0	0.91	-	1	0.56	-	-	
2,3,7,8-Tetra CDF **	ND	0.56	0.0560	3.60	0.55	0.360	ND	0.52	0.0520	0.1	
1,2,3,7,8-Penta CDF	1.46	0.60	0.0438	3.67	0.66	0.110	ND	0.53	0.0159	0.05 / 0.03	
2,3,4,7,8-Penta CDF	ND (A)	0.65	0.195	2.67	0.68	0.801	1	0.55	0.300	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	1.07	0.51	0.107	2.94	0.57	0.294	ND	0.53	0.0530	0.1	
1,2,3,6,7,8-Hexa CDF	1.12	0.52	0.112	2.71	0.57	0.271	ND	0.49	0.0490	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.58	0.0580	1.20	0.64	0.120	ND	0.55	0.0550	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.64	0.0640	1.34	0.74	0.134	ND	0.62	0.0620	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND (A)	4.5	0.0450	ND (1)	4.1	0.0410	ND(A)	0.78	0.00780	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND (A)	1.1	0.0110	ND	0.75	0.00750	ND	0.57	0.00570	0.01	
Octa CDF	5.2	1.2	0.00156	3.5	1.0	0.00105	ND	1.0	0.000300	0.0001 / 0.0003	
Total Tetra CDF	2.72	0.56	-	138.00	0.55	-	17	0.52	-	-	
Total Penta CDF	2.52	0.61	-	21.000	0.67	-	1	0.54	-	-	
Total Hexa CDF	4.69	0.56	-	13.0	0.62	-	ND	0.54	-	-	
Total Hepta CDF	4.59	0.59	-	ND (1)	4.7	-	ND(A)	0.85	-	-	
Total Toxic Equivalency			1.94			6.13			1.98	-	

Notes:

MDL: Method detection limit

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SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

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TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

Shaded and bold data exceeds the MOE SCS

Bold faced guidelines reflect those most applicable to current land use designation

(A) - EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(B) - EMPC / DPE - Diphenylether interference present caused dibenzofuran detected to become a "non-detect" with an elevated detection limit.



TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010) - Continued

Sampling Date Sample ID Parameter	DATA									GUIDELINE	
	Nov. 2007			May 2008			Jan 2009			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-04 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-04 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-04 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	0.685	0.685	ND	0.812	0.812	ND	0.925	0.925	1	14,000 ¹
1,2,3,7,8-Penta CDD	2.53	0.379	2.53	ND	0.583	0.583	ND	0.850	0.850	1	
1,2,3,4,7,8-Hexa CDD	2.95	0.74	0.295	ND	.830	.0830	ND	0.969	0.0969	0.1	
1,2,3,6,7,8-Hexa CDD	5.66	0.694	0.566	ND	0.789	0.0789	ND	1.01	0.101	0.1	
1,2,3,7,8,9-Hexa CDD	8.250	0.686	0.825	ND	1.24	0.124	ND	0.928	0.0928	0.1	
1,2,3,4,6,7,8-Hepta CDD	40.0	0.686	0.400	3.23	0.592	0.0323	1.15	0.810	0.0115	0.01	
Octa CDD	124	0.753	0.0372	16.9	1.03	0.00507	6.47	1.38	0.00194	0.0001 / 0.0003	
Total Tetra CDD	23.2	0.685	-	4.03	0.812	-	ND	1.17	-	-	
Total Penta CDD	13.0	0.893	-	ND	0.583	-	ND	0.850	-	-	
Total Hexa CDD	52.8	0.706	-	1.87	0.827	-	ND	0.967	-	-	
Total Hepta CDD	64.4	0.686	-	5.56	0.592	-	1.15	0.810	-	-	
2,3,7,8-Tetra CDF **	9.44	0.528	0.944	2.12	0.847	0.212	1.45	1.09	0.145	0.1	
1,2,3,7,8-Penta CDF	7.73	1.26	0.232	ND	0.929	0.0279	ND	1.12	0.0336	0.05 / 0.03	
2,3,4,7,8-Penta CDF	10.3	1.14	3.09	ND	0.922	0.277	1.64	1.08	0.492	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	32.6	0.68	3.26	ND	0.919	0.0919	ND	0.785	0.0785	0.1	
1,2,3,6,7,8-Hexa CDF	17.8	0.641	1.78	ND	.830	.0830	ND	0.751	0.0751	0.1	
2,3,4,6,7,8-Hexa CDF	9.09	0.76	0.909	ND	1.08	0.108	ND	0.857	0.0857	0.1	
1,2,3,7,8,9-Hexa CDF	2.50	0.779	0.250	ND	1.29	0.129	ND	0.934	0.0934	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND(2)	46.8	0.468	ND	1.72	0.0172	ND	1.30	0.0130	0.01	
1,2,3,4,7,8,9-Hepta CDF	22.3	0.78	0.223	ND	.770	.00770	ND	0.948	0.00948	0.01	
Octa CDF	51.1	0.815	0.0153	1.72	1.02	0.000516	ND	1.31	0.000393	0.0001 / 0.0003	
Total Tetra CDF	282	0.673	-	58.8	0.847	-	9.32	1.09	-	-	
Total Penta CDF	90.9	1.2	-	2.81	0.926	-	1.64	1.10	-	-	
Total Hexa CDF	138	0.71	-	ND	1.00	-	ND	0.826	-	-	
Total Hepta CDF	47.6	0.696	-	ND	1.72	-	ND	1.30	-	-	
Total Toxic Equivalency	-	-	16.5	-	-	2.67	-	-	3.11	-	

Notes:

MDL: Method detection limit

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SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

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1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

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TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

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TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010) - Continued

Sampling Date Sample ID Parameter	DATA									GUIDELINE	
	Oct. 2009			Jan. 2010			Dec. 2010			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-04 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-04 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-04 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	0.59	0.590	0.77	0.59	0.770	ND	0.77	0.770	1	14,000 ¹
1,2,3,7,8-Penta CDD	1.56	0.60	1.56	ND	0.66	0.660	ND	0.72	0.720	1	
1,2,3,4,7,8-Hexa CDD	ND	0.65	0.0650	ND	0.81	0.0810	ND	0.60	0.0600	0.1	
1,2,3,6,7,8-Hexa CDD	ND (A)	0.66	0.0660	ND	0.69	0.0690	ND	0.52	0.0520	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.58	0.0580	ND	0.72	0.0720	ND	0.52	0.052	0.1	
1,2,3,4,6,7,8-Hepta CDD	7.57	0.73	0.0757	2.05	0.82	0.0205	1	0.54	0.0100	0.01	
Octa CDD	43	1.1	0.0128	9.5	1.3	0.00285	ND (A)	3.4	0.00102	0.0001 / 0.0003	
Total Tetra CDD	24.5	0.59	-	0.77	0.59	-	ND (A)	3.8	-	-	
Total Penta CDD	4.15	0.60	-	ND	0.66	-	ND	0.72	-	-	
Total Hexa CDD	2.77	0.60	-	ND	0.74	-	ND	0.54	-	-	
Total Hepta CDD	7.57	0.73	-	3.25	0.82	-	1	0.54	-	-	
2,3,7,8-Tetra CDF **	1.26	0.58	0.126	1.48	0.63	0.148	ND	0.63	0.0630	0.1	
1,2,3,7,8-Penta CDF	1.69	0.60	0.0507	0.92	0.58	0.0276	ND	0.52	0.0156	0.05 / 0.03	
2,3,4,7,8-Penta CDF	ND	0.61	0.183	1.13	0.59	0.339	3	0.54	0.900	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	1.22	0.57	0.122	0.81	0.46	0.0810	ND	0.51	0.0510	0.1	
1,2,3,6,7,8-Hexa CDF	0.95	0.57	0.0950	0.74	0.46	0.0740	ND	0.47	0.0470	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.62	0.0620	0.59	0.52	0.0590	ND	0.53	0.0530	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.69	0.0690	ND	0.60	0.0600	ND	0.59	0.059	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND (A)	2.4	0.0240	ND (A)	1.9	0.0190	ND(A)	1.30	0.0130	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND (A)	0.91	0.00910	ND	0.95	0.00950	ND	0.59	0.0059	0.01	
Octa CDF	3.0	1.2	0.000900	1.6	1.0	0.000480	ND	1.0	0.000300	0.0001 / 0.0003	
Total Tetra CDF	110	0.58	-	8.09	0.63	-	ND(A)	3.0	-	-	
Total Penta CDF	10.9	0.61	-	2.79	0.58	-	3	0.53	-	-	
Total Hexa CDF	5.33	0.61	-	2.14	0.51	-	ND	0.52	-	-	
Total Hepta CDF	ND (A)	2.6	-	ND (A)	2.1	-	ND	0.54	-	-	
Total Toxic Equivalency			3.17			2.49			2.87	-	

Notes:

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TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010) - Continued

Sampling Date Sample ID Parameter	DATA												GUIDELINE	
	Feb. 2007			Nov. 2007			May 2008			Jan 2009			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-05 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-05 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-05 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-05 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	1.03	1.03	5.58	0.724	5.58	ND	0.629	0.629	ND	1.24	1.24	1	14,000¹
1,2,3,7,8-Penta CDD	ND	1.76	1.76	3.31	0.466	3.31	118	1.26	118	ND	1.51	1.51	1	
1,2,3,4,7,8-Hexa CDD	ND	0.663	0.0663	6.49	0.67	0.649	ND	1.41	0.141	1.93	0.900	0.193	0.1	
1,2,3,6,7,8-Hexa CDD	0.95	0.519	0.0954	6.64	0.629	0.664	ND	1.97	0.197	1.82	0.935	0.182	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.535	0.0535	23.400	0.622	2.34	8.01	0.727	0.801	6.31	0.862	0.631	0.1	
1,2,3,4,6,7,8-Hepta CDD	7.6	0.703	0.076	51.8	0.77	0.518	11.0	.980	.110	12.9	1.40	0.129	0.01	
Octa CDD	80	0.415	0.00799	577	0.737	0.173	129	1.01	0.0387	134	1.97	0.0402	0.0001 / 0.0003	
Total Tetra CDD	26.7	2.9	-	292.0	0.724	-	80.6	.630	-	50.8	1.24	-	-	
Total Penta CDD	3.6	1.76	-	66.8	0.659	-	131	1.26	-	15.1	0.807	-	-	
Total Hexa CDD	19.0	0.541	-	203.0	0.64	-	52.6	0.696	-	53.5	0.898	-	-	
Total Hepta CDD	15.4	0.703	-	119.0	0.77	-	25.4	.980	-	30.2	1.40	-	-	
2,3,7,8-Tetra CDF **	ND	0.946	0.0946	10.50	0.655	1.05	ND	2.80	.280	3.35	0.869	0.335	0.1	
1,2,3,7,8-Penta CDF	ND	1.21	0.0605	5.07	0.938	0.152	ND	2.17	0.0651	ND	2.10	0.0630	0.05 / 0.03	
2,3,4,7,8-Penta CDF	ND	1.17	0.59	5.34	0.853	1.60	ND	2.15	0.645	2.10	2.03	0.630	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	ND	0.902	0.0902	12.80	0.697	1.28	1.37	1.01	0.137	1.69	0.980	0.169	0.1	
1,2,3,6,7,8-Hexa CDF	ND	0.796	0.0796	4.65	0.658	0.465	ND	1.19	0.119	1.31	0.936	0.131	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.971	0.0971	3.07	0.78	0.307	ND	1.19	0.119	ND	1.07	0.107	0.1	
1,2,3,7,8,9-Hexa CDF	ND	1.03	0.103	1.46	0.799	0.146	ND	1.42	0.142	ND	1.16	0.116	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND	4.07	0.0407	nd(1)	16.8	0.168	ND	5.51	0.0551	ND	4.17	0.0417	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND	1.21	0.0121	1.5	0.974	0.0149	ND	1.32	0.0132	ND	1.35	0.0135	0.01	
Octa CDF	7.0	0.784	0.00070	13.0	0.712	0.00390	2.91	1.17	0.000873	4.30	2.13	0.00129	0.0001 / 0.0003	
Total Tetra CDF	464	0.946	-	4000	0.655	-	933	2.09	-	974	0.869	-	-	
Total Penta CDF	ND	9.31	-	170.0	0.893	-	30.7	2.16	-	30.6	2.07	-	-	
Total Hexa CDF	3.4	0.917	-	70.1	0.729	-	15.3	1.10	-	16.5	1.03	-	-	
Total Hepta CDF	ND	4.07	-	5.66	0.865	-	ND	5.51	-	ND	4.17	-	-	
Total Toxic Equivalency	-	-	4.3	-	-	18.4	-	-	121	-	-	5.53	-	

Notes:

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CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

3 - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009.

4 - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

Shaded and bold data exceeds the MOE SCS

Bold faced guidelines reflect those most applicable to current land use designation

WHO: World Health Organisation

-: Value not established

(A) - EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(B) - EMPC / DPE - Diphenylether interference present caused dibenzofuran detected to become a "non-detect" with an elevated detection limit.



TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2010) - Continued

Sampling Date Sample ID Parameter	DATA										GUIDELINE 2009 MOE SCS ³ (Table 3) ⁴
	Oct. 2009			Jan. 2010			Dec. 2010			TEF (WHO) 1997 ²	
	MW-05 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-05 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-05 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	0.59	0.590	ND	0.93	0.930	ND	0.65	0.650	1	14,000 ¹
1,2,3,7,8-Penta CDD	ND	0.57	0.570	ND	0.62	0.620	ND	0.62	0.620	1	
1,2,3,4,7,8-Hexa CDD	ND	0.59	0.0590	0.74	0.63	0.0740	ND	0.64	0.0640	0.1	
1,2,3,6,7,8-Hexa CDD	ND	0.53	0.0530	ND	0.53	0.0530	ND	0.55	0.0550	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.52	0.0520	ND	0.56	0.0560	ND	0.56	0.0560	0.1	
1,2,3,4,6,7,8-Hepta CDD	1.50	0.55	0.0150	1.26	0.63	0.0126	ND(A)	1.0	0.0100	0.01	
Octa CDD	8.8	1.1	0.00264	4.6	1.4	0.00138	6	0.10	0.00180	0.0001 / 0.0003	
Total Tetra CDD	ND	0.59	-	ND	0.93	-	ND(A)	0.68	-	-	
Total Penta CDD	ND	0.57	-	ND	0.62	-	ND	0.62	-	-	
Total Hexa CDD	ND	0.55	-	0.74	0.57	-	ND	0.58	-	-	
Total Hepta CDD	2.40	0.55	-	1.26	0.63	-	ND(A)	1.0	-	-	
2,3,7,8-Tetra CDF **	ND	0.56	0.0560	1.32	0.81	0.132	ND	0.65	0.0650	0.1	
1,2,3,7,8-Penta CDF	0.73	0.56	0.0219	0.87	0.64	0.0261	ND	0.69	0.0207	0.05 / 0.03	
2,3,4,7,8-Penta CDF	ND	0.57	0.171	1.15	0.65	0.345	1	0.71	0.300	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	ND	0.52	0.0520	0.76	0.46	0.0760	1	0.51	0.100	0.1	
1,2,3,6,7,8-Hexa CDF	ND	0.52	0.0520	0.68	0.46	0.0680	ND	0.47	0.0470	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.57	0.0570	ND	0.52	0.0520	ND	0.53	0.0530	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.64	0.0640	ND	0.59	0.0590	ND	0.59	0.0590	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND (A)	0.58	0.00580	ND (A)	0.92	0.00920	ND(A)	0.87	0.00870	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND	0.65	0.00650	ND	0.70	0.00700	ND	0.56	0.00560	0.01	
Octa CDF	ND	1.1	0.000330	ND (A)	1.1	0.000330	2	1.1	0.000600	0.0001 / 0.0003	
Total Tetra CDF	2.00	0.56	-	1.32	0.81	-	2	0.65	-	-	
Total Penta CDF	0.73	0.57	-	2.02	0.64	-	1	0.70	-	-	
Total Hexa CDF	ND	0.56	-	1.44	0.50	-	1	0.52	-	-	
Total Hepta CDF	ND (A)	0.65	-	ND (A)	1.1	-	ND(A)	0.94	-	-	
Total Toxic Equivalency			1.83			2.5			2.12	-	

Notes:

MDL: Method detection limit

ND: Not detected

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

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TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

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TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2009) - Continued

Sampling Date Sample ID Parameter	DATA									GUIDELINE	
	Nov. 2007			May 2008			Jan 2009			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-06 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-06 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-06 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	0.73	0.730	ND	0.689	0.689	ND	0.670	0.670	1	14,000 ¹
1,2,3,7,8-Penta CDD	ND	0.745	0.745	ND	0.886	0.886	ND	1.03	1.03	1	
1,2,3,4,7,8-Hexa CDD	ND	0.667	0.0667	ND	0.608	0.0608	ND	0.859	0.0859	0.1	
1,2,3,6,7,8-Hexa CDD	ND	0.625	0.0625	ND	0.578	0.0578	ND	0.892	0.0892	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.619	0.0619	ND	0.633	0.0633	ND	0.823	0.0823	0.1	
1,2,3,4,6,7,8-Hepta CDD	2.15	0.532	0.022	ND	1.67	0.0167	1.35	0.926	0.0135	0.01	
Octa CDD	10.8	0.835	0.00324	8.28	1.05	0.00248	5.30	1.47	0.00159	0.0001 / 0.0003	
Total Tetra CDD	1.04	0.73	-	ND	0.689	-	ND	0.987	-	-	
Total Penta CDD	ND	0.745	-	ND	0.886	-	ND	1.03	-	-	
Total Hexa CDD	0.907	0.636	-	ND	0.606	-	ND	0.857	-	-	
Total Hepta CDD	2.15	0.532	-	1.59	0.671	-	1.35	0.926	-	-	
2,3,7,8-Tetra CDF **	ND	1.39	0.139	ND	1.71	0.171	2.18	1.18	0.218	0.1	
1,2,3,7,8-Penta CDF	ND	0.948	0.0284	ND	1.26	0.0378	ND	0.917	0.0275	0.05 / 0.03	
2,3,4,7,8-Penta CDF	ND	1.56	0.468	ND	1.25	0.375	ND	1.87	0.561	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	0.996	0.703	0.0996	ND	0.968	0.0968	ND	0.736	0.0736	0.1	
1,2,3,6,7,8-Hexa CDF	ND	0.663	0.0663	ND	0.875	0.0875	ND	0.703	0.0703	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.786	0.0786	ND	1.14	0.114	ND	0.802	0.0802	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.806	0.0806	ND	1.36	0.136	ND	0.875	0.0875	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND	1.86	0.0186	ND	3.82	0.0382	ND	1.73	0.0173	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND	0.677	0.00677	ND	1.07	0.0107	ND	0.877	0.00877	0.01	
Octa CDF	1.54	0.646	0.000462	ND	1.10	0.000330	ND	1.63	0.000489	0.0001 / 0.0003	
Total Tetra CDF	13.5	0.982	-	7.95	1.12	-	7.17	1.18	-	-	
Total Penta CDF	ND	3.88	-	ND	2.74	-	ND	1.90	-	-	
Total Hexa CDF	0.996	0.735	-	ND	1.06	-	ND	0.774	-	-	
Total Hepta CDF	ND	2.06	-	ND	3.82	-	ND	1.73	-	-	
Total Toxic Equivalency	-	-	2.68	-	-	2.84	-	-	3.12	-	

Notes:

MDL: Method detection limit

ND: Not detected

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

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TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

Shaded and bold data exceeds the MOE SCS

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(A) - EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2009) - Continued

Sampling Date Sample ID Parameter	DATA									GUIDELINE	
	Oct. 2009			Jan. 2010			Dec. 2010			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-06 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-06 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-06 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	0.40	0.400	ND	0.82	0.820	2	0.91	2.00	1	14,000¹
1,2,3,7,8-Penta CDD	ND	0.41	0.410	0.94	0.65	0.940	ND	0.67	0.670	1	
1,2,3,4,7,8-Hexa CDD	ND	0.41	0.0410	0.86	0.80	0.0860	ND	0.62	0.0620	0.1	
1,2,3,6,7,8-Hexa CDD	0.98	0.37	0.0980	ND (A)	0.79	0.0790	ND	0.54	0.0540	0.1	
1,2,3,7,8,9-Hexa CDD	0.51	0.37	0.0510	0.81	0.72	0.0810	ND	0.54	0.0540	0.1	
1,2,3,4,6,7,8-Hepta CDD	9.53	0.41	0.0953	4.01	0.70	0.0401	2	0.52	0.0200	0.01	
Octa CDD	40.7	0.76	0.0122	14.0	1.1	0.00420	6	1.0	0.00180	0.0001 / 0.0003	
Total Tetra CDD	8.97	0.40	-	1.68	0.82	-	ND	0.91	-	-	
Total Penta CDD	0.73	0.41	-	0.94	0.65	-	ND(A)	1.2	-	-	
Total Hexa CDD	4.61	0.38	-	3.21	0.73	-	ND(A)	0.72	-	-	
Total Hepta CDD	16.6	0.41	-	6.82	0.70	-	4	0.52	-	-	
2,3,7,8-Tetra CDF **	4.10	0.41	0.410	2.54	0.69	0.254	ND	0.95	0.0950	0.1	
1,2,3,7,8-Penta CDF	2.25	0.41	0.0675	1.12	0.77	0.0336	ND	0.73	0.0219	0.05 / 0.03	
2,3,4,7,8-Penta CDF	1.74	0.42	0.522	1.62	0.79	0.486	3	0.75	0.900	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	1.79	0.38	0.179	1.63	0.53	0.163	2	0.52	0.200	0.1	
1,2,3,6,7,8-Hexa CDF	1.94	0.38	0.194	1.10	0.52	0.110	1	0.48	0.100	0.1	
2,3,4,6,7,8-Hexa CDF	0.98	0.42	0.0980	0.94	0.60	0.0940	ND	0.55	0.0550	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.46	0.0460	ND	0.68	0.0680	ND	0.61	0.0610	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND (A)	3.5	0.0350	ND (A)	2.6	0.0260	ND(A)	2.7	0.0270	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND (A)	0.85	0.00194	ND	0.82	0.00820	ND	0.75	0.00750	0.01	
Octa CDF	6.46	0.77	-	2.1	1.1	0.000630	3	1.1	0.000900	0.0001 / 0.0003	
Total Tetra CDF	33.2	0.41	-	12.2	0.69	-	13	0.95	-	-	
Total Penta CDF	18.6	0.41	-	7.06	0.78	-	17	0.74	-	-	
Total Hexa CDF	12.6	0.41	-	5.3	0.57	-	3	0.54	-	-	
Total Hepta CDF	5.10	0.40	-	ND (A)	3.0	-	ND	0.52	-	-	
Total Toxic Equivalency			2.67			3.29			4.33	-	

Notes:

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CDF**: Chloro Dibenzo-p-Furan

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TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

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TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2009) - Continued

Sampling Date Sample ID Parameter	DATA												GUIDELINE	
	Nov. 2007			May 2008			Jan. 2009						2009 MOE SCS ³ (Table 3) ⁴	
	MW-07 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-07 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-07 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	DUP-1 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	TEF (WHO) 1997 ²	
2,3,7,8-Tetra CDD *	ND	0.725	0.725	ND	0.715	0.715	ND	0.854	0.854	ND	0.880	0.880	1	14,000 ¹
1,2,3,7,8-Penta CDD	ND	0.615	0.615	ND	1.06	1.06	ND	0.777	0.777	ND	0.951	0.951	1	
1,2,3,4,7,8-Hexa CDD	ND	0.894	0.0894	ND	1.38	0.138	ND	0.876	0.0876	ND	0.722	0.0722	0.1	
1,2,3,6,7,8-Hexa CDD	ND	0.839	0.0839	ND	1.31	0.131	ND	0.910	0.0910	ND	0.750	0.0750	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.83	0.0830	ND	1.44	0.144	ND	0.839	0.0839	ND	0.692	0.0692	0.1	
1,2,3,4,6,7,8-Hepta CDD	1.13	0.816	0.0113	1.89	0.709	0.0189	ND	1.25	0.0125	1.11	0.619	0.0111	0.01	
Octa CDD	5.23	0.605	0.00157	6.38	1.04	0.00191	6.99	2.50	0.00210	6.27	2.01	0.00188	0.0001 / 0.0003	
Total Tetra CDD	1.66	0.725	-	4.12	0.715	-	5.38	0.854	-	5.39	0.880	-	-	
Total Penta CDD	ND	0.615	-	ND	1.84	-	ND	0.777	-	ND	0.951	-	-	
Total Hexa CDD	ND	2.2	-	ND	1.45	-	ND	0.874	-	ND	0.720	-	-	
Total Hepta CDD	1.13	0.816	-	4.09	0.709	-	1.12	0.688	-	2.00	0.619	-	-	
2,3,7,8-Tetra CDF **	0.936	0.73	0.0936	ND	1.33	0.133	1.81	0.837	0.181	ND	1.32	0.132	0.1	
1,2,3,7,8-Penta CDF	ND	0.626	0.0188	ND	1.37	0.0411	ND	1.00	0.0300	ND	0.955	0.0287	0.05 / 0.03	
2,3,4,7,8-Penta CDF	1.64	0.569	0.492	ND	1.36	0.408	1.74	0.968	0.522	1.54	0.922	0.462	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	ND	0.598	0.0598	ND	.520	.0520	ND	0.639	0.0639	ND	0.597	0.0597	0.1	
1,2,3,6,7,8-Hexa CDF	ND	0.564	0.0564	ND	.470	.0470	ND	0.611	0.0611	ND	0.570	0.0570	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.669	0.0669	ND	0.613	0.0613	ND	0.697	0.0697	ND	0.651	0.0651	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.686	0.0686	ND	0.732	0.0732	ND	0.760	0.0760	ND	0.709	0.0709	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND(1)	1.44	0.0144	ND	1.73	0.0173	ND	1.58	0.0158	ND	0.960	0.00960	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND	0.752	0.00752	ND	0.925	0.00925	ND	1.08	0.0108	ND	0.821	0.00821	0.01	
Octa CDF	0.828	0.748	0.000248	ND	1.20	.000360	ND	1.30	0.000390	ND	1.68	0.000504	0.0001 / 0.0003	
Total Tetra CDF	10.4	0.73	-	8.28	1.33	-	23.0	0.837	-	19.8	1.32	-	-	
Total Penta CDF	1.64	0.596	-	ND	3.00	-	1.74	0.986	-	1.54	0.938	-	-	
Total Hexa CDF	ND	0.625	-	ND	0.568	-	ND	0.672	-	ND	0.627	-	-	
Total Hepta CDF	ND	1.59	-	ND	1.73	-	ND	1.58	-	ND	0.960	-	-	
Total Toxic Equivalency	-	-	2.49	-	-	3.05	-	-	2.94	-	-	2.95	-	

Notes:

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TABLE D-4: Dioxin and Furan Concentrations in Groundwater (2007-2009) - Continued

Sampling Date Sample ID Parameter	DATA										GUIDELINE
	Oct. 2009			Jan. 2010			Dec. 2010			TEF (WHO) 1997 ²	2009 MOE SCS ³ (Table 3) ⁴
	MW-07 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-07 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	MW-07 (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)		
2,3,7,8-Tetra CDD *	ND	0.57	0.570	ND	1.0	1.00	ND	0.51	0.510	1	14,000 ¹
1,2,3,7,8-Penta CDD	ND	0.57	0.570	0.69	0.62	0.690	ND	0.70	0.700	1	
1,2,3,4,7,8-Hexa CDD	ND	0.59	0.0590	ND	0.74	0.0740	ND	0.62	0.0620	0.1	
1,2,3,6,7,8-Hexa CDD	ND	0.54	0.0540	ND	0.63	0.630	ND	0.53	0.0530	0.1	
1,2,3,7,8,9-Hexa CDD	ND	0.53	0.0530	ND	0.66	0.0660	ND	0.54	0.0540	0.1	
1,2,3,4,6,7,8-Hepta CDD	2.46	0.56	0.00246	ND (1)	1.9	0.0190	2	0.57	0.0200	0.01	
Octa CDD	ND (A)	14	0.00420	8.3	1.0	0.00249	10	1.1	0.00300	0.0001 / 0.0003	
Total Tetra CDD	4.30	0.57	-	ND	1.0	-	2	0.51	-	-	
Total Penta CDD	ND	0.57	-	0.69	0.62	-	ND(A)	0.86	-	-	
Total Hexa CDD	ND (A)	1.0	-	ND	0.67	-	ND(A)	0.91	-	-	
Total Hepta CDD	4.60	0.56	-	1.08	0.85	-	ND(A)	0.53	-	-	
2,3,7,8-Tetra CDF **	ND (A)	0.61	0.0610	1.37	0.61	0.137	1	0.59	0.100	0.1	
1,2,3,7,8-Penta CDF	0.73	0.56	0.0219	0.80	0.64	0.0240	ND	0.72	0.0216	0.05 / 0.03	
2,3,4,7,8-Penta CDF	ND	0.57	0.171	1.22	0.65	0.366	4	0.75	1.20	0.5 / 0.3	
1,2,3,4,7,8-Hexa CDF	ND	0.51	0.0510	0.84	0.53	0.0840	ND	0.63	0.0630	0.1	
1,2,3,6,7,8-Hexa CDF	ND	0.51	0.0510	0.81	0.53	0.0810	ND	0.51	0.0510	0.1	
2,3,4,6,7,8-Hexa CDF	ND	0.56	0.0560	0.68	0.60	0.0680	ND	0.58	0.0580	0.1	
1,2,3,7,8,9-Hexa CDF	ND	0.62	0.0620	ND	0.69	0.0690	ND	0.65	0.0650	0.1	
1,2,3,4,6,7,8-Hepta CDF	ND (A)	1.3	0.0130	ND (A)	3.1	0.0310	ND(A)	4.7	0.0470	0.01	
1,2,3,4,7,8,9-Hepta CDF	ND	0.63	0.00630	ND	0.99	0.0099	ND	0.56	0.00560	0.01	
Octa CDF	ND	1.2	0.000360	ND (A)	1.5	0.000450	1	1.0	0.000300	0.0001 / 0.0003	
Total Tetra CDF	10.6	0.58	-	7.58	0.61	-	24.0	0.59	-	-	
Total Penta CDF	0.73	0.56	-	2.02	0.65	-	4	0.73	-	-	
Total Hexa CDF	ND	0.54	-	2.32	0.58	-	ND	0.57	-	-	
Total Hepta CDF	ND (A)	1.4	-	ND (A)	3.6	-	ND(A)	5.1	-	-	
Total Toxic Equivalency			1.83			2.78			3.01	-	

Notes:

MDL: Method detection limit

ND: Not detected

MOE: Ontario Ministry of Environment

SCS: Site Condition Standard

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

1 - Guideline for 2,3,7,8-Tetra CDD (Commercial Site with Non-Potable Groundwater)

2 - van Leeuwen FXR (1997). Derivation of TEFs for dioxin-like compounds in humans and wildlife. Organohalogen Compounds 34:237

3 - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 27, 2009.

4 - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

Shaded and bold data exceeds the MOE SCS

Bold faced guidelines reflect those most applicable to current land use designation

WHO: World Health Organisation

-: Value not established

(A) - EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(B) - EMPC / DPE - Diphenylether interference present caused dibenzofuran detected to become a "non-detect" with an elevated detection limit.



TABLE D-5: General Water Chemistry in Groundwater (2007-2010)

Sample ID Sampling Date Parameter	Unit	DATA														GUIDELINES	
		MDL		MW-01					MW-02					10x CCME-FAL (Updated 2007)	2004 MOE Standards (1) (Tables 3 & 5) (2)		
		2007 - 2009	2009 - 2010*	Feb. 2007	Nov. 2007	May 2008	Mar. 2009	Oct. 2009	Jan. 2010	Dec. 2010	Feb. 2007	Nov. 2007	May 2008			Oct. 2009	Jan. 2010
Ammonia	(ug/L)	10	50	990	<10	20	68	<50	<50	<50	30	13	10	<50	<50	-	-
Chloride	(ug/L)	100	1,000	11.3	4,910	7,640	4,900	6,000	5,000	4,000	20.4	4,820	6,120	5,000	5,000	-	-
Colour	(TCU)	5	5	-	24	<5	11	11	8	62	-	<5	<5	<5	<5	-	-
Conductivity	(µS/cm)	5	1	48	46	44	40	39	37	35	81	35	37	31	28	-	-
DOC	(ug/L)	500	-	3,700	1,920	903	877	-	-	-	1,700	1,270	582	-	-	-	-
Fluoride	(ug/L)	100	-	200	<100	<100	<100	-	-	-	<100	<100	<100	-	-	-	-
Hardness as CaCO3	(ug/L)	300	1,000	268,000	7,880	9,080	8,370	19,000	7,000	8,000	11,500	5,220	5,220	7,000	5,000	-	-
Nitrate as N	(ug/L)	50	50	170	<50	<50	<50	<50	<50	<50	<0.05	63	<50	<50	<50	130,000	-
Nitrite as N	(ug/L)	15	10	<50	<15	<15	<15	<10	<10	<10	<0.05	<15	<15	<10	<10	600	-
pH	-	-	-	6.04	7.30	5.96	6.23	6.15	6.05	6.25	5.62	6.05	5.94	6.10	5.59	6.5-9**	-
Sulphate	(ug/L)	100	2,000	11,500	2,120	1,760	1,790	2,000	<2,000	<2,000	1,800	2,250	2,290	2,000	<2,000	-	-
Total Alkalinity (CaCO3)	(ug/L)	5,000	5,000	15,000	19,700	6,920	7,190	7,000	8,000	7,000	6,000	11,000	<5,000	6,000	<5,000	-	-
Total Dissolved Solids	(ug/L)	10,000	1,000	40,000	29,800	30,000	25,800	41,000	23,000	22	75,000	22,400	42,000	25,000	17,000	-	-
Total Organic Carbon	(ug/L)	500	500	-	8,220	53,500	10,500	98,000	25000 (A)	31,000	-	1,340	1,750	2,100	9,000	-	-
Total Suspended Solids	(ug/L)	2,000	-	12,800,000	6,660,000	5,900,000	1,050,000	-	-	-	652,000	264,000	208,000	-	-	-	-
Turbidity	(NTU)	0.1	0.1	-	4,290	2,590	1,410	710	>10000	>1000	-	124	92.3	43	370	-	-
Calcium	(ug/L)	500	100	81,600	2,070	2,400	1,910	5,200	2,000	2,200	2,670	1,350	1,330	1,700	1,300	-	-
Magnesium	(ug/L)	20	100	15,500	642	745	881	1400	600	500	1,150	449	479	600	500	-	-
Potassium	(ug/L)	20	100	9,180	595	212	1,320	2,100	200	150	546	239	148	400	200	-	-
Sodium	(ug/L)	500	100	11,800	4,090	4,750	4,200	12,000	3,700	4,300	12,100	4,510	5,210	5,100	5,200	-	-
Dissolved Phosphorus (P)	(ug/L)	-	100	-	-	-	-	<100	<100	140	-	-	-	<100	<100	-	-
Reactive Silica (SiO2)	(ug/L)	-	500	-	-	-	-	7,800	7,000	6,500	-	-	-	6,700	5,100	-	-

Notes:

MDL: Method Detection Limit

<X: Below MDL

CCME: Canadian Council of Ministers of the Environment

CEQGs: Canadian Environment Quality Guidelines

MOE: Ontario Ministry of Environment

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

Shaded and bold data exceeds the CCME-FAL Guidelines

Bold faced guidelines reflect those most applicable to current land use designation

* RDLs for the following parameters vary for some monitoring wells in October 2009 and January 2010 sampling events: Nitrate, total alkalinity, colour, ammonia, chloride, sulphate, turbidity and total organic carbon (results still remain within applicable

** pH guidelines not multiplied by 10

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, March 9, 2004

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

(A) - Sample MW-01 was decanted as the sediment content was >5% (Jan-2010)



TABLE D-5: General Water Chemistry in Groundwater (2007-2010) - continued

Sample ID Sampling Date Parameter	Unit	MDL 2007 - 2009 2009 - 2010*		DATA														GUIDELINES		
				MW-03								MW-04						10x CCME-FAL (Updated 2007)	2004 MOE Standards (1) (Tables 3 & 5) (2)	
				Feb. 2007	Nov. 2007	Nov. 2007 (Dup-1)	May 2008	Mar. 2009	Oct. 2009	Jan. 2010	Dec. 2010	Feb. 2007	Nov. 2007	May 2008	Mar. 2009	Oct. 2009	Jan. 2010			Dec. 2010
Ammonia	(ug/L)	10	50	39,600	20,700	22,500	179	7,790	29,000	6,200	2,100	1,140	5,130	959	29,900	5,000	21,000	8,000	-	-
Chloride	(ug/L)	100	1,000	238	155,000	155,000	43,100	133,000	140,000	93,000	44,000	58.9	151,000	112,000	106,000	87,000	93,000	51,000	-	-
Colour	(TCU)	5	5	-	96	96	<5	19	68	22	35	-	34	29	90	41	100	40	-	-
Conductivity	(µS/cm)	5	1	1,130	780	791	171	635	680	480	240	370	692	500	711	440	580	310	-	-
DOC	(ug/L)	500	-	33,800	21,000	21,300	1,400	9,640	-	-	-	5,400	7,580	8,530	20,500	-	-	-	-	-
Fluoride	(ug/L)	100	-	100	<100	<100	<100	<100	-	-	-	100	113	<100	<100	-	-	-	-	-
Hardness as CaCO3	(ug/L)	300	1,000	56,000	38,400	34,900	17,400	70,700	51,000	48,000	24,000	118,000	65,900	50,700	37,700	69,000	31,000	22,000	-	-
Nitrate as N	(ug/L)	50	50	<50	<50	<50	801	<50	<50	80	110	1,150	<50	150	<50	170	<50	<50	130,000	-
Nitrite as N	(ug/L)	15	10	<50	<15	<15	96	<15	80	10	50	<50	<15	<15	<15	<10	<10	<10	600	-
pH	-	-	-	6.66	6.60	6.55	5.96	6.95	6.94	6.57	7.27	6.01	6.53	6.69	6.84	6.80	6.75	7.45	6.5-9**	-
Sulphate	(ug/L)	100	2,000	5,400	6,580	5,950	7,180	3,220	3,000	4,000	<2,000	3,200	2,740	1,300	5,500	4,000	10,000	9,000	-	-
Total Alkalinity (CaCO3)	(ug/L)	5,000	5,000	234,000	138,000	133,000	12,100	112,000	160,000	92,000	49,000	25,000	86,900	84,300	150,000	84,000	140,000	66,000	-	-
Total Dissolved Solids	(ug/L)	10,000	1,000	668,000	507,000	514,000	94,000	413,000	412,000	265,000	127,000	316,000	450,000	245,000	462,000	277,000	313,000	170,000	-	-
Total Organic Carbon	(ug/L)	500	500	-	24,500	25,500	5,270	32,500	16,000	170,000	22,000	-	12,100	112,000	22,500	<50000	19,000	6,700	-	-
Total Suspended Solids	(ug/L)	2,000	-	333,000	166,000	103,000	419,000	1,160,000	-	-	-	29,500,000	10,500,000	2,400,000	164,000	-	-	-	-	-
Turbidity	(NTU)	0.1	0.1	-	60	30.2	77.2	1,820	85	>1000	380	-	6,000	1,960	70.3	>10000	190	20	-	-
Calcium	(ug/L)	500	100	15,800	11,300	10,500	5,060	18,700	15,000	13,000	7,000	34,600	17,500	13,000	11,100	19,000	9,400	6,700	-	-
Magnesium	(ug/L)	20	100	4,000	2,470	2,410	1,140	5,830	3,200	3,600	1,600	7,680	5,380	4,440	2,430	5,000	1,900	1,200	-	-
Potassium	(ug/L)	20	100	6,560	3,630	3,540	633	4,010	4,800	2,400	1,100	4,810	3,150	3,320	3,930	3,600	2,900	1,500	-	-
Sodium	(ug/L)	500	100	189,000	102,000	103,000	24,500	85,100	96,000	73,000	32,000	60,700	91,200	72,600	84,300	88,000	77,000	40,000	-	-
Dissolved Phosphorus (P)	(ug/L)	-	100	-	-	-	-	-	200	<100	110	-	-	-	-	<100	100	130	-	-
Reactive Silica (SiO2)	(ug/L)	-	500	-	-	-	-	-	7,900	6,400	5,200	-	-	-	-	6,200	8,000	8,400	-	-

Notes:

MDL: Method Detection Limit

<X: Below MDL

CCME: Canadian Council of Ministers of the Environment

CEQGs: Canadian Environment Quality Guidelines

MOE: Ontario Ministry of Environment

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

Shaded and bold data exceeds the CCME-FAL Guidelines

Bold faced guidelines reflect those most applicable to current land use designation

Dup-1 is a blind field duplicate of groundwater sample MW-03

* RDLs for the following parameters vary for some monitoring wells in October 2009 and January 2010 sampling events: Nitrate, total alkalinity, colour, ammonia, chloride, sulphate, turbidity and total organic carbon (results still remain within applicable guidelines).

** pH guidelines not multiplied by 10

(1) - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, March 9, 2004

(2) - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils



TABLE D-5: General Water Chemistry in Groundwater (2007-2010) - continued

Sample ID Sampling Date Parameter	Unit	MDL 2007 - 2009 2009 - 2010*		DATA												GUIDELINES		
				MW-05						MW-06						10x CCME-FAL (Updated 2007)	2004 MOE Standards (1) (Tables 3 & 5) (2)	
				Feb. 2007	Nov. 2007	May 2008	Oct. 2009	Jan. 2010	Dec. 2010	Feb. 2007	Nov. 2007	May 2008	Oct. 2009	Jan. 2010	Dec. 2010			Dec. 2010 (DUP-1)
Ammonia	(ug/L)	10	50	590	23	12	<50	<50	<50	16,600	5,200	897	7,800	24,000	3,800	3,800	-	-
Chloride	(ug/L)	100	1,000	5.3	7	4,910	9,000	8,000	9,000	-	2,730	19,500	33,000	55,000	18,000	18,000	-	-
Colour	(TCU)	5	5	-	7,150	38	46	20	46	-	65	58	62	37	180	180	-	-
Conductivity	(µS/cm)	5	1	43	51	37	51	44	53	760	447	377	860	1,500	330	340	-	-
DOC	(ug/L)	500	-	4,100	11,100	6,040	-	-	-	8,000	7,880	10,300	-	-	-	-	-	-
Fluoride	(ug/L)	100	-	200	525	<100	-	-	-	100	<100	<100	-	-	-	-	-	-
Hardness as CaCO3	(ug/L)	300	1,000	50,100	8,350	5,330	14,000	9,000	10,000	177,000	101,000	87,900	260,000	510,000	88,000	91,000	-	-
Nitrate as N	(ug/L)	50	50	<50	<50	59	60	110	<50	27,500	14,400	14,800	18,000	24,000	2,100	2,100	130,000	-
Nitrite as N	(ug/L)	15	10	<50	<15	<15	<10	<10	<10	<50	57	84	210	90	30	30	600	-
pH	-	-	-	6.09	6.10	6.30	6.18	5.92	6.70	6.13	6.11	6.31	6.36	6.82	7.10	7.02	6.5-9*	-
Sulphate	(ug/L)	100	2,000	2,100	2,520	1,760	<2,000	<2,000	<2,000	167,000	84,400	63,400	280,000	490,000	72,000	74,000	-	-
Total Alkalinity (CaCO3)	(ug/L)	5,000	5,000	14,000	14,000	12,300	8,000	8,000	11,000	31,000	20,200	23,000	38,000	170,000	55,000	56,000	-	-
Total Dissolved Solids	(ug/L)	10,000	1,000	38,000	33,000	33,000	37,000	29,000	32,000	492,000	291,000	277,000	610,000	1,070,000	209,000	212,000	-	-
Total Organic Carbon	(ug/L)	500	500	-	23,800	494,000	<5000	6,000	4,500	-	8,830	18,000	18,000	11,000	14,000	13,000	-	-
Total Suspended Solids	(ug/L)	2,000	-	4,390,000	33,700,000	8,300,000	-	-	-	1,740,000	262,000	305,000	-	-	-	-	-	-
Turbidity	(NTU)	0.1	0.1	-	23,200	2,330	120	81	38	-	130	91	500	160	70	83	-	-
Calcium	(ug/L)	500	100	14,300	2,330	1,310	3,700	2,300	2,800	52,000	30,900	26,600	79,000	150,000	28,000	28,000	-	-
Magnesium	(ug/L)	20	100	3,490	616	502	1,300	800	790	11,400	5,840	5,210	15,000	30,000	4,600	4,800	-	-
Potassium	(ug/L)	20	100	1,530	405	166	900	100	210	20,100	9,220	10,200	22,000	33,000	9,000	9,000	-	-
Sodium	(ug/L)	500	100	6,800	10,200	4,030	8,200	4,900	5,400	53,400	27,600	21,800	56,000	72,000	20,000	20,000	-	-
Dissolved Phosphorus (P)	(ug/L)	-	100	-	-	-	<100	<100	<100	-	-	-	100	<100	<100	180	-	-
Reactive Silica (SiO2)	(ug/L)	-	500	-	-	-	8,500	7,900	8,000	-	-	-	7,100	7,300	6,400	6,300	-	-

Notes:

MDL: Method Detection Limit

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Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

Shaded and bold data exceeds the CCME-FAL Guidelines

Bold faced guidelines reflect those most applicable to current land use designation

* pH guidelines not multiplied by 10

DUP-1 (Dec. 2010) is a blind field duplicate of groundwater sample MW-06



TABLE D-5: General Water Chemistry in Groundwater (2007-2010) - Continued

Sample ID Sampling Date Parameter	Unit	MDL		DATA										GUIDELINES		
		2007 - 2009	2009 - 2010*	Feb. 2007	Nov. 2007	May 2008	May 2008 (DUP-1)	MW-07 Mar. 2009	Mar. 2009 (DUP-2)	Oct. 2009	Jan. 2010	Dec. 2010	MW-08 Mar. 2010	Dec. 2010	10x CCME-FAL (Updated 2007)	2004 MOE Standards (1) (Tables 3 & 5) (2)
Ammonia	(ug/L)	10	50	910	70	55	29	23	19	<50	<50	<50	<50	<50	-	-
Chloride	(ug/L)	100	1,000	5,800	4,510	3,100	3,090	6,950	6,990	8,000	8,000	7,000	4,000	7,000	-	-
Colour	(TCU)	5	5	-	480	240	240	162	156	1,100	430	770	120	90	-	-
Conductivity	(µS/cm)	5	1	35	44	32	33	42	43	53	41	52	29	36	-	-
DOC	(ug/L)	500	-	17,700	21,100	33,400	34,300	18,600	19,200	-	-	-	-	-	-	-
Fluoride	(ug/L)	100	-	100	<100	<100	<100	<100	<100	-	-	-	-	-	-	-
Hardness as CaCO3	(ug/L)	300	1,000	13,200	5,890	3,990	3,870	5,740	5,500	6,000	3,000	7,000	3,000	4,000	-	-
Nitrate as N	(ug/L)	50	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	130,000	-
Nitrite as N	(ug/L)	15	10	<50	<15	<15	<15	<15	<15	<10	<10	<10	<10	<10	600	-
pH	-	-	-	4.92	5.01	5.20	5.45	4.65	4.47	4.71	4.86	6.05	5.42	5.12	6.5-9*	-
Sulphate	(ug/L)	100	2,000	1,800	1,780	1,130	971	1,290	1,250	<2,000	<2,000	<2,000	<2,000	<2,000	-	-
Total Alkalinity (CaCO3)	(ug/L)	5,000	5,000	<5,000	5,730	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	<5,000	-	-
Total Dissolved Solids	(ug/L)	10,000	1,000	94,000	28,300	97,000	76,000	27,500	28,000	28,000	22,000	28,000	17,000	22,000	-	-
Total Organic Carbon	(ug/L)	500	500	-	59,900	155,000	49,900	47,200	47,200	100,000	38,000	43,000	19,000	27,000	-	-
Total Suspended Solids	(ug/L)	2,000	-	2,540,000	242,000	1,300,000	890,000	248,000	268,000	-	-	-	-	-	-	-
Turbidity	(NTU)	0.1	0.1	-	231	683	405	201	182	370	160	290	330	550	-	-
Calcium	(ug/L)	500	100	3,690	1,040	791	758	777	739	1,200	500	2,000	800	810	-	-
Magnesium	(ug/L)	20	100	960	837	490	480	916	909	700	500	450	200	560	-	-
Potassium	(ug/L)	20	100	460	221	170	165	270	175	300	ND	<1,000	500	310	-	-
Sodium	(ug/L)	500	100	4,200	4,680	3,830	3,950	3,720	3,810	9,200	5,800	9,300	5,400	4,400	-	-
Dissolved Phosphorus (P)	(ug/L)	-	100	-	-	-	-	-	-	100	100	<1,000	<100	<100	-	-
Reactive Silica (SiO2)	(ug/L)	-	500	-	-	-	-	-	-	6,800	5,700	6,200	5,500	9,000	-	-

Notes:

MDL: Method Detection Limit

<X: Below MDL

CCME: Canadian Council of Ministers of the Environment

CEQGs: Canadian Environment Quality Guidelines

MOE: Ontario Ministry of Environment

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

Shaded and bold data exceeds the CCME-FAL Guidelines

Bold faced guidelines reflect those most applicable to current land use designation

* pH guidelines not multiplied by 10

DUP-1 is a blind field duplicate of groundwater sample MW-07 (May 2008)

DUP-2 is a blind field duplicate of groundwater sample MW-07 (May 2009)



TABLE D-6: BTEX/TPH Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2010)

Sample ID Sampling Date	DATA																GUIDELINES 1999 CCME-FAL (Updated 2007) (µg/L)
	MDL (µg/L)		SW-POND								STREAM						
			Nov. 2007	May 2008	Jan 2009	Sept. 2009	Jan. 2010	Jan. 2010 SW-POND-D	Nov. 2010	Nov. 2010 SW-DUP1	Nov. 2007	May 2008	Jan 2009	Sept. 2009	Jan. 2010	Nov. 2010	
Parameter	2007 - 2008	2009 - 2010	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	
Benzene	0.2	1.0	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<1.0	<1.0	370
Toluene	0.2	1.0	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<1.0	<1.0	2
Ethylbenzene	0.2	1.0	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<1.0	<1.0	90
Total Xylene	0.6	2.0	<0.6	<0.6	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.6	<0.6	<2.0	<2.0	<2.0	-
TPH (C ₆ -C ₁₀)	50	10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<50	<51	<10	<10	<10	-
TPH (>C ₁₀ -C ₂₁)	50	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	BB	<50	<50	<50	-
TPH (>C ₂₁ -C ₃₂)	50	100	<50	<50	<100	<100	<100	<100	<100	<100	<100	<50	BB	<100	<100	<100	-
Modified TPH (C ₆ -C ₃₂)	150	100	<150	<150	<100	<100	<100	<100	<100	<100	<100	<150	BB	<100	<100	<100	-
Hydrocarbon Identification			-	-	-	(3)	(1)	(3)	(1)	(3)	-	-	-	(3)	(2)	(3)	

Notes:

MDL: Method detection limit

<X: not detected above MDL

CCME: Canadian Council of Ministers of the Environment

FAL: Freshwater Aquatic Life

Shaded and bold data exceeds the CCME-FAL Guidelines

Bold faced guidelines reflect those most applicable to current land use designation

BB: Broken Bottle

-: Value not established

1 - Isobutylbenzene/n-dotriacontane recover(ies) not within acceptance limits due to sediment interference

2 - Isobutylbenzene/n-dotriacontane recover(ies) not within acceptance limits due to matrix/co-extractive interference and sediment interference

3 - Isobutylbenzene/n-dotriacontane recover(ies) not within acceptance limits due to matrix/co-extractive interference

SW-POND-D (Jan. 2010) and SW-DUP1 (Nov. 2010) are blind field duplicates of surface water sample SW-POND



TABLE D-6: BTEX/TPH Concentrations in Surface Water Leachate Collection Background (2007-2010) - Continued

Sample ID Sampling Date	MDL (µg/L)		DATA				GUIDELINES
			BACK-SW-1		BACK-SW-2		1999 CCME-FAL (Updated 2007)
			Mar. 2010	Nov. 2010	Mar. 2010	Nov. 2010	
Parameter	2007 - 2008	2009 - 2010	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Benzene	0.2	1.0	<1.0	<1.0	<1.0	<1.0	370
Toluene	0.2	1.0	<1.0	<1.0	<1.0	<1.0	2
Ethylbenzene	0.2	1.0	<1.0	<1.0	<1.0	<1.0	90
Total Xylene	0.6	2.0	<2.0	<2.0	<2.0	<2.0	-
TPH (C ₆ -C ₁₀)	50	10	<10	<10	<10	<10	-
TPH (>C ₁₀ -C ₂₁)	50	50	<50	<50	<50	<50	-
TPH (>C ₂₁ -<C ₃₂)	50	100	<100	<100	<100	<100	-
Modified TPH (C ₆ -C ₃₂)	150	100	<100	<100	<100	<100	-
Hydrocarbon Identification			-	(1)	-	(3)	

Notes:

MDL: Method detection limit

<X: not detected above MDL

CCME: Canadian Council of Ministers of the Environment

FAL: Freshwater Aquatic Life

Shaded and bold data exceeds the CCME-FAL Guidelines

Bold faced guidelines reflect those most applicable to current land use designation

BB: Broken Bottle

-: Value not established

1 - Isobutylbenzene/n-dotriacontane recover(ies) not within acceptance limits due to sediment interference

2 - Isobutylbenzene/n-dotriacontane recover(ies) not within acceptance limits due to matrix/co-extractive interference and sediment interference

3 - Isobutylbenzene/n-dotriacontane recover(ies) not within acceptance limits due to matrix/co-extractive interference



TABLE D-7: Metal Concentrations in Surface Water Leachate Collection Background (2007-2010)

Sample ID Sampling Date pH CaCO ₃ (µg/L)			DATA				GUIDELINES 1999 CCME-FAL (Updated 2007)
			BACK-SW-1		BACK-SW-2		
MDL (µg/L)			Mar. 2010	Nov. 2010	Mar. 2010	Nov. 2010	
Parameter	Mar. 2010	Nov. 2010	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Aluminum	10.0	5.0	130	172	150	245	5 - 100
Antimony	2.0	1.0	<2	<1	<2	<1	-
Arsenic	2.0	1.0	<2	<1	<2	<1	5
Barium	5.0	1.0	<5	1.8	<5	2.7	-
Beryllium	2.0	1.0	<2	<1	<2	<1	-
Bismuth	2.0	2.0	<2	<2	<2	<2	-
Boron	5	5.0	<5	7.6	<5	<5	-
Cadmium	0.3	0.017	<0.3	<0.017	<0.3	<0.017	0.017
Calcium	10	100	1,200	1,340	1,200	1,230	-
Chromium	2.0	1.0	20	<1	<2	<1	1
Cobalt	1.0	0.40	<1	<0.40	<1	<0.4	-
Copper	2.0	2.0	<2	<2	<2	2.4	2 - 4
Iron	50	50	120	109	540	235	300
Lead	0.5	0.50	<0.5	<0.50	<0.5	<0.5	1 - 7
Magnesium	10	100	600	579	600	560	-
Manganese	2.0	2.0	17	22	96	18	-
Mercury	0.013	-	<0.013	-	<0.013	-	0.026
Molybdenum	2.0	2.0	<2	<2	<2	<2	-
Nickel	2.0	2.0	<2	<2	<2	<2	25 - 150
Phosphorus	-	100	-	<100	-	<100	-
Potassium	10	100	100	153	200	170	-
Selenium	2.0	1.0	<2	<1	<2	<1	1
Silver	0.5	0.10	<0.5	<0.1	<0.5	<0.10	0.1
Sodium	10	100	5,200	4,020	7,600	5,480	-
Strontium	5.0	2.0	5	5.8	<5	4.6	-
Thallium	0.1	0.10	<0.1	<0.10	<0.1	<0.10	0.8
Tin	2.0	2.0	<2	<2	<2	<2	-
Titanium	2.0	2.0	<2	<2	<2	2.1	-
Uranium	0.10	0.10	<0.1	<0.10	<0.1	<0.10	-
Vanadium	2.0	2.0	<2	<2	<2	<2	-
Zinc	5.0	5.0	10	12	11	5	30

Notes

MDL: Method Detection Limit
 <X: Below MDL
 CCME = Canadian Council of Ministers of the Environment
 FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life
 Bold faced guidelines reflect those most applicable to current land use designation
 -: Value not established



Shaded and bold data exceeds the CCME-FAL Guidelines

Aluminum guideline = 5 µg/L at pH <6.5
 = 100 µg/L at pH ≥6.5

Copper guideline = 2 µg/L at water hardness [CaCO₃] = 0-120,000 µg/L
 = 3 µg/L at water hardness [CaCO₃] = 120,000-180,000 µg/L
 = 4 µg/L at water hardness [CaCO₃] > 180,000 µg/L

Lead guideline = 1 µg/L at water hardness [CaCO₃] = 0-60,000 µg/L (soft)
 = 2 µg/L at water hardness [CaCO₃] = 60,000-120,000 µg/L (medium)

Nickel guideline = 25 µg/L at water hardness [CaCO₃] = 0-60,000 µg/L
 = 65 µg/L at water hardness [CaCO₃] = 60,000-120,000 µg/L
 = 110 µg/L at water hardness [CaCO₃] = 120,000-180,000 µg/L
 = 150 µg/L at water hardness [CaCO₃] = > 180,000 µg/L

Cadmium Guideline (in µg/L) = $10^{(0.86[\log(\text{hardness})] - 3.2)}$; hardness measured as CaCO₃ equivalents in mg/L

Chromium Guideline = For trivalent chromium (Cr(III))

TABLE D-8: PAH Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2010)

Sample ID Sampling Date Parameter	DATA															GUIDELINES
	MDL (µg/L)			SW-POND						STREAM						1999 CCME-FAL (UPDATED 2007)
	2007-2008	2009	Aug. 2009 / Jan. 2010	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan. 2009 (µg/L)	Sept. 2009 (µg/L)	Jan. 2010 (µg/L)	Nov. 2010 (µg/L)	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan 2009 (µg/L)	Sept. 2009 (µg/L)	Jan. 2010 (µg/L)	Nov. 2010 (µg/L)	(µg/L)
1-Methylnaphthalene	0.03	0.05	0.05	-	<0.03	<0.05	<0.06	<0.05	<0.05	-	<0.03	<0.05	<0.05	<0.05	<0.05	-
2-Methylnaphthalene	0.03	0.05	0.05	-	<0.03	<0.05	<0.06	<0.05	<0.05	-	<0.03	<0.05	<0.05	<0.05	<0.05	-
Acenaphthene	0.04	0.01	0.01	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	5.8
Acenaphthylene	0.03	0.01	0.01	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	-
Acridine	-	-	0.05	-	-	-	-	<0.05	<0.05	-	-	-	-	<0.05	<0.05	4.4
Anthracene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012
Benzo(a)anthracene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.018
Benzo(a)pyrene	0.005	0.01	0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	0.015
Benzo(b)fluoranthene	0.05	0.01	0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-
Benzo(g,h,i)perylene	0.03	0.01	0.01	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	-
Benzo(k)fluoranthene	0.05	0.01	0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-
Chrysene	0.04	0.01	0.01	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	<0.04	<0.04	<0.01	<0.01	<0.01	<0.01	-
Dibenzo(a,h)anthracene	0.05	0.01	0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-
Fluoranthene	0.03	0.01	0.01	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	0.04
Fluorene	0.03	0.01	0.01	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	3
Indeno(1,2,3-cd)pyrene	0.05	0.01	0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-
Naphthalene	0.03	0.2	0.2	<0.03	<0.03	<0.2	<0.2	<0.2	<0.2	<0.03	<0.03	<0.2	<0.2	<0.2	<0.2	1.1
Perylene	-	-	0.01	-	-	-	<0.01	<0.01	<0.01	-	-	-	<0.01	<0.01	<0.01	-
Phenanthrene	0.04	0.01	0.01	<0.04	<0.04	0.03	<0.01	<0.01	<0.01	<0.04	<0.04	0.02	<0.01	<0.01	<0.01	0.4
Pyrene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.025
Quinoline	-	-	0.05	-	-	-	-	<0.05	<0.05	-	-	-	-	<0.05	<0.05	3.4

Notes

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FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established or Parameter not analyzed

Shaded and bold data exceeds the CCME-FAL Guidelines



TABLE D-8: PAH Concentrations in Leachate Collection Background (2007-2010) - Continued

Sample ID Sampling Date Parameter	MDL (µg/L)			DATA				GUIDELINES
	2007-2008	Aug. 2009 / Jan. 2010		BACK-SW-1		BACK-SW-2		1999 CCME-FAL (UPDATED 2007) (µg/L)
		2009	Mar. 2010 (µg/L)	Nov. 2010 (µg/L)	Mar. 2010 (µg/L)	Nov. 2010 (µg/L)		
1-Methylnaphthalene	0.03	0.05	0.05	<0.05	<0.05	0.15	<0.05	-
2-Methylnaphthalene	0.03	0.05	0.05	<0.05	<0.05	0.29	<0.05	-
Acenaphthene	0.04	0.01	0.01	<0.01	<0.01	0.01	<0.01	5.8
Acenaphthylene	0.03	0.01	0.01	<0.01	<0.01	<0.01	<0.01	-
Acridine	-	-	0.05	<0.01	<0.05	<0.01	<0.05	4.4
Anthracene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.012
Benzo(a)anthracene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.018
Benzo(a)pyrene	0.005	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.015
Benzo(b)fluoranthene	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	-
Benzo(g,h,i)perylene	0.03	0.01	0.01	<0.01	<0.01	<0.01	<0.01	-
Benzo(k)fluoranthene	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	-
Chrysene	0.04	0.01	0.01	<0.01	<0.01	<0.01	<0.01	-
Dibenzo(a,h)anthracene	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	-
Fluoranthene	0.03	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.04
Fluorene	0.03	0.01	0.01	<0.01	<0.01	<0.01	<0.01	3
Indeno(1,2,3-cd)pyrene	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	-
Naphthalene	0.03	0.2	0.2	<0.2	<0.2	<0.2	<0.2	1.1
Perylene	-	-	0.01	<0.01	<0.01	<0.01	<0.01	-
Phenanthrene	0.04	0.01	0.01	<0.02	<0.01	0.02	<0.01	0.4
Pyrene	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.025
Quinoline	-	-	0.05	-	<0.05	-	<0.05	3.4

Notes

MDL: Method Detection Limit

<X: Below MDL

CCME = Canadian Council of Ministers of the Environment

FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established or Parameter not analyzed

Shaded and bold data exceeds the CCME-FAL Guidelines



TABLE D-9: VOC Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2010)

Sample ID Sampling Date Parameter	DATA								GUIDELINES 1999 CCME-FAL (UPDATED 2007) (µg/L)	
	MDL (µg/L)			SW-POND						
	2007-2008	2009	Aug. 2009 / Jan 2010	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan 2009 (µg/L)	Sept. 2009 (µg/L)	Jan. 2010 (µg/L)		Nov. 2010 (µg/L)
Methyl Chloride	0.3	3	-	< 0.3	< 0.3	-	-	-	-	-
Vinyl Chloride	0.2	1	0.5	< 0.2	< 0.2	<1	<0.5	<0.5	<0.5	-
Bromomethane	0.4	8	3	< 0.4	< 0.4	<8	<3	<3	<3	-
Chloroethane	0.4	8	8	< 0.4	< 0.4	<8	<8	<8	<8	-
Trichlorofluoromethane	0.3	8	8	< 0.3	< 0.3	<8	<8	<8	<8	-
1,1-Dichloroethene	0.3	-	-	< 0.3	< 0.3	-	-	-	-	-
Methylene Chloride	5	-	3	<5	<5	<3	<3	<3	<3	98.1
Methyl-t-butyl ether	0.5	-	-	<0.5	<0.5	-	-	-	-	-
T1,2-Dichloroethylene	0.2	2	2	< 0.2	< 0.2	<2	<2	<2	<2	-
1,1-Dichloroethane	0.6	2	2	< 0.6	< 0.6	<2	<2	<2	<2	-
C1,2-Dichloroethylene	0.7	2	2	< 0.7	< 0.7	<2	<2	<2	<2	-
Chloroform	0.5	1	1	< 0.5	< 0.5	<1	<1	<1	<1	1.8
1,1,1-Trichloroethane	0.5	1	1	< 0.5	< 0.5	<1	<1	<1	<1	-
Carbon Tetrachloride	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	13.3
Benzene	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	370
1,2-Dichloroethane	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	100
Trichloroethylene	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	21
1,2-Dichloropropane	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	-
Bromodichloromethane	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
C1,3-Dichloropropene	0.4	2	2	< 0.4	< 0.4	<2	<2	<2	<2	-
Toluene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	2
T1,3-Dichloropropene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
1,1,2-Trichloroethane	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	-
Tetrachloroethylene	0.3	1	1	0.6	< 0.3	<1	<1	<1	<1	111
Dibromochloromethane	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	-
Ethylene Dibromide	0.3	1	1	<0.3	<0.3	<1	<1	<1	<1	-
Chlorobenzene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	1.3
1,1,1,2,-Tetrachloroethane	0.3	-	-	< 0.3	< 0.3	-	-	-	-	-
Ethylbenzene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	90
Bromoform	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
1,1,1,2,-Tetrachloroethane	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
1,3-Dichlorobenzene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
1,4-Dichlorobenzene	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	26
1,2-Dichlorobenzene	0.4	0.5	0.5	< 0.4	< 0.4	<0.5	<0.5	<0.5	<0.5	0.7
m/p-Xylene	0.6	2	2	< 0.6	< 0.6	<2	<2	<2	<2	-
o-Xylene	0.2	1	1	< 0.2	< 0.2	<1	<1	<1	<1	-
Styrene	0.2	1	1	< 0.2	< 0.2	<1	<1	<1	<1	72
1,2,4-Trichlorobenzene	0.5	-	-	< 0.5	< 0.5	-	-	-	-	-
Acetone	10	-	-	<10	<10	-	-	-	-	-
Methyl Ethyl Ketone	10	-	-	<10	<10	-	-	-	-	-
MIBK	10	-	-	<10	<10	-	-	-	-	-
2-Chloroethylvinyl Ether	10	-	-	<10	<10	-	-	-	-	-
1,1-Dichloroethylene	-	2	0.5	-	-	<2	<0.5	<0.5	<0.5	-
Chloromethane	-	8	8	-	-	<8	<8	<8	<8	-

Notes

MDL: Method Detection Limit

<X: Below MDL

CCME = Canadian Council of Ministers of the Environment

FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established or Parameter not analyzed

Shaded and bold data exceeds the CCME-FAL Guidelines



TABLE D-9: VOC Concentrations in Surface Water Leachate Collection Pond and Stream (2007-2010) - Continued

Sample ID Sampling Date	MDL (µg/L)			DATA STREAM						GUIDELINES
	2007-2008	2009	Aug. 2009 / Jan. 2010	Nov. 2007 (µg/L)	May 2008 (µg/L)	Jan. 2009 (µg/L)	Sept. 2009 (µg/L)	Jan. 2010 (µg/L)	Nov. 2010 (µg/L)	1999 CCME-FAL (UPDATED 2007) (µg/L)
Methyl Chloride	0.3	3	-	< 0.3	< 0.3	-	-	-	-	-
Vinyl Chloride	0.2	1	0.5	< 0.2	< 0.2	<1	<0.5	<0.5	<0.5	-
Bromomethane	0.4	8	3	< 0.4	< 0.4	<8	<3	<3	<3	-
Chloroethane	0.4	8	8	< 0.4	< 0.4	<8	<8	<8	<8	-
Trichlorofluoromethane	0.3	8	8	< 0.3	< 0.3	<8	<8	<8	<8	-
1,1-Dichloroethene	0.3	-	-	< 0.3	< 0.3	-	-	-	-	-
Methylene Chloride	5	-	3	<5	<5	<3	<3	<3	<3	98.1
Methyl-t-butyl ether	0.5	-	-	<0.5	<0.5	-	-	-	-	-
T1,2-Dichloroethylene	0.2	2	2	< 0.2	< 0.2	<2	<2	<2	<2	-
1,1-Dichloroethane	0.6	2	2	< 0.6	< 0.6	<2	<2	<2	<2	-
C1,2-Dichloroethylene	0.7	2	2	< 0.7	< 0.7	<2	<2	<2	<2	-
Chloroform	0.5	1	1	< 0.5	< 0.5	<1	<1	<1	<1	1.8
1,1,1-Trichloroethane	0.5	1	1	< 0.5	< 0.5	<1	<1	<1	<1	-
Carbontetrachloride	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	13.3
Benzene	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	370
1,2-Dichloroethane	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	100
Trichloroethylene	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	21
1,2-Dichloropropane	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	-
Bromodichloromethane	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
C1,3-Dichloropropene	0.4	2	2	< 0.4	< 0.4	<2	<2	<2	<2	-
Toluene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	2
T1,3-Dichloropropene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
1,1,2-Trichloroethane	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	-
Tetrachloroethylene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	111
Dibromochloromethane	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	-
Ethylene Dibromide	0.3	1	1	<0.3	<0.3	<1	<1	<1	<1	-
Chlorobenzene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	1.3
1,1,1,2,-Tetrachloroethane	0.3	-	-	< 0.3	< 0.3	-	-	-	-	-
Ethylbenzene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	90
Bromoform	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
1,1,2,2,-Tetrachloroethane	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
1,3-Dichlorobenzene	0.3	1	1	< 0.3	< 0.3	<1	<1	<1	<1	-
1,4-Dichlorobenzene	0.4	1	1	< 0.4	< 0.4	<1	<1	<1	<1	26
1,2-Dichlorobenzene	0.4	0.5	0.5	< 0.4	< 0.4	<0.5	<0.5	<0.5	<0.5	0.7
m/p-Xylene	0.6	2	2	< 0.6	< 0.6	<2	<2	<2	<2	-
o-Xylene	0.2	1	1	< 0.2	< 0.2	<1	<1	<1	<1	-
Styrene	0.2	1	1	< 0.2	< 0.2	<1	<1	<1	<1	72
1,2,4-Trichlorobenzene	0.5	-	-	< 0.5	< 0.5	-	-	-	-	-
Acetone	10	-	-	<10	<10	-	-	-	-	-
Methyl Ethyl Ketone	10	-	-	<10	<10	-	-	-	-	-
MIBK	10	-	-	<10	<10	-	-	-	-	-
2-Chloroethylvinyl Ether	10	-	-	<10	<10	-	-	-	-	-
1,1-Dichloroethylene	-	2	0.5	-	-	<2	<0.5	<0.5	<0.5	-
Chloromethane	-	8	8	-	-	<8	<8	<8	<8	-

Notes

MDL: Method Detection Limit

<X: Below MDL

CCME = Canadian Council of Ministers of the Environment

FAL = Canadian Water Quality Guidelines for Freshwater Aquatic Life

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established or Parameter not analyzed

Shaded and bold data exceeds the CCME-FAL Guidelines



TABLE D-10: General Chemistry Concentrations in Surface Water Leachate Collection Background (2007-2010)

Sample ID Sampling Date	Unit	MDL		DATA				GUIDELINES
		Mar. 2010	Oct. 2009 / Jan. 2010	BACK-SW-1		BACK-SW-2		1999 CCME-CEQGs
				Mar. 2010	Nov. 2010	Mar. 2010	Nov. 2009	(UPDATED 2007)
Ammonia	(ug/L)	50	50	<50	<50	<50	<50	-
Chloride	(ug/L)	1,000	1,000	9,000	6,000	15,000	8,000	-
Colour	(TCU)	-	30	42	40	61	84	-
Conductivity	(µS/cm)	1	1	39	27	57	33	-
DOC	(ug/L)	-	-	-	-	-	-	-
Fluoride	(ug/L)	-	-	-	-	-	-	-
Hardness as CaCO3	(ug/L)	1,000	1,000	5,000	6,000	6,000	5,000	-
Nitrate as N	(ug/L)	50	50	100	<50	<50	<50	13,000
Nitrite as N	(ug/L)	10	10	10	<10	<10	<10	60
pH	-	-	-	5.45	6.19	4.92	5.82	6.5-9
Sulphate	(ug/L)	2,000	2,000	<2000	<2000	<2000	<2000	-
Total Alkalinity (CaCO3)	(ug/L)	5,000	5,000	<5000	<5000	<5000	<5000	-
Total Dissolved Solids	(ug/L)	1,000	1,000	19,000	15,000	28,000	19,000	-
Total Organic Carbon	(ug/L)	5,000	500	4,300	5,500	4,000	7,000	-
Total Suspended Solids	(ug/L)	-	-	-	-	-	-	-
Turbidity	(NTU)	0.1	0.1	0.6	0.4	3.1	0.6	-
Calcium	(ug/L)	10	100	1,200	1,340	1,200	1,230	-
Magnesium	(ug/L)	10	100	600	579	600	560	-
Potassium	(ug/L)	10	100	100	153	200	170	-
Sodium	(ug/L)	10	100	5,200	4,020	7,600	5,480	-
Dissolved Phosphorus (P)	(ug/L)	-	100	-	<100	-	<100	-
Reactive Silica (SiO2)	(ug/L)	500	500	3,000	2,900	1,900	3,200	-

Notes:

MDL: Method Detection Limit

<X: Below MDL

CCME: Canadian Council of Ministers of the Environment

CEQGs: Canadian Environment Quality Guidelines

Bold faced guidelines reflect those most applicable to current land use designation

-: Value not established

Shaded and bold data exceeds the CCME-FAL Guidelines

Bold faced guidelines reflect those most applicable to current land use designation



TABLE D-11: BTEX/TPH Concentrations in Sediment (2007-2010)

Sample ID Sampling Date Parameter	DATA							
	MDL (mg/kg)		POND-SED		STREAM-SED		DITCH-SED	
	Mar. 2010	Nov. 2010	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)
Benzene	0.03	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Toluene	0.03	0.03	<0.03	<0.03	0.06	<0.03	<0.03	<0.03
Ethylbenzene	0.03	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Total Xylene	0.05	0.05	<0.05	<0.05	0.25	<0.05	<0.05	<0.05
TPH (C ₆ -C ₁₀)	3	3	<3	<3	<3	<3	<3	<3
TPH (>C ₁₀ -C ₂₁)	15	20	<15	<20	<15	<71	<15	201
TPH (>C ₂₁ -<C ₃₂)	15	15	<15	<15	<15	360	27	560
Modified TPH (C ₆ -C ₃₂)	20	20	<20	<20	<20	430	27	760
Hydrocarbon Identification			-	-	A	B	A	B

Notes:

MDL: Method detection limit

<X: not detected above MDL

CCME: Canadian Council of Ministers of the Environment

FAL: Freshwater Aquatic Life

There are no guidelines available for BTEX/TPH in sediment

-: Value not established

A) No resemblance to petroleum products in the lube oil range

B) No resemblance to petroleum products in the fuel oil / lube oil range



TABLE D-11: BTEX/TPH Concentrations in Sediment (2007-2010) - continued

Sample ID Sampling Date Parameter	DATA						
	MDL (mg/kg)		BACKPOND-SED-1		BACKPOND-SED-2		BACKPOND-SED-3
	Mar. 2010	Nov. 2010	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)	Nov. 2010 (mg/kg)
Benzene	0.03	0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Toluene	0.03	0.03	<0.03	<0.03	0.04	<0.03	<0.03
Ethylbenzene	0.03	0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Total Xylene	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TPH (C ₆ -C ₁₀)	3	3	<3	<3	<3	<3	<3
TPH (>C ₁₀ -C ₂₁)	15	20	<15	<20	<15	<20	290
TPH (>C ₂₁ -<C ₃₂)	15	15	<15	<15	<15	640	780
Modified TPH (C ₆ -C ₃₂)	20	20	<20	<20	<20	640	1,100
Hydrocarbon Identification			-		A	A	B

Notes:

MDL: Method detection limit

<X: not detected above MDL

CCME: Canadian Council of Ministers of the Environment

FAL: Freshwater Aquatic Life

There are no guidelines available for BTEX/TPH in sediment

-: Value not established

A) No resemblance to petroleum products in the lube oil range.

B) No resemblance to petroleum products in the fuel oil / lube oil range.



TABLE D-12: Metal Concentrations in Sediment (2007-2010)

Sample ID Sampling Date CaCO ₃ (µg/L) MDL (mg/kg)			DATA						GUIDELINES		
			POND-SED		STREAM-SED		DITCH-SED		DITCH-SED-1	1999 CCME-CSQG ¹ (ISQG, Updated 2007)	1999 CCME-CSQG ¹ (PEL, Updated 2007)
Parameter	Mar. 2010	Nov. 2010	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(µg/L)	(µg/L)
Aluminum	10	10	13,000	14,000	5,500	5,800	10,000	9,500	9,700	-	-
Antimony	2	2	<2	<2	<2	3	<2	2	<2	-	-
Arsenic	2	2	5	5	5	21	3	9	2	59	17
Barium	5	5	12.0	12	36	1,600	6	150	5.0	-	-
Beryllium	2	2	<2	<2	<2	<2	<2	<2	<2	-	-
Bismuth	2	2	<2	<2	<2	<2	<2	<2	<2	-	-
Boron	5	5	<5	<5	12	20	<5	29	<5	-	-
Cadmium	0.3	0.3	<0.3	<0.3	0.6	0.5	<0.3	0.9	<0.3	1	3.5
Chromium	2	2	14	13	4	4	8	13	8.0	37.3	90
Cobalt	1	1	13	13	12	350	6	5	6	-	-
Copper	2	2	27	23	15	23	15	83	17	35.7	197
Iron	50	50	27,000	27,000	5,000	21,000	20,000	19,000	20,000	-	-
Lead	0.5	0.5	18	18	19	16	7.6	130	7.2	35.0	91.3
Lithium	2	2	34	31	<2	2	24	6	25	-	-
Manganese	2	2	1,100	980	2,100	160,000*	390	440	390	-	-
Mercury	0.1	0.1	0.1	<0.1	0.2	0.2	<0.1	0.1	<0.1	0.17	0.486
Molybdenum	2	2	<2	<2	2	16	<2	<2	<2	-	-
Nickel	2	2	16	15	6	8	9	10	11	-	-
Rubidium	2	2	<2	<2	2	5	<2	2	<2	-	-
Selenium	1	1	<2	<1	<2	<5*	<2	<1	<2	-	-
Silver	0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
Strontium	50	5	20	20	34	89	9	57	9.0	-	-
Thallium	0.1	0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	-	-
Tin	2	2	<2	<2	<2	<2	<2	11	<2	-	-
Uranium	0.1	0.1	0.2	0.1	1	1.1	0.4	0.4	0.4	-	-
Vanadium	2	2	14	12	12	17	11	16	12	-	-
Zinc	5	5	84	80	56	150	57	210	58	123	315

Notes

MDL: Method Detection Limit

<X: Below MDL

1.) Canadian Council for the Ministers of the Environment (CCME) Canadian Sediment Quality Guidelines (CSQG) for Protection of Freshwater Aquatic Life (FAL).

ISQG: Interim Sediment Quality Guidelines (dry weight) - Marine

PEL: Probable Effect Levels (dry levels)

-: VALUE NOT ESTABLISHED

Underlined and bold data exceed the CCME ISQG criteria/guideline(s)

Shaded data exceed the CCME PEL criteria/guideline(s)

DITCH-SED-1 (Mar. 2010) is a blind field duplicate of sediment sample DITCH-SED

*Elevated reporting limit due to sample matrix



TABLE D-12: Metal Concentrations in Sediment (2007-2010)

Sample ID Sampling Date CaCO ₃ (µg/L) MDL (mg/kg)			DATA						GUIDELINES	
			BACKPOND-SED-1 Mar. 2010 Nov. 2010		BACKPOND-SED-2 Mar. 2010 Nov. 2010		BACKPOND-SED-3 Mar. 2010 Nov. 2010		1999 CCME-CSQG ¹ (ISQG, Updated 2007)	1999 CCME-CSQG ¹ (PEL, Updated 2007)
Parameter	Mar. 2010	Nov. 2010	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(µg/L)	(µg/L)
Aluminum	10	10	7,200	8,300	11,000	11,000	13,000	9,900	-	-
Antimony	2	2	<2	<2	<2	<2	<2	<2	-	-
Arsenic	2	2	9	4	3	4	3	3	59	17
Barium	5	5	60	30	29	14	35	17	-	-
Beryllium	2	2	<2	<2	<2	<2	<2	<2	-	-
Bismuth	2	2	<2	<2	<2	<2	<2	<2	-	-
Boron	5	5	<5	<5	<5	<5	<5	<5	-	-
Cadmium	0.3	0.3	<0.3	0.4	<0.3	<0.3	<0.3	<0.3	1	3.5
Chromium	2	2	7	7	8	10	9	8	37.3	90
Cobalt	1	1	40	11	3	2	3	2	-	-
Copper	2	2	8	8	8	45	9	46	35.7	197
Iron	50	50	17,000	17,000	4,700	2,000	4,800	2,400	-	-
Lead	0.5	0.5	6.8	7.4	2.8	2.1	2.7	2.5	35.0	91.3
Lithium	2	2	18	11	2	<2	<2	<2	-	-
Manganese	2	2	12,000	2,900	410	100	420	130	-	-
Mercury	0.1	0.1	<0.1	<0.1	0.1	0.2	0.1	0.2	0.17	0.486
Molybdenum	2	2	<2	<2	<2	<2	<2	<2	-	-
Nickel	2	2	13	9	6	4	7	4	-	-
Rubidium	2	2	<2	2	<2	<2	<2	<2	-	-
Selenium	1	1	<2	<5*	<2	<5*	<2	<5*	-	-
Silver	0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
Strontium	50	5	5	<50*	<5	<50*	<5	<50*	-	-
Thallium	0.1	0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	-	-
Tin	2	2	<2	<2	<2	<2	<2	<2	-	-
Uranium	0.1	0.1	0.3	0.5	1	1.5	0.7	1.3	-	-
Vanadium	2	2	9	15	24	45	28	36	-	-
Zinc	5	5	69	53	11	9	16	10	123	315

Notes

MDL: Method Detection Limit

<X: Below MDL

1.) Canadian Council for the Ministers of the Environment (CCME) Canadian Sediment Quality Guidelines (CSQG) for Protection of Freshwater Aquatic Life (FAL).

ISQG: Interim Sediment Quality Guidelines (dry weight) - Marine

PEL: Probable Effect Levels (dry levels)

-: VALUE NOT ESTABLISHED

Underlined and bold data exceed the CCME ISQG criteria/guideline(s)

Shaded data exceed the CCME PEL criteria/guideline(s)

*Elevated reporting limit due to sample matrix.

BACKPOND-SED-3 is a blind field duplicate of sediment sample BACKPOND-SED-2



TABLE D-13: PAH Concentrations in Sediment (2007-2010)

Sample ID Sampling Date Parameter	DATA									GUIDELINES	
	MDL (mg/kg)		POND-SED		STREAM-SED		DITCH-SED		DITCH-SED-1	1999 CCME-CSQG ¹ (ISQG, Updated 2007)	1999 CCME-CSQG ¹ (PEL, Updated 2007)
	Mar. 2010	Nov. 2010	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)	Mar. 2010 (mg/kg)	(mg/kg)	(mg/kg)
1-Methylnaphthalene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.0202	0.201
2-Methylnaphthalene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	<0.01	-	-
Acenaphthene	0.01	0.005	<0.01*	<0.005	<0.01*	<0.005	<0.01*	<0.005	<0.01*	0.00671	0.0889
Acenaphthylene	0.01	0.005	<0.01*	<0.005	<0.01*	<0.005	<0.01*	<0.005	<0.01*	0.00587	0.128
Anthracene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.029	<0.01	0.0469	0.245
Benzo(a)anthracene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.046	<0.01	0.0748	0.693
Benzo(a)pyrene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.067	<0.01	0.0888	0.763
Benzo(b)fluoranthene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.054	<0.01	-	-
Benzo(g,h,i)perylene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.053	<0.01	-	-
Benzo(j)fluoranthene	-	0.005	-	<0.005	-	<0.005	-	0.055	-	-	-
Benzo(k)fluoranthene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.040	<0.01	-	-
Chrysene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.11	<0.01	0.108	0.846
Dibenzo(a,h)anthracene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.00622	0.135
Fluoranthene	0.01	0.005	<0.01	0.008	<0.01	<0.005	<0.01	0.19	<0.01	0.113	1.494
Fluorene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.0212	0.144
Indeno(1,2,3-cd)pyrene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.048	<0.01	-	-
Naphthalene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.0346	0.391
Perylene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	<0.01	0.12	<0.01	-	-
Phenanthrene	0.01	0.005	<0.01	0.009	<0.01	<0.005	<0.01	0.082	<0.01	0.0867	0.544
Pyrene	0.01	0.005	<0.01	0.006	<0.01	<0.005	<0.01	0.15	<0.01	0.153	1.398

Notes

MDL: Method Detection Limit

<X: Below MDL

1.) Canadian Council for the Ministers of the Environment (CCME) Canadian Sediment Quality Guidelines (CSQG) for Protection of Freshwater Aquatic Life (FAL).

ISQG: Interim Sediment Quality Guidelines (dry weight) - Marine

PEL: Probable Effect Levels (dry levels)

-: Value not established

Underlined and bold data exceed the CCME ISQG criteria/guideline(s)

Shaded data exceed the CCME PEL criteria/guideline(s)

DITCH-SED-1 (Mar. 2010) is a blind field duplicate of sediment sample DITCH-SED

*Method detection limit exceeds guidelines



TABLE D-13: PAH Concentrations in Sediment (2007-2010)

Sample ID Sampling Date Parameter	DATA						GUIDELINES	
	MDL (mg/kg)		BACKPOND-SED-1		BACKPOND-SED-2		1999 CCME-CSQG ¹ (ISQG, Updated 2007)	1999 CCME-CSQG ¹ (PEL, Updated 2007)
	Mar. 2010	Nov. 2010	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)	Mar. 2010 (mg/kg)	Nov. 2010 (mg/kg)	(mg/kg)	(mg/kg)
1-Methylnaphthalene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.0202	0.201
2-Methylnaphthalene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	-	-
Acenaphthene	0.01	0.005	<0.01*	<0.005	<0.01*	<0.005	0.00671	0.0889
Acenaphthylene	0.01	0.005	<0.01*	<0.005	<0.01*	<0.005	0.00587	0.128
Anthracene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.0469	0.245
Benzo(a)anthracene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.0748	0.693
Benzo(a)pyrene	0.01	0.005	<0.01	<0.005	<0.01	0.01	0.0888	0.763
Benzo(b)fluoranthene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	-	-
Benzo(g,h,i)perylene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	-	-
Benzo(j)fluoranthene	-	0.005	-	<0.005	-	<0.005	-	-
Benzo(k)fluoranthene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	-	-
Chrysene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.108	0.846
Dibenzo(a,h)anthracene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.00622	0.135
Fluoranthene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.113	1.494
Fluorene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.0212	0.144
Indeno(1,2,3-cd)pyrene	0.01	0.005	0.01	<0.005	<0.01	<0.005	-	-
Naphthalene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.0346	0.391
Perylene	0.01	0.005	<0.01	<0.005	1.4	0.17	-	-
Phenanthrene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.0867	0.544
Pyrene	0.01	0.005	<0.01	<0.005	<0.01	<0.005	0.153	1.398

Notes

MDL: Method Detection Limit

<X: Below MDL

1.) Canadian Council for the Ministers of the Environment (CCME) Canadian Sediment Quality Guidelines (CSQG) for Protection of Freshwater Aquatic Life (FAL).

ISQG: Interim Sediment Quality Guidelines (dry weight) - Marine

PEL: Probable Effect Levels (dry levels)

-: Value not established

Underlined and bold data exceed the CCME ISQG criteria/guideline(s)

Shaded data exceed the CCME PEL criteria/guideline(s)

*Method detection limit exceeds guidelines



TABLE D-14: VOC Concentrations in Sediment (2007-2010)

Sample ID Sampling Date Parameter	MDL (mg/kg)		DATA						GUIDELINES	
			POND-SED		STREAM-SED		DITCH-SED		1999 CCME-CSQG ¹ (ISQG, Updated 2007)	1999 CCME-CSQG ¹ (PEL, Updated 2007)
			Mar. 2010	Nov. 2010	Mar. 2010	Nov. 2010	Mar. 2010	Nov. 2010	(mg/kg)	(mg/kg)
1,1,1-Trichloroethane	30	30	<30	<30	<30	<30	<30	<30	-	-
1,1,2,2-Tetrachloroethane	30	30	<30	<30	<30	<30	<30	<30	-	-
1,1,2-Trichloroethane	30	30	<30	<30	<30	<30	<30	<30	-	-
1,1-Dichloroethane	30	30	<30	<30	<30	<30	<30	<30	-	-
1,1-Dichloroethylene	30	30	<30	<30	<30	<30	<30	<30	-	-
1,2-Dichlorobenzene	30	30	<30	<30	<30	<30	<30	<30	-	-
1,2-Dichloroethane	30	30	<30	<30	<30	<30	<30	<30	-	-
1,2-Dichloropropane	30	30	<30	<30	<30	<30	<30	<30	-	-
1,3-Dichlorobenzene	30	30	<30	<30	<30	<30	<30	<30	-	-
1,4-Dichlorobenzene	30	30	<30	<30	<30	<30	<30	<30	-	-
Benzene	30	30	<30	<30	<30	<30	<30	<30	-	-
Bromodichloromethane	30	30	<30	<30	<30	<30	<30	<30	-	-
Bromoform	200	30	<200	<30	<200	<30	<200	<30	-	-
Carbon Tetrachloride	30	30	<30	<30	<30	<30	<30	<30	-	-
Chlorobenzene	30	30	<30	<30	<30	<30	<30	<30	-	-
Chloroform	30	10	<30	<10	<30	<10	<30	<10	-	-
Chloromethane	30	30	<30	<30	<30	<30	<30	<30	-	-
cis-1,2-Dichloroethylene	30	30	<30	<30	<30	<30	<30	<30	-	-
cis-1,3-Dichloropropene	30	30	<30	<30	<30	<30	<30	<30	-	-
Dibromochloromethane	30	30	<30	<30	<30	<30	<30	<30	-	-
Ethylbenzene	30	30	<30	<30	<30	<30	<30	<30	-	-
Ethylene Dibromide	30.0	30	<30	<30	<30	<30	<30	<30	-	-
Methylene Chloride(Dichloromethane)	30.0	40	<30	<40*	<30	<40*	<30	<40*	-	-
o-Xylene	30.0	30	<30	<30	<30	<30	<30	<30	-	-
p+m-Xylene	30.0	30	<30	<30	<30	<30	<30	<30	-	-
Styrene	30.0	30	<30	<30	<30	<30	<30	<30	-	-
Tetrachloroethylene	30.0	30	<30	<30	<30	<30	<30	<30	-	-
Toluene	30.0	30	<30	<30	<30	<30	<30	<30	-	-
trans-1,2-Dichloroethylene	30.0	30	<30	<30	<30	<30	<30	<30	-	-
trans-1,3-Dichloropropene	30.0	30	<30	<30	<30	<30	<30	<30	-	-
Trichloroethylene	30.0	10	<30	<10	<30	<10	<30	<10	-	-
Trichlorofluoromethane (FREON 11)	30.0	30	<30	<30	<30	<30	<30	<30	-	-
Vinyl Chloride	30.0	30	<30	<30	<30	<30	<30	<30	-	-

Notes

MDL: Method Detection Limit

<X: Below MDL

CCME: Canadian Council of Ministers of the Environment

FAL: Canadian Water Quality Guidelines for Freshwater Aquatic Life

MOE: Ontario Ministry of Environment

NA: Sample not analyzed for VOCs

Bold and underlined data exceeds the CCME-FAL guidelines

Shaded Data exceeds the MOE Standards

Bold faced guidelines reflect those most applicable to current land use designation

* Elevated Methylene Chloride (Dichloromethane) RDL due to detected level

**Method Detection Limit exceeds the guidelines

1 - MOE Standards = Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, March 9, 2004

2 - Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition & Coarse Grain Soils

-: Value not established



TABLE D-15: PCB Concentrations in Sediment (2007-2010)

Sample ID Sampling Date	DATA								GUIDELINES		
	MDL (mg/kg)		POND-SED		STREAM-SED		DITCH-SED		DITCH-SED-1	1999 CCME-CSQG ¹ (ISQG, Updated 2007)	1999 CCME-CSQG ¹ (PEL, Updated 2007)
	Mar. 2010	Nov. 2010	Mar. 2010	Nov. 2010	Mar. 2010	Nov. 2010	Mar. 2010	Nov. 2010	Mar. 2010	(mg/kg)	(mg/kg)
Parameter	Mar. 2010	Nov. 2010	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Polychlorinated Biphenyls	0.05	<0.01	<0.05	<0.01	<0.05	<0.01	<0.05	<u>2.8</u>	<0.05	0.0341	0.277

Notes

MDL: Method detection limit

<X: Below MDL

1: Canadian Council for the Ministers of the Environment (CCME) Canadian Sediment Quality Guidelines (CSQG) for Protection of Freshwater Aquatic Life (FAL).

ISQG: Interim Sediment Quality Guidelines (dry weight) - Marine

PEL: Probable Effect Levels (dry levels)

-: VALUE NOT ESTABLISHED

Underlined and bold data exceed the CCME ISQG criteria/guideline(s)

Shaded data exceed the CCME PEL criteria/guideline(s)

DITCH-SED-1 (Mar. 2010) is a blind field duplicate of sediment sample DITCH-SED



TABLE D-17: Dioxin and Furan Concentrations in Sediment (2007-2010)

Sampling Date Sample ID Parameter	DATA						TEF (WHO) 1997 ²
	Mar. 2010			Nov. 2010			
	POND-SED (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	POND-SED (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	
2,3,7,8-Tetra CDD *	ND	0.20	0.200	1.1	0.14	1.10	1
1,2,3,7,8-Penta CDD	ND	0.33	0.330	0.4	0.11	0.400	1
1,2,3,4,7,8-Hexa CDD	ND	0.24	0.0240	0.1	0.096	0.0100	0.1
1,2,3,6,7,8-Hexa CDD	ND	0.18	0.0180	ND	0.083	0.00830	0.1
1,2,3,7,8,9-Hexa CDD	ND	0.19	0.0190	0.1	0.084	0.0100	0.1
1,2,3,4,6,7,8-Hepta CDD	ND	0.12	0.0120	0.6	0.072	0.00600	0.01
Octa CDD	ND	0.24	0.000072	2.0	0.11	0.000600	0.0001 / 0.0003
Total Tetra CDD	0.32	0.20	-	6.37	0.14	-	-
Total Penta CDD	ND	0.33	-	8.68	0.11	-	-
Total Hexa CDD	ND*	0.69	-	5.20	0.087	-	-
Total Hepta CDD	0.93	0.12	-	1.25	0.072	-	-
2,3,7,8-Tetra CDF **	ND	0.26	0.0260	0.3	0.070	0.0300	0.1
1,2,3,7,8-Penta CDF	ND	0.22	0.00660	ND	0.090	0.00270	0.05 / 0.03
2,3,4,7,8-Penta CDF	ND*	0.40	0.1200	ND	0.093	0.0279	0.5 / 0.3
1,2,3,4,7,8-Hexa CDF	ND*	0.2	0.0200	0.3**	0.089	0.0300	0.1
1,2,3,6,7,8-Hexa CDF	ND*	0.19	0.0190	ND*	0.17	0.0170	0.1
2,3,4,6,7,8-Hexa CDF	ND	0.13	0.0130	ND	0.093	0.00930	0.1
1,2,3,7,8,9-Hexa CDF	ND	0.15	0.0150	ND	0.10	0.0100	0.1
1,2,3,4,6,7,8-Hepta CDF	ND	0.14	0.00140	ND*	0.39	0.00390	0.01
1,2,3,4,7,8,9-Hepta CDF	ND	0.18	0.00180	0.2	0.077	0.00200	0.01
Octa CDF	ND	0.22	0.000066	1.0	0.10	0.000300	0.0001 / 0.0003
Total Tetra CDF	0.72	0.26	-	2.83	0.070	-	-
Total Penta CDF	0.26	0.22	-	0.279	0.091	-	-
Total Hexa CDF	0.51	0.13	-	0.377	0.091	-	-
Total Hepta CDF	0.54	0.16	-	0.462	0.070	-	-
Confirmation 2,3,7,8-Tetra CDF				-	-	-	
Total Toxic Equivalency			0.815			1.67	-

Notes:

MDL: Method detection limit

ND: Not detected

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

WHO: World Health Organisation

-: Value not established

*EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

** EMPC / Merged Peak



TABLE D-17: Dioxin and Furan Concentrations in Sediment (2007-2010)

Sampling Date Sample ID Parameter	DATA						TEF (WHO) 1997 ²
	Mar. 2010			Nov. 2010			
	STREAM-SED (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	STREAM-SED (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	
2,3,7,8-Tetra CDD *	ND	0.56	0.560	1.5	0.095	1.50	1
1,2,3,7,8-Penta CDD	ND*	0.62	0.620	0.8	0.13	0.800	1
1,2,3,4,7,8-Hexa CDD	ND	0.41	0.0410	0.6	0.11	0.0600	0.1
1,2,3,6,7,8-Hexa CDD	ND	0.30	0.0300	0.8	0.091	0.0800	0.1
1,2,3,7,8,9-Hexa CDD	ND	0.32	0.0320	ND*	0.82	0.0820	0.1
1,2,3,4,6,7,8-Hepta CDD	ND	0.21	0.00210	7.3	0.083	0.0730	0.01
Octa CDD	47	0.67	0.0141	31.0	0.13	0.00930	0.0001 / 0.0003
Total Tetra CDD	8.26	0.56	-	19.9	0.095	-	-
Total Penta CDD	0.46	0.28	-	18.4	0.13	-	-
Total Hexa CDD	10.9	0.34	-	18.5	0.096	-	-
Total Hepta CDD	17.1	0.21	-	13.2	0.083	-	-
2,3,7,8-Tetra CDF **	5.1	0.49	0.510	4.4	0.071	0.440	0.1
1,2,3,7,8-Penta CDF	ND	0.28	0.00840	1.3	0.10	0.0390	0.05 / 0.03
2,3,4,7,8-Penta CDF	ND	0.30	0.0900	1.5	0.11	0.450	0.5 / 0.3
1,2,3,4,7,8-Hexa CDF	ND	0.23	0.0230	1.7	0.096	0.170	0.1
1,2,3,6,7,8-Hexa CDF	ND	0.20	0.0200	1.4	0.089	0.140	0.1
2,3,4,6,7,8-Hexa CDF	ND	0.25	0.0250	1.4	0.10	0.140	0.1
1,2,3,7,8,9-Hexa CDF	ND	0.28	0.0280	0.3	0.11	0.0300	0.1
1,2,3,4,6,7,8-Hepta CDF	ND	0.19	0.00190	ND*	5.8	0.0580	0.01
1,2,3,4,7,8,9-Hepta CDF	ND	0.25	0.00250	0.8	0.11	0.00800	0.01
Octa CDF	ND	0.66	0.000198	4.0	0.14	0.00120	0.0001 / 0.0003
Total Tetra CDF	80.6	0.49	-	66.1	0.071	-	-
Total Penta CDF	18.90	0.29	-	24.7	0.11	-	-
Total Hexa CDF	11.00	0.24	-	11.7	0.098	-	-
Total Hepta CDF	7.6	0.22	-	2.65	0.096	-	-
Confirmation 2,3,7,8-Tetra CDF				1.0	0.10	0.100	
Total Toxic Equivalency			2.01			3.74	-

Notes:

MDL: Method detection limit

ND: Not detected

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

WHO: World Health Organisation

-: Value not established

*EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

** EMPC / Merged Peak



TABLE D-17: Dioxin and Furan Concentrations in Sediment (2007-2010)

Sampling Date Sample ID Parameter	DATA						TEF (WHO) 1997 ²
	Mar. 2010			Nov. 2010			
	DITCH-SED (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	DITCH-SED (pg / L)	MDL (pg / L)	TEF Equivalent (pg / L)	
2,3,7,8-Tetra CDD *	ND	0.35	0.350	1.9	0.12	1.90	1
1,2,3,7,8-Penta CDD	ND*	0.39	0.390	1.8	0.25	1.80	1
1,2,3,4,7,8-Hexa CDD	ND	0.18	0.0180	1.9	0.11	0.190	0.1
1,2,3,6,7,8-Hexa CDD	ND	0.13	0.0130	4.3	0.096	0.430	0.1
1,2,3,7,8,9-Hexa CDD	ND*	0.14	0.0140	4.0	0.097	0.400	0.1
1,2,3,4,6,7,8-Hepta CDD	ND	0.18	0.00180	65.9	0.10	0.659	0.01
Octa CDD	ND	0.20	0.00006	354	0.16	0.106	0.0001 / 0.0003
Total Tetra CDD	0.41	0.35	-	41.4	0.12	-	-
Total Penta CDD	ND*	0.39	-	21.3	0.25	-	-
Total Hexa CDD	3.20	0.15	-	62.3	0.10	-	-
Total Hepta CDD	14.5	0.18	-	115	0.10	-	-
2,3,7,8-Tetra CDF **	ND	0.23	0.0230	21.5	0.14	2.15	0.1
1,2,3,7,8-Penta CDF	ND*	0.38	0.0114	5.7	0.20	0.171	0.05 / 0.03
2,3,4,7,8-Penta CDF	ND	0.28	0.0840	9.0	0.21	2.70	0.5 / 0.3
1,2,3,4,7,8-Hexa CDF	ND*	0.67	0.0670	9.4	0.15	0.940	0.1
1,2,3,6,7,8-Hexa CDF	ND*	0.50	0.0500	7.6	0.13	0.760	0.1
2,3,4,6,7,8-Hexa CDF	ND	0.29	0.0290	7.8	0.15	0.780	0.1
1,2,3,7,8,9-Hexa CDF	ND*	0.39	0.0390	0.6	0.17	0.0600	0.1
1,2,3,4,6,7,8-Hepta CDF	ND	0.13	0.00130	39.2	0.13	0.392	0.01
1,2,3,4,7,8,9-Hepta CDF	ND	0.17	0.00170	5.0	0.15	0.0500	0.01
Octa CDF	ND	0.22	0.000066	33	0.19	0.00990	0.0001 / 0.0003
Total Tetra CDF	6.57	0.23	-	164	0.14	-	-
Total Penta CDF	2.52	0.28	-	117	0.20	-	-
Total Hexa CDF	2.13	0.28	-	76.1	0.15	-	-
Total Hepta CDF	2.79	0.15	-	62.6	0.14	-	-
Confirmation 2,3,7,8-Tetra CDF				4.5	0.25	0.450	-
Total Toxic Equivalency			1.09			11.8	-

Notes:

MDL: Method detection limit

ND: Not detected

CDD*: Chloro Dibenzo-p-Dioxin

CDF**: Chloro Dibenzo-p-Furan

TEF: Toxic Equivalency Factor of other dioxins and furans to 2,3,7,8-Tetra CDD

TEF Equivalent: Concentration of Dioxins and Furans multiplied by the TEF (WHO)

WHO: World Health Organisation

-: Value not established

*EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

** EMPC / Merged Peak



APPENDIX E

Certificates of Analysis

Your Project #: 508907
 Site Location: NEW HARBOUR
 Your C.O.C. #: 21263

Attention: Derek Heath

SNC-Lavalin Inc, Environment Division
 5657 Spring Garden Rd
 Suite 200
 Halifax, NS
 B3J 3R4

Report Date: 2012/01/03

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1J9339

Received: 2011/12/17, 11:12

Sample Matrix: Water
 # Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Carbonate, Bicarbonate and Hydroxide	3	N/A	2011/12/20	CAM SOP-00102	APHA 4500-CO2 D
Alkalinity	3	N/A	2011/12/22	ATL SOP 00013	Based on EPA310.2
Chloride	3	N/A	2011/12/21	ATL SOP 00014	Based on SM4500-Cl-
Colour	3	N/A	2011/12/23	ATL SOP 00020	Based on SM2120C
Dioxins/Furans in Water (8290) (1)	2	2011/12/22	2011/12/26	BRL SOP-00406	EPA 8290 mod.
Conductance - water	3	N/A	2011/12/20	ATL SOP 00004/00006	Based on SM2510B
Hardness (calculated as CaCO3)	3	N/A	2011/12/21	ATL SOP 00048	Based on SM2340B
Metals Water Diss. MS	5	N/A	2011/12/19	ATL SOP 00059	Based on EPA6020A
Metals Water Diss. MS	4	N/A	2011/12/20	ATL SOP 00059	Based on EPA6020A
Metals Water Total MS	3	2011/12/20	2011/12/20	ATL SOP 00059	Based on EPA6020A
Ion Balance (% Difference)	3	N/A	2011/12/23		
Anion and Cation Sum	3	N/A	2011/12/23		
Nitrogen Ammonia - water	1	N/A	2011/12/22	ATL SOP 00015	Based on USEPA 350.1
Nitrogen Ammonia - water	2	N/A	2011/12/23	ATL SOP 00015	Based on USEPA 350.1
Nitrogen - Nitrate + Nitrite	3	N/A	2011/12/22	ATL SOP 00016	Based on USGS - Enz.
Nitrogen - Nitrite	3	N/A	2011/12/23	ATL SOP 00017	Based on SM4500-NO2B
Nitrogen - Nitrate (as N)	3	N/A	2011/12/23	ATL SOP 00018	Based on ASTM D3867
PCBs in water by GC/ECD	7	2011/12/20	2011/12/22	ATL SOP 00107	Based on EPA8082
PCBs in water by GC/ECD	3	2011/12/20	2011/12/23	ATL SOP 00107	Based on EPA8082
PCBs in water by GC/ECD	2	2011/12/21	2011/12/22	ATL SOP 00107	Based on EPA8082
pH	3	N/A	2011/12/20	ATL SOP 00003	Based on SM4500H+B
Phosphorus - ortho	3	N/A	2011/12/22	ATL SOP 00021	Based on USEPA 365.1
Sat. pH and Langelier Index (@ 20C)	3	N/A	2011/12/23		
Sat. pH and Langelier Index (@ 4C)	3	N/A	2011/12/23		
Reactive Silica	3	N/A	2011/12/22	ATL SOP 00022	Based on EPA 366.0
Sulphate	3	N/A	2011/12/23	ATL SOP 00023	Based on EPA 375.4
Total Dissolved Solids (TDS calc)	3	N/A	2011/12/23		
Organic carbon - Total (TOC)	3	N/A	2011/12/23	ATL SOP 00037	Based on SM5310C
Turbidity	3	N/A	2011/12/20	ATL SOP 00011	based on EPA 180.1

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Analytics Mississauga

(2) Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

Your Project #: 508907
Site Location: NEW HARBOUR
Your C.O.C. #: 21263

Attention: Derek Heath
SNC-Lavalin Inc, Environment Division
5657 Spring Garden Rd
Suite 200
Halifax, NS
B3J 3R4

Report Date: 2012/01/03

CERTIFICATE OF ANALYSIS

-2-

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MICHELLE HILL, Project Manager
Email: MHill@maxxam.ca
Phone# (902) 420-0203

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

 SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

RESULTS OF ANALYSES OF WATER

Maxxam ID		MA2291	MA2291		MA2292		
Sampling Date		2011/12/14	2011/12/14		2011/12/14		
COC Number		21263	21263		21263		
	Units	SW-LEACHATE POND	SW-LEACHATE POND Lab-Dup	RDL	SW-LEACHATE POND-1	RDL	QC Batch

Calculated Parameters							
Anion Sum	me/L	8.30		N/A	8.43	N/A	2717293
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	132		1	139	1	2717290
Calculated TDS	mg/L	529		1	532	1	2717297
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1		1	<1	1	2717290
Cation Sum	me/L	8.80		N/A	8.78	N/A	2717293
Hardness (CaCO3)	mg/L	280		1	280	1	2717291
Ion Balance (% Difference)	%	2.92		N/A	2.03	N/A	2717292
Langelier Index (@ 20C)	N/A	0.301			0.308		2717295
Langelier Index (@ 4C)	N/A	0.0530			0.0610		2717296
Nitrate (N)	mg/L	4.6		0.1	4.7	0.1	2717294
Saturation pH (@ 20C)	N/A	7.36			7.34		2717295
Saturation pH (@ 4C)	N/A	7.61			7.59		2717296
Inorganics							
Total Alkalinity (Total as CaCO3)	mg/L	130		30	140	30	2720166
Dissolved Chloride (Cl)	mg/L	46		1	46	1	2720183
Colour	TCU	72		30	64	30	2720195
Nitrate + Nitrite	mg/L	4.7		0.1	4.8	0.1	2720198
Nitrite (N)	mg/L	0.10		0.01	0.09	0.01	2720202
Nitrogen (Ammonia Nitrogen)	mg/L	9.0		0.3	11	0.5	2721178
Total Organic Carbon (C)	mg/L	10		3	10	3	2723038
Orthophosphate (P)	mg/L	0.01		0.01	0.01	0.01	2720197
pH	pH	7.66		N/A	7.65	N/A	2718321
Reactive Silica (SiO2)	mg/L	6.2		0.5	6.3	0.5	2720192
Dissolved Sulphate (SO4)	mg/L	190		10	190	10	2720187
Turbidity	NTU	7.0	7.4	0.1	6.1	0.1	2718327
Conductivity	uS/cm	850		1	850	1	2718322

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

RESULTS OF ANALYSES OF WATER

Maxxam ID		MA2293		
Sampling Date		2011/12/14		
COC Number		21263		
	Units	SW-STREAM	RDL	QC Batch

Calculated Parameters				
Anion Sum	me/L	4.90	N/A	2717293
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	44	1	2717290
Calculated TDS	mg/L	321	1	2717297
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1	1	2717290
Cation Sum	me/L	4.84	N/A	2717293
Hardness (CaCO3)	mg/L	130	1	2717291
Ion Balance (% Difference)	%	0.620	N/A	2717292
Langelier Index (@ 20C)	N/A	-0.941		2717295
Langelier Index (@ 4C)	N/A	-1.19		2717296
Nitrate (N)	mg/L	8.5	0.3	2717294
Saturation pH (@ 20C)	N/A	8.15		2717295
Saturation pH (@ 4C)	N/A	8.40		2717296
Inorganics				
Total Alkalinity (Total as CaCO3)	mg/L	44	5	2720166
Dissolved Chloride (Cl)	mg/L	45	1	2720183
Colour	TCU	42	5	2720195
Nitrate + Nitrite	mg/L	8.6	0.3	2720198
Nitrite (N)	mg/L	0.05	0.01	2720202
Nitrogen (Ammonia Nitrogen)	mg/L	1.6	0.05	2721178
Total Organic Carbon (C)	mg/L	8	3	2723038
Orthophosphate (P)	mg/L	<0.01	0.01	2720197
pH	pH	7.21	N/A	2718321
Reactive Silica (SiO2)	mg/L	5.5	0.5	2720192
Dissolved Sulphate (SO4)	mg/L	100	10	2720187
Turbidity	NTU	1.8	0.1	2718327
Conductivity	uS/cm	530	1	2718322
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

 SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		MA2280	MA2281	MA2282	MA2282	MA2283		
Sampling Date		2011/12/15	2011/12/15	2011/12/15	2011/12/15	2011/12/15		
COC Number		21263	21263	21263	21263	21263		
	Units	MW-1	MW-7	MW-8	MW-8 Lab-Dup	MW-9	RDL	QC Batch

Metals								
Dissolved Aluminum (Al)	ug/L	234	1760	1210	1200	1860	5.0	2718949
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	2718949
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	2718949
Dissolved Barium (Ba)	ug/L	1.7	3.5	7.2	7.3	3.4	1.0	2718949
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	2718949
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	2718949
Dissolved Boron (B)	ug/L	<50	<50	<50	<50	<50	50	2718949
Dissolved Cadmium (Cd)	ug/L	<0.017	<0.017	0.022	0.022	<0.017	0.017	2718949
Dissolved Calcium (Ca)	ug/L	2040	1130	840	832	1080	100	2718949
Dissolved Chromium (Cr)	ug/L	<1.0	1.4	<1.0	<1.0	1.3	1.0	2718949
Dissolved Cobalt (Co)	ug/L	0.40	0.64	0.61	0.63	0.60	0.40	2718949
Dissolved Copper (Cu)	ug/L	<2.0	2.9	15.4	15.6	2.7	2.0	2718949
Dissolved Iron (Fe)	ug/L	167	1990	513	514	1980	50	2718949
Dissolved Lead (Pb)	ug/L	<0.50	1.64	0.60	0.60	1.66	0.50	2718949
Dissolved Magnesium (Mg)	ug/L	611	312	546	540	323	100	2718949
Dissolved Manganese (Mn)	ug/L	15.9	30.3	30.9	30.9	29.2	2.0	2718949
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	2718949
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	5.0	4.8	<2.0	2.0	2718949
Dissolved Potassium (K)	ug/L	166	180	334	320	190	100	2718949
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	2718949
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	0.20	0.19	<0.10	0.10	2718949
Dissolved Sodium (Na)	ug/L	4140	8270	4340	4310	8090	100	2718949
Dissolved Strontium (Sr)	ug/L	6.9	7.6	7.1	7.3	7.8	2.0	2718949
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	2718949
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	2718949
Dissolved Titanium (Ti)	ug/L	6.8	40.4	18.2	18.5	40.6	2.0	2718949
Dissolved Uranium (U)	ug/L	<0.10	0.17	0.10	<0.10	0.18	0.10	2718949
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	2718949
Dissolved Zinc (Zn)	ug/L	5.5	8.3	20.2	19.2	10.8	5.0	2718949

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

 SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		MA2284	MA2285	MA2286	MA2287	MA2288		
Sampling Date		2011/12/14	2011/12/14	2011/12/14	2011/12/14	2011/12/14		
COC Number		21263	21263	21263	21263	21263		
	Units	MW-2	MW-3	MW-4	MW-5	MW-6	RDL	QC Batch

Metals								
Dissolved Aluminum (Al)	ug/L	432	163	84.1	133	176	5.0	2717189
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	2717189
Dissolved Arsenic (As)	ug/L	<1.0	7.4	2.0	<1.0	1.7	1.0	2717189
Dissolved Barium (Ba)	ug/L	4.7	9.8	14.9	4.0	4.6	1.0	2717189
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	2717189
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	2717189
Dissolved Boron (B)	ug/L	<50	<50	<50	<50	142	50	2717189
Dissolved Cadmium (Cd)	ug/L	0.056	0.063	<0.017	0.061	<0.017	0.017	2717189
Dissolved Calcium (Ca)	ug/L	1910	8780	8710	3740	22400	100	2717189
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	2717189
Dissolved Cobalt (Co)	ug/L	0.53	4.75	2.42	0.48	2.93	0.40	2717189
Dissolved Copper (Cu)	ug/L	7.1	3.5	<2.0	9.2	2.7	2.0	2717189
Dissolved Iron (Fe)	ug/L	245	1030	1950	65	2870	50	2717189
Dissolved Lead (Pb)	ug/L	0.62	<0.50	0.68	<0.50	<0.50	0.50	2717189
Dissolved Magnesium (Mg)	ug/L	258	2160	1740	825	3920	100	2717189
Dissolved Manganese (Mn)	ug/L	4.5	2090	549	10.7	355	2.0	2717189
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	2717189
Dissolved Nickel (Ni)	ug/L	<2.0	6.0	<2.0	<2.0	<2.0	2.0	2717189
Dissolved Potassium (K)	ug/L	238	1350	2130	524	5180	100	2717189
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	2717189
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	2717189
Dissolved Sodium (Na)	ug/L	5020	32300	41900	5200	11800	100	2717189
Dissolved Strontium (Sr)	ug/L	4.6	22.9	29.0	8.1	56.0	2.0	2717189
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	2717189
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	2717189
Dissolved Titanium (Ti)	ug/L	23.5	7.4	8.6	2.0	5.6	2.0	2717189
Dissolved Uranium (U)	ug/L	<0.10	<0.10	<0.10	0.10	<0.10	0.10	2717189
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	2717189
Dissolved Zinc (Zn)	ug/L	19.5	18.3	7.7	28.0	8.9	5.0	2717189

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

 SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		MA2291	MA2292	MA2293		
Sampling Date		2011/12/14	2011/12/14	2011/12/14		
COC Number		21263	21263	21263		
	Units	SW-LEACHATE POND	SW-LEACHATE POND-1	SW-STREAM	RDL	QC Batch

Metals						
Total Aluminum (Al)	ug/L	202	262	155	5.0	2719077
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	1.0	2719077
Total Arsenic (As)	ug/L	<1.0	<1.0	<1.0	1.0	2719077
Total Barium (Ba)	ug/L	29.1	30.1	10.8	1.0	2719077
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	1.0	2719077
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	2.0	2719077
Total Boron (B)	ug/L	356	362	203	50	2719077
Total Cadmium (Cd)	ug/L	0.063	0.065	<0.017	0.017	2719077
Total Calcium (Ca)	ug/L	99000	97500	43200	100	2719077
Total Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	1.0	2719077
Total Cobalt (Co)	ug/L	2.98	3.50	1.10	0.40	2719077
Total Copper (Cu)	ug/L	6.4	6.7	2.3	2.0	2719077
Total Iron (Fe)	ug/L	523	682	265	50	2719077
Total Lead (Pb)	ug/L	0.89	1.18	<0.50	0.50	2719077
Total Magnesium (Mg)	ug/L	9100	8890	5720	100	2719077
Total Manganese (Mn)	ug/L	1670	1750	331	2.0	2719077
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	2.0	2719077
Total Nickel (Ni)	ug/L	2.2	2.3	<2.0	2.0	2719077
Total Phosphorus (P)	ug/L	<100	<100	<100	100	2719077
Total Potassium (K)	ug/L	12900	12700	9530	100	2719077
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	1.0	2719077
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	0.10	2719077
Total Sodium (Na)	ug/L	48700	47800	42600	100	2719077
Total Strontium (Sr)	ug/L	261	256	116	2.0	2719077
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	0.10	2719077
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	2.0	2719077
Total Titanium (Ti)	ug/L	26.3	33.8	16.2	2.0	2719077
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	0.10	2719077
Total Vanadium (V)	ug/L	<2.0	<2.0	<2.0	2.0	2719077
Total Zinc (Zn)	ug/L	21.4	23.1	6.2	5.0	2719077

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

 SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		MA2280		MA2281	MA2282	MA2283	MA2284	MA2285		
Sampling Date		2011/12/15		2011/12/15	2011/12/15	2011/12/15	2011/12/14	2011/12/14		
COC Number		21263		21263	21263	21263	21263	21263		
	Units	MW-1	RDL	MW-7	MW-8	MW-9	MW-2	MW-3	RDL	QC Batch

PCBs										
Total PCB	ug/L	<0.06	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	2718315
Surrogate Recovery (%)										
Decachlorobiphenyl	%	48 (1)		16 (2)	39 (3)	38 (3)	17 (4)	21 (4)		2718315

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

- (1) Elevated PCB RDL due to insufficient sample. PCB sample contained sediment.
- (2) PCB surrogate not within acceptance limits. Analysis was repeated with similar results.
- (3) PCB sample contained sediment.
- (4) PCB sample contained sediment. PCB surrogate not within acceptance limits. Sample past recommended hold time for repeat analysis.

Maxxam ID		MA2286	MA2287		MA2288		MA2291		
Sampling Date		2011/12/14	2011/12/14		2011/12/14		2011/12/14		
COC Number		21263	21263		21263		21263		
	Units	MW-4	MW-5	RDL	MW-6	RDL	SW-LEACHATE POND	RDL	QC Batch

PCBs										
Total PCB	ug/L	<0.05	<0.05	0.05	<0.06	0.06	<0.05	0.05	2718315	
Surrogate Recovery (%)										
Decachlorobiphenyl	%	25 (1)	35 (2)		49 (3)		36		2718315	

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

- (1) PCB sample contained sediment. PCB surrogate not within acceptance limits. Sample past recommended hold time for repeat analysis.
- (2) PCB sample contained sediment.
- (3) PCB sample contained sediment. Elevated PCB RDL due to insufficient sample.

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		MA2292		MA2293		
Sampling Date		2011/12/14		2011/12/14		
COC Number		21263		21263		
	Units	SW-LEACHATE POND-1	RDL	SW-STREAM	RDL	QC Batch

PCBs						
Total PCB	ug/L	<0.06	0.06	<0.05	0.05	2719684
Surrogate Recovery (%)						
Decachlorobiphenyl	%	64 (1)		64		2719684

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch
 (1) Elevated PCB RDL due to insufficient sample.

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

 SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		MA2291						
Sampling Date		2011/12/14						
COC Number		21263			TOXIC EQUIVALENCY		# of	
	Units	SW-LEACHATE POND	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Dioxins & Furans								
2,3,7,8-Tetra CDD *	pg/L	<0.68	0.68	21	1.00	0.680		2723363
1,2,3,7,8-Penta CDD	pg/L	<0.55	0.55	52	1.00	0.550		2723363
1,2,3,4,7,8-Hexa CDD	pg/L	<0.67	0.67	52	0.100	0.0670		2723363
1,2,3,6,7,8-Hexa CDD	pg/L	<0.56	0.56	52	0.100	0.0560		2723363
1,2,3,7,8,9-Hexa CDD	pg/L	<0.57	0.57	52	0.100	0.0570		2723363
1,2,3,4,6,7,8-Hepta CDD	pg/L	2	0.60	52	0.0100	0.0200		2723363
Octa CDD	pg/L	9	1.1	100	0.000300	0.00270		2723363
Total Tetra CDD	pg/L	<1.1 (1)	1.1	21				2723363
Total Penta CDD	pg/L	<0.55	0.55	52				2723363
Total Hexa CDD	pg/L	<3.6 (1)	3.6	52				2723363
Total Hepta CDD	pg/L	3	0.60	52				2723363
2,3,7,8-Tetra CDF **	pg/L	<0.60	0.60	21	0.100	0.0600		2723363
1,2,3,7,8-Penta CDF	pg/L	<0.63	0.63	52	0.0300	0.0189		2723363
2,3,4,7,8-Penta CDF	pg/L	<0.69 (1)	0.69	52	0.300	0.207		2723363
1,2,3,4,7,8-Hexa CDF	pg/L	<0.54	0.54	52	0.100	0.0540		2723363
1,2,3,6,7,8-Hexa CDF	pg/L	<0.50	0.50	52	0.100	0.0500		2723363
2,3,4,6,7,8-Hexa CDF	pg/L	<0.58	0.58	52	0.100	0.0580		2723363
1,2,3,7,8,9-Hexa CDF	pg/L	<0.68	0.68	52	0.100	0.0680		2723363
1,2,3,4,6,7,8-Hepta CDF	pg/L	<1.2 (1)	1.2	52	0.0100	0.0120		2723363
1,2,3,4,7,8,9-Hepta CDF	pg/L	<0.67	0.67	52	0.0100	0.00670		2723363
Octa CDF	pg/L	2	1.1	100	0.000300	0.000600		2723363
Total Tetra CDF	pg/L	<0.61 (1)	0.61	21				2723363
Total Penta CDF	pg/L	<0.68 (1)	0.68	52				2723363
Total Hexa CDF	pg/L	<0.57	0.57	52				2723363
Total Hepta CDF	pg/L	<1.3 (1)	1.3	52				2723363
TOTAL TOXIC EQUIVALENCY	pg/L					1.97		

RDL = Reportable Detection Limit
 EDL = Estimated Detection Limit
 QC Batch = Quality Control Batch
 * CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 (1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

 SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		MA2291						
Sampling Date		2011/12/14						
COC Number		21263			TOXIC EQUIVALENCY		# of	
	Units	SW-LEACHATE POND	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Surrogate Recovery (%)								
C13-1234678 HeptaCDD *	%	99						2723363
C13-1234678 HeptaCDF **	%	88						2723363
C13-123478 HexaCDF	%	71						2723363
C13-123678 HexaCDD	%	80						2723363
C13-12378 PentaCDD	%	91						2723363
C13-12378 PentaCDF	%	86						2723363
C13-2378 TetraCDD	%	68						2723363
C13-2378 TetraCDF	%	68						2723363
C13-OCDD	%	100						2723363

RDL = Reportable Detection Limit
 EDL = Estimated Detection Limit
 QC Batch = Quality Control Batch
 * CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

 SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		MA2293						
Sampling Date		2011/12/14						
COC Number		21263			TOXIC EQUIVALENCY	# of		
	Units	SW-STREAM	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Dioxins & Furans								
2,3,7,8-Tetra CDD *	pg/L	<0.56	0.56	20	1.00	0.560		2723363
1,2,3,7,8-Penta CDD	pg/L	<0.56	0.56	49	1.00	0.560		2723363
1,2,3,4,7,8-Hexa CDD	pg/L	<0.66	0.66	49	0.100	0.0660		2723363
1,2,3,6,7,8-Hexa CDD	pg/L	<0.56	0.56	49	0.100	0.0560		2723363
1,2,3,7,8,9-Hexa CDD	pg/L	<0.57	0.57	49	0.100	0.0570		2723363
1,2,3,4,6,7,8-Hepta CDD	pg/L	1	0.56	49	0.0100	0.0100		2723363
Octa CDD	pg/L	3	1.0	98	0.000300	0.000900		2723363
Total Tetra CDD	pg/L	<0.56	0.56	20				2723363
Total Penta CDD	pg/L	<0.56	0.56	49				2723363
Total Hexa CDD	pg/L	<3.7 (1)	3.7	49				2723363
Total Hepta CDD	pg/L	1	0.56	49				2723363
2,3,7,8-Tetra CDF **	pg/L	<0.54	0.54	20	0.100	0.0540		2723363
1,2,3,7,8-Penta CDF	pg/L	<0.61	0.61	49	0.0300	0.0183		2723363
2,3,4,7,8-Penta CDF	pg/L	1	0.63	49	0.300	0.300		2723363
1,2,3,4,7,8-Hexa CDF	pg/L	<0.49	0.49	49	0.100	0.0490		2723363
1,2,3,6,7,8-Hexa CDF	pg/L	<0.46	0.46	49	0.100	0.0460		2723363
2,3,4,6,7,8-Hexa CDF	pg/L	<0.54	0.54	49	0.100	0.0540		2723363
1,2,3,7,8,9-Hexa CDF	pg/L	<0.62	0.62	49	0.100	0.0620		2723363
1,2,3,4,6,7,8-Hepta CDF	pg/L	<0.78 (1)	0.78	49	0.0100	0.00780		2723363
1,2,3,4,7,8,9-Hepta CDF	pg/L	<0.61	0.61	49	0.0100	0.00610		2723363
Octa CDF	pg/L	<1.0	1.0	98	0.000300	0.000300		2723363
Total Tetra CDF	pg/L	1	0.54	20				2723363
Total Penta CDF	pg/L	1	0.62	49				2723363
Total Hexa CDF	pg/L	<0.52	0.52	49				2723363
Total Hepta CDF	pg/L	<0.88 (1)	0.88	49				2723363
TOTAL TOXIC EQUIVALENCY	pg/L					1.91		

RDL = Reportable Detection Limit
 EDL = Estimated Detection Limit
 QC Batch = Quality Control Batch
 * CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient.
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 (1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B1J9339
 Report Date: 2012/01/03

SNC-Lavalin Inc, Environment Division
 Client Project #: 508907
 Site Location: NEW HARBOUR

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		MA2293						
Sampling Date		2011/12/14						
COC Number		21263			TOXIC EQUIVALENCY	# of		
	Units	SW-STREAM	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Surrogate Recovery (%)								
C13-1234678 HeptaCDD *	%	112						2723363
C13-1234678 HeptaCDF **	%	103						2723363
C13-123478 HexaCDF	%	84						2723363
C13-123678 HexaCDD	%	93						2723363
C13-12378 PentaCDD	%	89						2723363
C13-12378 PentaCDF	%	83						2723363
C13-2378 TetraCDD	%	80						2723363
C13-2378 TetraCDF	%	77						2723363
C13-OCDD	%	118						2723363

RDL = Reportable Detection Limit
 EDL = Estimated Detection Limit
 QC Batch = Quality Control Batch
 * CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B1J9339
Report Date: 2012/01/03

SNC-Lavalin Inc, Environment Division
Client Project #: 508907
Site Location: NEW HARBOUR

Package 1	0.0°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Results relate only to the items tested.

SNC-Lavalin Inc, Environment Division
 Attention: Derek Heath
 Client Project #: 508907
 P.O. #:
 Site Location: NEW HARBOUR

Quality Assurance Report
 Maxxam Job Number: DB1J9339

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2717189	MLB	Matrix Spike					
		Dissolved Aluminum (Al)	2011/12/19		102	%	80 - 120
		Dissolved Antimony (Sb)	2011/12/19		114	%	80 - 120
		Dissolved Arsenic (As)	2011/12/19		99	%	80 - 120
		Dissolved Barium (Ba)	2011/12/19		99	%	80 - 120
		Dissolved Beryllium (Be)	2011/12/19		97	%	80 - 120
		Dissolved Bismuth (Bi)	2011/12/19		100	%	80 - 120
		Dissolved Boron (B)	2011/12/19		95	%	80 - 120
		Dissolved Cadmium (Cd)	2011/12/19		103	%	80 - 120
		Dissolved Calcium (Ca)	2011/12/19		NC	%	80 - 120
		Dissolved Chromium (Cr)	2011/12/19		97	%	80 - 120
		Dissolved Cobalt (Co)	2011/12/19		96	%	80 - 120
		Dissolved Copper (Cu)	2011/12/19		96	%	80 - 120
		Dissolved Iron (Fe)	2011/12/19		NC	%	80 - 120
		Dissolved Lead (Pb)	2011/12/19		99	%	80 - 120
		Dissolved Magnesium (Mg)	2011/12/19		NC	%	80 - 120
		Dissolved Manganese (Mn)	2011/12/19		NC	%	80 - 120
		Dissolved Molybdenum (Mo)	2011/12/19		105	%	80 - 120
		Dissolved Nickel (Ni)	2011/12/19		95	%	80 - 120
		Dissolved Potassium (K)	2011/12/19		98	%	80 - 120
		Dissolved Selenium (Se)	2011/12/19		103	%	80 - 120
		Dissolved Silver (Ag)	2011/12/19		101	%	80 - 120
		Dissolved Sodium (Na)	2011/12/19		NC	%	80 - 120
		Dissolved Strontium (Sr)	2011/12/19		NC	%	80 - 120
		Dissolved Thallium (Tl)	2011/12/19		99	%	80 - 120
		Dissolved Tin (Sn)	2011/12/19		104	%	80 - 120
		Dissolved Titanium (Ti)	2011/12/19		100	%	80 - 120
		Dissolved Uranium (U)	2011/12/19		111	%	80 - 120
		Dissolved Vanadium (V)	2011/12/19		99	%	80 - 120
		Dissolved Zinc (Zn)	2011/12/19		95	%	80 - 120
		Spiked Blank					
		Dissolved Aluminum (Al)	2011/12/19		103	%	80 - 120
		Dissolved Antimony (Sb)	2011/12/19		109	%	80 - 120
		Dissolved Arsenic (As)	2011/12/19		102	%	80 - 120
		Dissolved Barium (Ba)	2011/12/19		100	%	80 - 120
		Dissolved Beryllium (Be)	2011/12/19		95	%	80 - 120
		Dissolved Bismuth (Bi)	2011/12/19		98	%	80 - 120
		Dissolved Boron (B)	2011/12/19		93	%	80 - 120
		Dissolved Cadmium (Cd)	2011/12/19		102	%	80 - 120
		Dissolved Calcium (Ca)	2011/12/19		101	%	80 - 120
		Dissolved Chromium (Cr)	2011/12/19		97	%	80 - 120
		Dissolved Cobalt (Co)	2011/12/19		98	%	80 - 120
		Dissolved Copper (Cu)	2011/12/19		97	%	80 - 120
		Dissolved Iron (Fe)	2011/12/19		102	%	80 - 120
		Dissolved Lead (Pb)	2011/12/19		99	%	80 - 120
		Dissolved Magnesium (Mg)	2011/12/19		102	%	80 - 120
		Dissolved Manganese (Mn)	2011/12/19		100	%	80 - 120
		Dissolved Molybdenum (Mo)	2011/12/19		98	%	80 - 120
		Dissolved Nickel (Ni)	2011/12/19		99	%	80 - 120
		Dissolved Potassium (K)	2011/12/19		100	%	80 - 120
		Dissolved Selenium (Se)	2011/12/19		103	%	80 - 120
		Dissolved Silver (Ag)	2011/12/19		101	%	80 - 120
		Dissolved Sodium (Na)	2011/12/19		94	%	80 - 120
		Dissolved Strontium (Sr)	2011/12/19		99	%	80 - 120
		Dissolved Thallium (Tl)	2011/12/19		98	%	80 - 120
		Dissolved Tin (Sn)	2011/12/19		101	%	80 - 120
		Dissolved Titanium (Ti)	2011/12/19		101	%	80 - 120

SNC-Lavalin Inc, Environment Division
 Attention: Derek Heath
 Client Project #: 508907
 P.O. #:
 Site Location: NEW HARBOUR

Quality Assurance Report (Continued)

Maxxam Job Number: DB1J9339

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2717189	MLB	Spiked Blank					
		Dissolved Uranium (U)	2011/12/19		110	%	80 - 120
		Dissolved Vanadium (V)	2011/12/19		99	%	80 - 120
		Dissolved Zinc (Zn)	2011/12/19		98	%	80 - 120
		Method Blank					
		Dissolved Aluminum (Al)	2011/12/19	<5.0		ug/L	
		Dissolved Antimony (Sb)	2011/12/19	<1.0		ug/L	
		Dissolved Arsenic (As)	2011/12/19	<1.0		ug/L	
		Dissolved Barium (Ba)	2011/12/19	<1.0		ug/L	
		Dissolved Beryllium (Be)	2011/12/19	<1.0		ug/L	
		Dissolved Bismuth (Bi)	2011/12/19	<2.0		ug/L	
		Dissolved Boron (B)	2011/12/19	<50		ug/L	
		Dissolved Cadmium (Cd)	2011/12/19	<0.017		ug/L	
		Dissolved Calcium (Ca)	2011/12/19	<100		ug/L	
		Dissolved Chromium (Cr)	2011/12/19	<1.0		ug/L	
		Dissolved Cobalt (Co)	2011/12/19	<0.40		ug/L	
		Dissolved Copper (Cu)	2011/12/19	<2.0		ug/L	
		Dissolved Iron (Fe)	2011/12/19	<50		ug/L	
		Dissolved Lead (Pb)	2011/12/19	<0.50		ug/L	
		Dissolved Magnesium (Mg)	2011/12/19	<100		ug/L	
		Dissolved Manganese (Mn)	2011/12/19	<2.0		ug/L	
		Dissolved Molybdenum (Mo)	2011/12/19	<2.0		ug/L	
		Dissolved Nickel (Ni)	2011/12/19	<2.0		ug/L	
		Dissolved Potassium (K)	2011/12/19	<100		ug/L	
		Dissolved Selenium (Se)	2011/12/19	<1.0		ug/L	
		Dissolved Silver (Ag)	2011/12/19	<0.10		ug/L	
		Dissolved Sodium (Na)	2011/12/19	<100		ug/L	
		Dissolved Strontium (Sr)	2011/12/19	<2.0		ug/L	
		Dissolved Thallium (Tl)	2011/12/19	<0.10		ug/L	
		Dissolved Tin (Sn)	2011/12/19	<2.0		ug/L	
		Dissolved Titanium (Ti)	2011/12/19	<2.0		ug/L	
		Dissolved Uranium (U)	2011/12/19	<0.10		ug/L	
		Dissolved Vanadium (V)	2011/12/19	<2.0		ug/L	
		Dissolved Zinc (Zn)	2011/12/19	<5.0		ug/L	
	RPD	Dissolved Aluminum (Al)	2011/12/19	NC		%	25
		Dissolved Antimony (Sb)	2011/12/19	NC		%	25
		Dissolved Arsenic (As)	2011/12/19	0.07		%	25
		Dissolved Barium (Ba)	2011/12/19	1.2		%	25
		Dissolved Beryllium (Be)	2011/12/19	NC		%	25
		Dissolved Bismuth (Bi)	2011/12/19	NC		%	25
		Dissolved Boron (B)	2011/12/19	NC		%	25
		Dissolved Cadmium (Cd)	2011/12/19	4.5		%	25
		Dissolved Calcium (Ca)	2011/12/19	0.8		%	25
		Dissolved Chromium (Cr)	2011/12/19	NC		%	25
		Dissolved Cobalt (Co)	2011/12/19	0.5		%	25
		Dissolved Copper (Cu)	2011/12/19	NC		%	25
		Dissolved Iron (Fe)	2011/12/19	0.3		%	25
		Dissolved Lead (Pb)	2011/12/19	NC		%	25
		Dissolved Magnesium (Mg)	2011/12/19	0.6		%	25
		Dissolved Manganese (Mn)	2011/12/19	0.4		%	25
		Dissolved Molybdenum (Mo)	2011/12/19	NC		%	25
		Dissolved Nickel (Ni)	2011/12/19	NC		%	25
		Dissolved Potassium (K)	2011/12/19	0.6		%	25
		Dissolved Selenium (Se)	2011/12/19	NC		%	25
		Dissolved Silver (Ag)	2011/12/19	NC		%	25
		Dissolved Sodium (Na)	2011/12/19	0.2		%	25
		Dissolved Strontium (Sr)	2011/12/19	0.5		%	25

SNC-Lavalin Inc, Environment Division
 Attention: Derek Heath
 Client Project #: 508907
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 Site Location: NEW HARBOUR

Quality Assurance Report (Continued)

Maxxam Job Number: DB1J9339

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2717189	MLB RPD	Dissolved Thallium (Tl)	2011/12/19	NC		%	25
		Dissolved Tin (Sn)	2011/12/19	NC		%	25
		Dissolved Titanium (Ti)	2011/12/19	NC		%	25
		Dissolved Uranium (U)	2011/12/19	NC		%	25
		Dissolved Vanadium (V)	2011/12/19	NC		%	25
		Dissolved Zinc (Zn)	2011/12/19	0.2		%	25
2718315	CMI Matrix Spike	Decachlorobiphenyl	2011/12/21		47	%	30 - 130
		Total PCB	2011/12/21		85	%	70 - 130
	Spiked Blank	Decachlorobiphenyl	2011/12/21		40	%	30 - 130
		Total PCB	2011/12/21		95	%	70 - 130
	Method Blank	Decachlorobiphenyl	2011/12/21		48	%	30 - 130
		Total PCB	2011/12/21	<0.05		ug/L	
	RPD	Total PCB	2011/12/21	NC		%	40
2718321	MJL QC Standard	pH	2011/12/20		100	%	80 - 120
	RPD	pH	2011/12/20	0.4		%	25
2718322	MJL Spiked Blank	Conductivity	2011/12/20		98	%	80 - 120
	Method Blank	Conductivity	2011/12/20		1, RDL=1	uS/cm	
	RPD	Conductivity	2011/12/20	0.07		%	25
2718327	MJL QC Standard	Turbidity	2011/12/20		102	%	80 - 120
	Method Blank	Turbidity	2011/12/20	<0.1		NTU	
	RPD [MA2291-01]	Turbidity	2011/12/20	5.8		%	25
2718949	MLB Matrix Spike [MA2280-01]	Dissolved Aluminum (Al)	2011/12/20		99	%	80 - 120
		Dissolved Antimony (Sb)	2011/12/20		112	%	80 - 120
		Dissolved Arsenic (As)	2011/12/20		105	%	80 - 120
		Dissolved Barium (Ba)	2011/12/20		107	%	80 - 120
		Dissolved Beryllium (Be)	2011/12/20		109	%	80 - 120
		Dissolved Bismuth (Bi)	2011/12/20		101	%	80 - 120
		Dissolved Boron (B)	2011/12/20		105	%	80 - 120
		Dissolved Cadmium (Cd)	2011/12/20		107	%	80 - 120
		Dissolved Calcium (Ca)	2011/12/20		103	%	80 - 120
		Dissolved Chromium (Cr)	2011/12/20		103	%	80 - 120
		Dissolved Cobalt (Co)	2011/12/20		104	%	80 - 120
		Dissolved Copper (Cu)	2011/12/20		102	%	80 - 120
		Dissolved Iron (Fe)	2011/12/20		101	%	80 - 120
		Dissolved Lead (Pb)	2011/12/20		103	%	80 - 120
		Dissolved Magnesium (Mg)	2011/12/20		103	%	80 - 120
		Dissolved Manganese (Mn)	2011/12/20		101	%	80 - 120
		Dissolved Molybdenum (Mo)	2011/12/20		103	%	80 - 120
		Dissolved Nickel (Ni)	2011/12/20		100	%	80 - 120
		Dissolved Potassium (K)	2011/12/20		103	%	80 - 120
		Dissolved Selenium (Se)	2011/12/20		106	%	80 - 120
		Dissolved Silver (Ag)	2011/12/20		101	%	80 - 120
		Dissolved Sodium (Na)	2011/12/20		99	%	80 - 120
		Dissolved Strontium (Sr)	2011/12/20		102	%	80 - 120
		Dissolved Thallium (Tl)	2011/12/20		103	%	80 - 120
		Dissolved Tin (Sn)	2011/12/20		102	%	80 - 120
		Dissolved Titanium (Ti)	2011/12/20		107	%	80 - 120
		Dissolved Uranium (U)	2011/12/20		112	%	80 - 120
		Dissolved Vanadium (V)	2011/12/20		105	%	80 - 120
		Dissolved Zinc (Zn)	2011/12/20		103	%	80 - 120
	Spiked Blank	Dissolved Aluminum (Al)	2011/12/20		107	%	80 - 120
		Dissolved Antimony (Sb)	2011/12/20		112	%	80 - 120
		Dissolved Arsenic (As)	2011/12/20		105	%	80 - 120
		Dissolved Barium (Ba)	2011/12/20		108	%	80 - 120

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QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2718949	MLB	Spiked Blank					
		Dissolved Beryllium (Be)	2011/12/20		109	%	80 - 120
		Dissolved Bismuth (Bi)	2011/12/20		101	%	80 - 120
		Dissolved Boron (B)	2011/12/20		110	%	80 - 120
		Dissolved Cadmium (Cd)	2011/12/20		104	%	80 - 120
		Dissolved Calcium (Ca)	2011/12/20		104	%	80 - 120
		Dissolved Chromium (Cr)	2011/12/20		103	%	80 - 120
		Dissolved Cobalt (Co)	2011/12/20		104	%	80 - 120
		Dissolved Copper (Cu)	2011/12/20		102	%	80 - 120
		Dissolved Iron (Fe)	2011/12/20		104	%	80 - 120
		Dissolved Lead (Pb)	2011/12/20		102	%	80 - 120
		Dissolved Magnesium (Mg)	2011/12/20		102	%	80 - 120
		Dissolved Manganese (Mn)	2011/12/20		101	%	80 - 120
		Dissolved Molybdenum (Mo)	2011/12/20		104	%	80 - 120
		Dissolved Nickel (Ni)	2011/12/20		100	%	80 - 120
		Dissolved Potassium (K)	2011/12/20		101	%	80 - 120
		Dissolved Selenium (Se)	2011/12/20		105	%	80 - 120
		Dissolved Silver (Ag)	2011/12/20		102	%	80 - 120
		Dissolved Sodium (Na)	2011/12/20		99	%	80 - 120
		Dissolved Strontium (Sr)	2011/12/20		103	%	80 - 120
		Dissolved Thallium (Tl)	2011/12/20		102	%	80 - 120
		Dissolved Tin (Sn)	2011/12/20		104	%	80 - 120
		Dissolved Titanium (Ti)	2011/12/20		107	%	80 - 120
		Dissolved Uranium (U)	2011/12/20		111	%	80 - 120
		Dissolved Vanadium (V)	2011/12/20		105	%	80 - 120
		Dissolved Zinc (Zn)	2011/12/20		103	%	80 - 120
	Method Blank	Dissolved Aluminum (Al)	2011/12/20	<5.0		ug/L	
		Dissolved Antimony (Sb)	2011/12/20	<1.0		ug/L	
		Dissolved Arsenic (As)	2011/12/20	<1.0		ug/L	
		Dissolved Barium (Ba)	2011/12/20	<1.0		ug/L	
		Dissolved Beryllium (Be)	2011/12/20	<1.0		ug/L	
		Dissolved Bismuth (Bi)	2011/12/20	<2.0		ug/L	
		Dissolved Boron (B)	2011/12/20	<5.0		ug/L	
		Dissolved Cadmium (Cd)	2011/12/20	<0.017		ug/L	
		Dissolved Calcium (Ca)	2011/12/20	<100		ug/L	
		Dissolved Chromium (Cr)	2011/12/20	<1.0		ug/L	
		Dissolved Cobalt (Co)	2011/12/20	<0.40		ug/L	
		Dissolved Copper (Cu)	2011/12/20	<2.0		ug/L	
		Dissolved Iron (Fe)	2011/12/20	<5.0		ug/L	
		Dissolved Lead (Pb)	2011/12/20	<0.50		ug/L	
		Dissolved Magnesium (Mg)	2011/12/20	<100		ug/L	
		Dissolved Manganese (Mn)	2011/12/20	<2.0		ug/L	
		Dissolved Molybdenum (Mo)	2011/12/20	<2.0		ug/L	
		Dissolved Nickel (Ni)	2011/12/20	<2.0		ug/L	
		Dissolved Potassium (K)	2011/12/20	<100		ug/L	
		Dissolved Selenium (Se)	2011/12/20	<1.0		ug/L	
		Dissolved Silver (Ag)	2011/12/20	<0.10		ug/L	
		Dissolved Sodium (Na)	2011/12/20	<100		ug/L	
		Dissolved Strontium (Sr)	2011/12/20	<2.0		ug/L	
		Dissolved Thallium (Tl)	2011/12/20	<0.10		ug/L	
		Dissolved Tin (Sn)	2011/12/20	<2.0		ug/L	
		Dissolved Titanium (Ti)	2011/12/20	<2.0		ug/L	
		Dissolved Uranium (U)	2011/12/20	<0.10		ug/L	
		Dissolved Vanadium (V)	2011/12/20	<2.0		ug/L	
		Dissolved Zinc (Zn)	2011/12/20	<5.0		ug/L	
	RPD [MA2282-01]	Dissolved Aluminum (Al)	2011/12/20	0.6		%	25

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QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2718949	MLB	RPD [MA2282-01]					
		Dissolved Antimony (Sb)	2011/12/20	NC		%	25
		Dissolved Arsenic (As)	2011/12/20	NC		%	25
		Dissolved Barium (Ba)	2011/12/20	1.4		%	25
		Dissolved Beryllium (Be)	2011/12/20	NC		%	25
		Dissolved Bismuth (Bi)	2011/12/20	NC		%	25
		Dissolved Boron (B)	2011/12/20	NC		%	25
		Dissolved Cadmium (Cd)	2011/12/20	NC		%	25
		Dissolved Calcium (Ca)	2011/12/20	0.9		%	25
		Dissolved Chromium (Cr)	2011/12/20	NC		%	25
		Dissolved Cobalt (Co)	2011/12/20	NC		%	25
		Dissolved Copper (Cu)	2011/12/20	1.7		%	25
		Dissolved Iron (Fe)	2011/12/20	0.1		%	25
		Dissolved Lead (Pb)	2011/12/20	NC		%	25
		Dissolved Magnesium (Mg)	2011/12/20	1.2		%	25
		Dissolved Manganese (Mn)	2011/12/20	0.1		%	25
		Dissolved Molybdenum (Mo)	2011/12/20	NC		%	25
		Dissolved Nickel (Ni)	2011/12/20	NC		%	25
		Dissolved Potassium (K)	2011/12/20	NC		%	25
		Dissolved Selenium (Se)	2011/12/20	NC		%	25
		Dissolved Silver (Ag)	2011/12/20	NC		%	25
		Dissolved Sodium (Na)	2011/12/20	0.7		%	25
		Dissolved Strontium (Sr)	2011/12/20	NC		%	25
		Dissolved Thallium (Tl)	2011/12/20	NC		%	25
		Dissolved Tin (Sn)	2011/12/20	NC		%	25
		Dissolved Titanium (Ti)	2011/12/20	1.4		%	25
		Dissolved Uranium (U)	2011/12/20	NC		%	25
		Dissolved Vanadium (V)	2011/12/20	NC		%	25
		Dissolved Zinc (Zn)	2011/12/20	NC		%	25
2719077	DLB	Matrix Spike					
		Total Aluminum (Al)	2011/12/20		103	%	80 - 120
		Total Antimony (Sb)	2011/12/20		110	%	80 - 120
		Total Arsenic (As)	2011/12/20		101	%	80 - 120
		Total Barium (Ba)	2011/12/20		101	%	80 - 120
		Total Beryllium (Be)	2011/12/20		106	%	80 - 120
		Total Bismuth (Bi)	2011/12/20		100	%	80 - 120
		Total Boron (B)	2011/12/20		106	%	80 - 120
		Total Cadmium (Cd)	2011/12/20		103	%	80 - 120
		Total Calcium (Ca)	2011/12/20		103	%	80 - 120
		Total Chromium (Cr)	2011/12/20		100	%	80 - 120
		Total Cobalt (Co)	2011/12/20		101	%	80 - 120
		Total Copper (Cu)	2011/12/20		98	%	80 - 120
		Total Iron (Fe)	2011/12/20		103	%	80 - 120
		Total Lead (Pb)	2011/12/20		100	%	80 - 120
		Total Magnesium (Mg)	2011/12/20		103	%	80 - 120
		Total Manganese (Mn)	2011/12/20		98	%	80 - 120
		Total Molybdenum (Mo)	2011/12/20		103	%	80 - 120
		Total Nickel (Ni)	2011/12/20		97	%	80 - 120
		Total Phosphorus (P)	2011/12/20		104	%	80 - 120
		Total Potassium (K)	2011/12/20		102	%	80 - 120
		Total Selenium (Se)	2011/12/20		102	%	80 - 120
		Total Silver (Ag)	2011/12/20		99	%	80 - 120
		Total Sodium (Na)	2011/12/20		99	%	80 - 120
		Total Strontium (Sr)	2011/12/20		98	%	80 - 120
		Total Thallium (Tl)	2011/12/20		102	%	80 - 120
		Total Tin (Sn)	2011/12/20		102	%	80 - 120
		Total Titanium (Ti)	2011/12/20		104	%	80 - 120

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QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits		
2719077 DLB	Matrix Spike	Total Uranium (U)	2011/12/20		109	%	80 - 120		
		Total Vanadium (V)	2011/12/20		102	%	80 - 120		
		Total Zinc (Zn)	2011/12/20		100	%	80 - 120		
	Spiked Blank	Total Aluminum (Al)	2011/12/20		104	%	80 - 120		
		Total Antimony (Sb)	2011/12/20		108	%	80 - 120		
		Total Arsenic (As)	2011/12/20		101	%	80 - 120		
		Total Barium (Ba)	2011/12/20		101	%	80 - 120		
		Total Beryllium (Be)	2011/12/20		105	%	80 - 120		
		Total Bismuth (Bi)	2011/12/20		100	%	80 - 120		
		Total Boron (B)	2011/12/20		106	%	80 - 120		
		Total Cadmium (Cd)	2011/12/20		100	%	80 - 120		
		Total Calcium (Ca)	2011/12/20		102	%	80 - 120		
		Total Chromium (Cr)	2011/12/20		100	%	80 - 120		
		Total Cobalt (Co)	2011/12/20		100	%	80 - 120		
		Total Copper (Cu)	2011/12/20		99	%	80 - 120		
		Total Iron (Fe)	2011/12/20		104	%	80 - 120		
		Total Lead (Pb)	2011/12/20		99	%	80 - 120		
		Total Magnesium (Mg)	2011/12/20		103	%	80 - 120		
		Total Manganese (Mn)	2011/12/20		97	%	80 - 120		
		Total Molybdenum (Mo)	2011/12/20		102	%	80 - 120		
		Total Nickel (Ni)	2011/12/20		97	%	80 - 120		
		Total Phosphorus (P)	2011/12/20		104	%	80 - 120		
		Total Potassium (K)	2011/12/20		102	%	80 - 120		
		Total Selenium (Se)	2011/12/20		101	%	80 - 120		
		Total Silver (Ag)	2011/12/20		99	%	80 - 120		
		Total Sodium (Na)	2011/12/20		100	%	80 - 120		
		Total Strontium (Sr)	2011/12/20		99	%	80 - 120		
		Total Thallium (Tl)	2011/12/20		101	%	80 - 120		
		Total Tin (Sn)	2011/12/20		102	%	80 - 120		
		Total Titanium (Ti)	2011/12/20		105	%	80 - 120		
		Total Uranium (U)	2011/12/20		109	%	80 - 120		
		Total Vanadium (V)	2011/12/20		102	%	80 - 120		
		Total Zinc (Zn)	2011/12/20		100	%	80 - 120		
		Method Blank	Total Aluminum (Al)	2011/12/20		<5.0		ug/L	
			Total Antimony (Sb)	2011/12/20		<1.0		ug/L	
			Total Arsenic (As)	2011/12/20		<1.0		ug/L	
	Total Barium (Ba)		2011/12/20		<1.0		ug/L		
	Total Beryllium (Be)		2011/12/20		<1.0		ug/L		
	Total Bismuth (Bi)		2011/12/20		<2.0		ug/L		
	Total Boron (B)		2011/12/20		<50		ug/L		
	Total Cadmium (Cd)		2011/12/20		<0.017		ug/L		
	Total Calcium (Ca)		2011/12/20		<100		ug/L		
	Total Chromium (Cr)		2011/12/20		<1.0		ug/L		
	Total Cobalt (Co)		2011/12/20		<0.40		ug/L		
	Total Copper (Cu)		2011/12/20		<2.0		ug/L		
Total Iron (Fe)	2011/12/20			<50		ug/L			
Total Lead (Pb)	2011/12/20			<0.50		ug/L			
Total Magnesium (Mg)	2011/12/20			<100		ug/L			
Total Manganese (Mn)	2011/12/20			<2.0		ug/L			
Total Molybdenum (Mo)	2011/12/20			<2.0		ug/L			
Total Nickel (Ni)	2011/12/20		<2.0		ug/L				
Total Phosphorus (P)	2011/12/20		<100		ug/L				
Total Potassium (K)	2011/12/20		<100		ug/L				
Total Selenium (Se)	2011/12/20		<1.0		ug/L				
Total Silver (Ag)	2011/12/20		<0.10		ug/L				

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QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2719077 DLB	Method Blank	Total Sodium (Na)	2011/12/20	<100		ug/L	
		Total Strontium (Sr)	2011/12/20	<2.0		ug/L	
		Total Thallium (Tl)	2011/12/20	<0.10		ug/L	
		Total Tin (Sn)	2011/12/20	<2.0		ug/L	
		Total Titanium (Ti)	2011/12/20	<2.0		ug/L	
		Total Uranium (U)	2011/12/20	<0.10		ug/L	
		Total Vanadium (V)	2011/12/20	<2.0		ug/L	
	RPD	Total Zinc (Zn)	2011/12/20	<5.0		ug/L	
		Total Aluminum (Al)	2011/12/20	9.3		%	25
		Total Antimony (Sb)	2011/12/20	NC		%	25
		Total Arsenic (As)	2011/12/20	NC		%	25
		Total Barium (Ba)	2011/12/20	3.3		%	25
		Total Beryllium (Be)	2011/12/20	NC		%	25
		Total Bismuth (Bi)	2011/12/20	NC		%	25
		Total Boron (B)	2011/12/20	NC		%	25
		Total Cadmium (Cd)	2011/12/20	NC		%	25
		Total Calcium (Ca)	2011/12/20	1.8		%	25
		Total Chromium (Cr)	2011/12/20	NC		%	25
		Total Cobalt (Co)	2011/12/20	NC		%	25
		Total Copper (Cu)	2011/12/20	NC		%	25
		Total Iron (Fe)	2011/12/20	3.4		%	25
		Total Lead (Pb)	2011/12/20	NC		%	25
		Total Magnesium (Mg)	2011/12/20	0.6		%	25
		Total Manganese (Mn)	2011/12/20	0.04		%	25
		Total Molybdenum (Mo)	2011/12/20	NC		%	25
		Total Nickel (Ni)	2011/12/20	NC		%	25
		Total Phosphorus (P)	2011/12/20	NC		%	25
		Total Potassium (K)	2011/12/20	1.4		%	25
		Total Selenium (Se)	2011/12/20	NC		%	25
		Total Silver (Ag)	2011/12/20	NC		%	25
		Total Sodium (Na)	2011/12/20	0.7		%	25
		Total Strontium (Sr)	2011/12/20	0.4		%	25
		Total Thallium (Tl)	2011/12/20	NC		%	25
		Total Tin (Sn)	2011/12/20	NC		%	25
Total Titanium (Ti)	2011/12/20	NC		%	25		
Total Uranium (U)	2011/12/20	NC		%	25		
Total Vanadium (V)	2011/12/20	NC		%	25		
Total Zinc (Zn)	2011/12/20	NC		%	25		
2719684 AJ5	Matrix Spike	Decachlorobiphenyl	2011/12/22		74	%	30 - 130
		Total PCB	2011/12/22		95	%	70 - 130
	Spiked Blank	Decachlorobiphenyl	2011/12/22		92	%	30 - 130
		Total PCB	2011/12/22		107	%	70 - 130
	Method Blank	Decachlorobiphenyl	2011/12/22		81	%	30 - 130
		Total PCB	2011/12/22	<0.05		ug/L	
	RPD	Total PCB	2011/12/22	NC		%	40
2720166 AR5	Matrix Spike	Total Alkalinity (Total as CaCO3)	2011/12/22		100	%	80 - 120
	QC Standard	Total Alkalinity (Total as CaCO3)	2011/12/22		110	%	80 - 120
	Spiked Blank	Total Alkalinity (Total as CaCO3)	2011/12/22		108	%	80 - 120
	Method Blank	Total Alkalinity (Total as CaCO3)	2011/12/22	<5		mg/L	
	RPD	Total Alkalinity (Total as CaCO3)	2011/12/22	NC		%	25
2720183 AR5	Matrix Spike	Dissolved Chloride (Cl)	2011/12/22		98	%	80 - 120
	QC Standard	Dissolved Chloride (Cl)	2011/12/21		96	%	80 - 120
	Spiked Blank	Dissolved Chloride (Cl)	2011/12/21		96	%	80 - 120
	Method Blank	Dissolved Chloride (Cl)	2011/12/21	<1		mg/L	
	RPD	Dissolved Chloride (Cl)	2011/12/22	2.2		%	25

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QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2720187 ARS	Matrix Spike	Dissolved Sulphate (SO4)	2011/12/23		99	%	80 - 120
	QC Standard	Dissolved Sulphate (SO4)	2011/12/23		104	%	80 - 120
	Spiked Blank	Dissolved Sulphate (SO4)	2011/12/23		97	%	80 - 120
	Method Blank	Dissolved Sulphate (SO4)	2011/12/23	<2		mg/L	
	RPD	Dissolved Sulphate (SO4)	2011/12/23	NC		%	25
2720192 ARS	Matrix Spike	Reactive Silica (SiO2)	2011/12/22		102	%	80 - 120
	QC Standard	Reactive Silica (SiO2)	2011/12/22		94	%	75 - 125
	Spiked Blank	Reactive Silica (SiO2)	2011/12/22		105	%	80 - 120
	Method Blank	Reactive Silica (SiO2)	2011/12/22	<0.5		mg/L	
	RPD	Reactive Silica (SiO2)	2011/12/22	1.7		%	25
2720195 ARS	QC Standard	Colour	2011/12/23		105	%	80 - 120
	Method Blank	Colour	2011/12/23	<5		TCU	
	RPD	Colour	2011/12/23	NC		%	25
2720197 ARS	Matrix Spike	Orthophosphate (P)	2011/12/22		NC	%	80 - 120
	QC Standard	Orthophosphate (P)	2011/12/22		99	%	80 - 120
	Spiked Blank	Orthophosphate (P)	2011/12/22		101	%	80 - 120
	Method Blank	Orthophosphate (P)	2011/12/22	<0.01		mg/L	
	RPD	Orthophosphate (P)	2011/12/22	3.0		%	25
2720198 ARS	Matrix Spike	Nitrate + Nitrite	2011/12/22		99	%	80 - 120
	QC Standard	Nitrate + Nitrite	2011/12/22		102	%	80 - 120
	Spiked Blank	Nitrate + Nitrite	2011/12/22		101	%	80 - 120
	Method Blank	Nitrate + Nitrite	2011/12/22	<0.05		mg/L	
	RPD	Nitrate + Nitrite	2011/12/22	NC		%	25
2720202 ARS	Matrix Spike	Nitrite (N)	2011/12/23		100	%	80 - 120
	QC Standard	Nitrite (N)	2011/12/23		102	%	80 - 120
	Spiked Blank	Nitrite (N)	2011/12/23		111	%	80 - 120
	Method Blank	Nitrite (N)	2011/12/23	<0.01		mg/L	
	RPD	Nitrite (N)	2011/12/23	NC		%	25
2721178 ARS	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2011/12/23		100	%	80 - 120
	QC Standard	Nitrogen (Ammonia Nitrogen)	2011/12/22		102	%	80 - 120
	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2011/12/22		96	%	80 - 120
	Method Blank	Nitrogen (Ammonia Nitrogen)	2011/12/22	<0.05		mg/L	
	RPD	Nitrogen (Ammonia Nitrogen)	2011/12/23	NC		%	25
2723038 SSI	Matrix Spike	Total Organic Carbon (C)	2011/12/23		98	%	80 - 120
	QC Standard	Total Organic Carbon (C)	2011/12/23		96	%	80 - 120
	Spiked Blank	Total Organic Carbon (C)	2011/12/23		93	%	80 - 120
	Method Blank	Total Organic Carbon (C)	2011/12/23	<0.5		mg/L	
	RPD	Total Organic Carbon (C)	2011/12/23	NC		%	25
2723363 OBC	Spiked Blank	C13-1234678 HeptaCDD	2011/12/26		104	%	40 - 135
		C13-1234678 HeptaCDF	2011/12/26		93	%	40 - 135
		C13-123478 HexaCDF	2011/12/26		82	%	40 - 135
		C13-123678 HexaCDD	2011/12/26		87	%	40 - 135
		C13-12378 PentaCDD	2011/12/26		91	%	40 - 135
		C13-12378 PentaCDF	2011/12/26		79	%	40 - 135
		C13-2378 TetraCDD	2011/12/26		81	%	40 - 135
		C13-2378 TetraCDF	2011/12/26		80	%	40 - 135
		C13-OCDD	2011/12/26		108	%	40 - 135
		2,3,7,8-Tetra CDD	2011/12/26		94	%	80 - 140
		1,2,3,7,8-Penta CDD	2011/12/26		99	%	80 - 140
		1,2,3,4,7,8-Hexa CDD	2011/12/26		106	%	80 - 140
		1,2,3,6,7,8-Hexa CDD	2011/12/26		94	%	80 - 140
		1,2,3,7,8,9-Hexa CDD	2011/12/26		105	%	80 - 140
		1,2,3,4,6,7,8-Hepta CDD	2011/12/26		84	%	80 - 140
		Octa CDD	2011/12/26		98	%	80 - 140
		2,3,7,8-Tetra CDF	2011/12/26		89	%	80 - 140

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 Client Project #: 508907
 P.O. #:
 Site Location: NEW HARBOUR

Quality Assurance Report (Continued)

Maxxam Job Number: DB1J9339

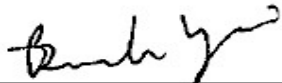
QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2723363 OBC	Spiked Blank	1,2,3,7,8-Penta CDF	2011/12/26		99	%	80 - 140
		2,3,4,7,8-Penta CDF	2011/12/26		111	%	80 - 140
		1,2,3,4,7,8-Hexa CDF	2011/12/26		98	%	80 - 140
		1,2,3,6,7,8-Hexa CDF	2011/12/26		100	%	80 - 140
		2,3,4,6,7,8-Hexa CDF	2011/12/26		104	%	80 - 140
		1,2,3,7,8,9-Hexa CDF	2011/12/26		114	%	80 - 140
		1,2,3,4,6,7,8-Hepta CDF	2011/12/26		97	%	80 - 140
		1,2,3,4,7,8,9-Hepta CDF	2011/12/26		102	%	80 - 140
		Octa CDF	2011/12/26		105	%	80 - 140
	Method Blank	C13-1234678 HeptaCDD	2011/12/26		103	%	40 - 135
		C13-1234678 HeptaCDF	2011/12/26		91	%	40 - 135
		C13-123478 HexaCDF	2011/12/26		81	%	40 - 135
		C13-123678 HexaCDD	2011/12/26		88	%	40 - 135
		C13-12378 PentaCDD	2011/12/26		90	%	40 - 135
		C13-12378 PentaCDF	2011/12/26		77	%	40 - 135
		C13-2378 TetraCDD	2011/12/26		82	%	40 - 135
		C13-2378 TetraCDF	2011/12/26		79	%	40 - 135
		C13-OCDD	2011/12/26		110	%	40 - 135
		2,3,7,8-Tetra CDD	2011/12/26	<0.61, EDL=0.61		pg/L	
		1,2,3,7,8-Penta CDD	2011/12/26	<0.67, EDL=0.67		pg/L	
		1,2,3,4,7,8-Hexa CDD	2011/12/26	<0.76, EDL=0.76		pg/L	
		1,2,3,6,7,8-Hexa CDD	2011/12/26	<0.64, EDL=0.64		pg/L	
		1,2,3,7,8,9-Hexa CDD	2011/12/26	<0.66, EDL=0.66		pg/L	
		1,2,3,4,6,7,8-Hepta CDD	2011/12/26	<0.64, EDL=0.64		pg/L	
		Octa CDD	2011/12/26	1, EDL=1.1		pg/L	
		Total Tetra CDD	2011/12/26	<0.61, EDL=0.61		pg/L	
		Total Penta CDD	2011/12/26	<0.67, EDL=0.67		pg/L	
		Total Hexa CDD	2011/12/26	<2.7, EDL=2.7 (1)		pg/L	
		Total Hepta CDD	2011/12/26	<0.64, EDL=0.64		pg/L	
		2,3,7,8-Tetra CDF	2011/12/26	<0.67, EDL=0.67		pg/L	
		1,2,3,7,8-Penta CDF	2011/12/26	<0.65, EDL=0.65		pg/L	
		2,3,4,7,8-Penta CDF	2011/12/26	1, EDL=0.67		pg/L	
		1,2,3,4,7,8-Hexa CDF	2011/12/26	<0.58, EDL=0.58		pg/L	
		1,2,3,6,7,8-Hexa CDF	2011/12/26	<0.55, EDL=0.55		pg/L	
		2,3,4,6,7,8-Hexa CDF	2011/12/26	<0.63, EDL=0.63		pg/L	
		1,2,3,7,8,9-Hexa CDF	2011/12/26	<0.74, EDL=0.74		pg/L	
		1,2,3,4,6,7,8-Hepta CDF	2011/12/26	<0.58, EDL=0.58		pg/L	
		1,2,3,4,7,8,9-Hepta CDF	2011/12/26	<0.76, EDL=0.76		pg/L	
		Octa CDF	2011/12/26	<1.1, EDL=1.1		pg/L	
		Total Tetra CDF	2011/12/26	<0.98, EDL=0.98 (1)		pg/L	
		Total Penta CDF	2011/12/26	1, EDL=0.66		pg/L	
		Total Hexa CDF	2011/12/26	<0.62, EDL=0.62		pg/L	
		Total Hepta CDF	2011/12/26	<0.66, EDL=0.66		pg/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
 Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
 QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
 NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
 NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
 (1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

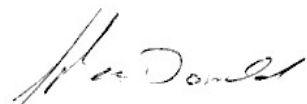
Validation Signature Page

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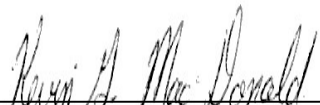
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



BRANKO VRZIC, A.S.C.T., Senior Analyst, HRMS Services



JAMES MACDONALD, Organics Manager



KEVIN MACDONALD, Inorganics Supervisor

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

APPENDIX F

QA/QC Analytical Result Tables

Table F1: QA/QC Summary of Metals Analytical Results in Groundwater (ug/L)

Sample ID: Sample Date:	MW-07 2011/12/14	MW-09 2011/12/14	Average Value	Absolute Difference	Relative Percent Difference (%)
Aluminum	1,760	1,860	1810.0	100.0	5.5
Antimony	<1.0	<1.0	-	-	-
Arsenic	<1.0	<1.0	-	-	-
Barium	3.5	3.4	3.5	0.1	2.9
Beryllium	<1.0	<1.0	-	-	-
Bismuth	<2.0	<2.0	-	-	-
Boron	<50	<50	-	-	-
Cadmium	<0.017	<0.017	-	-	-
Calcium	1,130	1,080	1105.0	50.0	4.5
Chromium	1.4	1.3	1.4	0.1	7.4
Cobalt	0.64	0.60	0.6	0.0	6.5
Copper	2.9	2.7	2.8	0.2	7.1
Iron	1,990	1,980	1985.0	10.0	0.5
Lead	1.64	1.66	1.7	0.0	1.2
Magnesium	312	323	317.5	11.0	3.5
Manganese	30.3	29.2	29.8	1.1	3.7
Molybdenum	<2.0	<2.0	-	-	-
Nickel	<2.0	<2.0	-	-	-
Phosphorus	-	-	-	-	-
Potassium	180	190	185.0	10.0	5.4
Selenium	<1.0	<1.0	-	-	-
Silver	<0.10	<0.10	-	-	-
Sodium	8,270	8,090	8180.0	180.0	2.2
Strontium	7.6	7.8	7.7	0.2	2.6
Thallium	<0.10	<0.10	-	-	-
Tin	<2.0	<2.0	-	-	-
Titanium	40.4	40.6	40.5	0.2	0.5
Uranium	0.17	0.18	0.2	0.0	5.7
Vanadium	<2.0	<2.0	-	-	-
Zinc	8.3	10.8	9.6	2.5	26.2
Mean Relative Percent Difference					5.3%

Table F2: QA/QC Summary of Metals Analytical Results in Surface Water (ug/L)

Sample ID: Sample Date:	SW-POND 2011/12/14	SW-POND-1 2011/12/14	Average Value	Absolute Difference	Relative Percent Difference (%)
Aluminum	202	262	232.0	60.0	25.9
Antimony	<1	<1	-	-	-
Arsenic	<1	<1	-	-	-
Barium	29.1	30.1	29.6	1.0	3.4
Beryllium	<1	<1	-	-	-
Bismuth	<2	<2	-	-	-
Boron	356	362	359.0	6.0	1.7
Cadmium	0.063	0.065	0.1	0.0	3.1
Calcium	99,000	97,500	98250.0	1500.0	1.5
Chromium	<1	<1	-	-	-
Cobalt	2.98	3.50	3.2	0.5	16.0
Copper	6.4	6.7	6.6	0.3	4.6
Iron	523	682	602.5	159.0	26.4
Lead	0.89	1.18	1.0	0.3	28.0
Magnesium	9,100	8,890	8995.0	210.0	2.3
Manganese	1,670	1,750	1710.0	80.0	4.7
Nickel	<2	<2	-	-	-
Phosphorus	2.2	2.3	2.3	0.1	4.4
Potassium	<100	<100	-	-	-
Selenium	12,900	12,700	12800.0	200.0	1.6
Silver	<1	<1	-	-	-
Sodium	<0.1	<0.1	-	-	-
Strontium	48,700	47,800	48250.0	900.0	1.9
Thallium	261	256	258.5	5.0	1.9
Tin	<0.1	<0.1	-	-	-
Titanium	<2	<2	-	-	-
Uranium	26.3	33.8	30.1	7.5	25.0
Vanadium	<0.1	<0.1	-	-	-
Zinc	<2	<2	-	-	-
Dissolved Vanadium (V)	21.4	23.1	22.3	1.7	7.6
Dissolved Zinc (Zn)	28	17	22.5	11.0	48.9
Mean Relative Percent Difference					11.6%

Table F3: QA/QC Summary of General Chemistry Analytical Results in Surface Water

Sample ID: Sample Date:	SW-POND 2011/12/14	SW-POND-1 2011/12/14	Average Value	Absolute Difference	Relative Percent Difference (%)
Ammonia	9,000	11,000	10000.0	2000.0	20.0
Chloride	46,000	46,000	46000.0	0.0	0.0
Colour	72	64	68.0	8.0	11.8
Conductivity	850	850	850.0	0.0	0.0
DOC	-	-	-	-	-
Fluoride	-	-	-	-	-
Hardness as CaCO3	280,000	280,000	280000.0	0.0	0.0
Nitrate as N	4,600	4,700	4650.0	100.0	2.2
Nitrite as N	100	90	95.0	10.0	10.5
pH	7.66	7.65	7.7	0.0	0.1
Sulphate	190,000	190,000	190000.0	0.0	0.0
Total Alkalinity (CaCO3)	130,000	140,000	135000.0	10000.0	7.4
Total Dissolved Solids	529,000	532,000	530500.0	3000.0	0.6
Total Organic Carbon	10,000	10,000	10000.0	0.0	0.0
Turbidity	7.0	6.1	6.6	0.9	13.7
Calcium	99,000	97,500	98250.0	1500.0	1.5
Magnesium	9,100	8,890	8995.0	210.0	2.3
Potassium	12,900	12,700	12800.0	200.0	1.6
Sodium	48,700	48,700	48700.0	0.0	0.0
Total Phosphorus (P)	<100	<100	-	-	-
Reactive Silica (SiO2)	6,200	6,300	6250.0	100.0	1.6
Mean Relative Percent Difference					4.1%

Table F4: QA/QC Summary of PCB Analytical Results in Groundwater (ug/L)

Sample ID: Sample Date:	MW-07 2011/12/14	MW-09 2011/12/14	Average Value	Absolute Difference	Relative Percent Difference (%)
PCB	<0.05	<0.05	-	-	-
Mean Relative Percent Difference					NA

Table F5: QA/QC Summary of PCB Analytical Results in Surface Water (ug/L)

Sample ID: Sample Date:	SW-POND 2011/12/14	SW-POND-1 2011/12/14	Average Value	Absolute Difference	Relative Percent Difference (%)
PCB	<0.05	<0.06	-	-	-
Mean Relative Percent Difference					NA

APPENDIX G

Photographic Record



Photo 1: MW-07.



Photo 2: MW-07 broken top hinge.



Photo 3: MW-07 base separated from grout.



Photo 4: MW-07 temporary closure.



Photo 5: Perimeter ditches.



Photo 6: Ditch system.



Photo 7: Ditch system.



Photo 8: Ditch system.



Photo 9: Perimeter ditches.



Photo 10: Leachate pond.



Photo 11: Leachate pond.



Photo 12: Leachate pond dam.



Photo 13: Stored LLDPE geomembrane: south side of secure enclosure.



Photo 14: Tarp lifted and LLDPE geomembrane exposed, south storage pad.



Photo 15: Stored LLDPE geomembrane: north side of secure enclosure.



Photo 16: Weathered sand bags.



Photo 17: Destroyed sand bag.



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