

Ottawa Carleton District School Board

Earl of March Secondary School No.4 The Parkway, Kanata, ON

Phase II Environmental Site Assessment MM1083

October 8th, 2013

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1.0 INTRODUCTION

This report presents the results of the Phase II Environmental Site Assessment (ESA), completed by CM3 Environmental Inc. (CM3) for Earl of March Secondary School located at No. 4 The Parkway, Kanata, Ontario.

The Phase II ESA was conducted in support of a Site Plan Control Application related to a new proposed addition at the southern end of the existing building.

A Phase I ESA was conducted by CM3 entitled "Phase I Environmental Site Assessment – Earl of March Secondary School - No. 4 The Parkway, Kanata, Ontario" dated June 4th, 2013. The findings of the Phase I ESA recommended a Phase II ESA based on the following Areas of Potential Environmental Concern (APEC):

- Two former underground storage tanks (USTs) located on the west side of the school outside the mechanical room; and,
- Diesel fuel spillage in the vicinity of the emergency generator.

2.0 METHODOLOGY

2.1 Phase II ESA

CM3 performed the Phase II ESA in accordance with Ontario Regulation 153/04 and the CSA standard Z768. The Canadian Standard, CAN/CSA-Z769-00 (R2008) *Phase II Environmental Site Assessment,* is the acceptable standard in Canada and is a derivative of and based on the ASTM standard, therefore ensuring that the Phase II ESAs completed will be acceptable to any regulatory agent or prospective future purchaser.

The Phase II ESA was also performed in general accordance with Ontario Regulation 511/09 for Phase II Environmental Assessments.

The scope of work for this ESA included:

- Preparation of a site specific health and safety plan;
- Determination of the location of the underground utilities;
- The advancement of 24 boreholes with 23 converted to monitoring wells;
- The continuous collection of soil samples during the drilling and on-site analysis of all soil samples for vapours with a combustible gas meter;
- The selection of soil samples from the boreholes for analysis of petroleum hydrocarbons (PHC) in the F1 to F4 ranges and Polycyclic Aromatic Hydrocarbons (PAHs);
- The collection and analysis of groundwater samples from the monitoring wells for PHCs and PAHs;
- The determination of the depth to groundwater and inferred groundwater flow direction; and,
- The preparation of a detailed report on the above.

The objective of this Phase II ESA was to identify environmental impacts to soil and groundwater (if present).

3.0 SITE INFORMATION

3.1 Site Location

The site is located south of The Parkway, west of Teron Road and north of Campeau Drive in Kanata. The civic address is 4 The Parkway.

3.2 Site Description

The site is approximately 24.08 acres in size and consists of a two storey brick, concrete and metal siding school constructed in 1971. The legal description is PT LT 3, CON 3, AS IN CT116346; KANATA/MARCH. A paved asphalt parking lot is located on the east side of the building with open field areas are located primarily to the north and west of the building. Site location and site plans are provided as **Figure 1** and **Figure 2**.

4.0 REMEDIAL STANDARDS CRITERIA

The results of the soil chemical analyses were compared to The Ontario Ministry of Environment (MOE) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, dated July 27, 2009 and revised April 15, 2011 (under Ontario Regulation 153/04, and amended under Ontario Regulation 511/09).

More specifically, the Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Coarse Textured Soils and Residential, Parkland, Institutional Property Use) were selected for comparison.

The MOE Table 3 Standards were used for the following reasons:

- Contaminants of concern are petroleum products;
- No environmentally sensitive areas are located on site;
- No surface water is located within 30 m of the site;
- Bedrock is generally greater than 2 m from ground surface in the area of investigation;
- Groundwater is municipally supplied; and,
- The site land use is Institutional.

5.0 PHASE II ASSESSMENT ACTIVITIES

5.1 Borehole Drilling and Monitoring Well Installation

CM3 supervised the advancement of 24 boreholes from July 9th, to July 25th, 2013 to assess the soil and groundwater conditions at the site. Drilling services were provided by OGS Inc. of Almonte, Ontario. Under supervision of CM3, OGS utilized portable drilling equipment with split spoon samplers and electric coring to advance the boreholes. All boreholes with the exception of MW4, advanced in the basement) were advanced around the outside the building and are shown on **Figure 3**.

Soil samples were collected continuously throughout the depth of each borehole for combustible soil vapour analysis. At the time of collection, each borehole soil sample was split in the field with the first half placed in a polyethylene bag for headspace combustible vapour analysis, and a portion of the other half was immediately methanol preserved in a 40 mL vial according to protocol outlined in Ontario Regulation 179/11 for VOC and PHC F1 analysis. The remaining portion of the sample was placed in a labelled laboratory supplied glass jar for analysis of PHCs and/or PAHs. The samples were immediately placed in a chilled cooler pending submittal to Paracel Laboratories Ltd. (Paracel), of Ottawa, ON for analysis.

Relative combustible vapour concentrations were measured and recorded from the bag sample headspace using an RKI Eagle combustible vapour meter, calibrated to hexane. The results of the headspace combustible vapour analysis and field evidence of environmental impacts were used in selecting which soil samples were submitted for laboratory analysis.

Field evidence of petroleum impacts (both visual and olfactory) was observed in monitoring wells MW1, MW2, MW3, MW5, MW6-13, MW6, MW7, MW13 and MW21. Combustible vapour analysis showed vapour concentrations were between 0 and 450 parts per million (ppm) for the soil samples.

All boreholes with the exception of BH22 were completed as monitoring wells consisting of flush threaded 32 mm diameter, schedule 40 PVC well screens and riser pipe. A threaded cap was fitted to the bottom of the well screen and a j-plug was used on the top of the riser. A clean number 2 silica sand pack was placed around the well screen to approximately 0.3 metres above the screened interval when possible. A bentonite seal was then placed above the sand pack to prevent surface water infiltration into the monitoring well sand pack. All monitoring wells were fitted with flush mount covers. The monitoring well completion details are provided on the borehole logs in **Appendix A**.

The locations of all boreholes/monitoring wells were referenced to existing site features. The monitoring well top of casing (TOC) and ground surface elevations were referenced to an arbitrary site benchmark of 100 m. Elevations were measured to the nearest 0.001 m using a CST/Berger SAL Series automatic level. The borehole/monitoring well locations are illustrated on **Figure 3** and elevations are shown on **Table 3**.

5.2 Soil Sampling Results

Soils on-site primarily consisted of a silty clay or clay. Bedrock was encountered during drilling from a depth of 0.91 to 4.27 meters below grade.

The soil laboratory analytical results indicated soil samples submitted for PHCs were found to exceed MOE Table 3 Standards in soil samples MW1-SA5, MW2-SA6, MW3-SA5, MW5-SA4, MW6-SA5, MW6-13-SA4, MW7-SA2, MW13-SA3, MW18-SA1 and MW21-SA3.

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The soil laboratory analytical results indicated soil samples submitted for PAHs were below the MOE Table 3 standards in all samples.

The soil analytical results are included in **Tables 1** and **Table 2** respectively. The laboratory reports are included in **Appendix B** for reference. The borehole/monitoring well locations are illustrated on **Figure 3**, soil exceedances are illustrated on **Figure 5**, and borehole logs are provided in **Appendix A**.

5.3 Liquid Phase Hydrocarbon (LPH) and Groundwater Level Monitoring

On August 7th, 2013 CM3 personnel measured the depth to LPH (if present) and groundwater using a Heron Instruments oil/water interface probe. Prior to monitoring, the interface probe was inspected and tested for proper operation. The interface probe was cleaned with an Alconox and water solution and then rinsed with distilled water between each well to prevent cross contamination. Actual product thicknesses were difficult to measure due to the viscous nature of the contaminant.

5.4 Groundwater Sampling

On August 7th, 2013, CM3 developed/purged all monitoring wells. Well development/purging was completed to reduce groundwater turbidity and to remove fine-grained sediments that may have accumulated inside the well casing subsequent to the drilling program.

Well development was accomplished by removing water from the wells at a rate fast enough to hydraulically stress the formation and to re-suspend and extract sediment from the bottom, where present. The pumping rate was generally between 1.0 and 1.5 L/minute or as fast as the well could recharge. Development was conducted using dedicated 1/4" LDPE tubing and a spectra-pro peristaltic pump. The tubing intake was positioned at the bottom of each well and was agitated during pumping to disturb and extract any sediment. The outlet from the pump was directed into a graduated 15L pail for cumulative purge volume measurements.

CM3 completed groundwater sampling on August 7th, 2013 following development. For sample collection, groundwater was transferred from the polyethylene tubing at the outlet of the peristaltic pump into clean, laboratory prepared sample containers that were labelled prior to sample collection. A clean pair of disposable nitrile gloves was worn during sample collection and a new pair of gloves was used at each sample location. CM3 personnel sampled all monitoring wells for laboratory analysis of PHCs F1 to F4 fractions, and select wells for PAH analysis.

Following collection, the sample containers were immediately placed into sealed coolers with ice packs. Completed Chain-of-Custody (COC) forms and the coolers were shipped directly to Paracel Laboratories.

5.5 Groundwater Monitoring and Sampling Results

LPH was detected in monitoring wells MW2, MW3, MW5, MW6, MW6-13 and MW13.

Groundwater levels were found to be between 1.452 m and 4.723 m below top of the monitoring well casings.

Water levels and LPH monitoring results are shown on Table 3.

The groundwater contour plan from water levels collected on August 7th, 2013 indicates mounding in the source area and inferred groundwater flow directions to the north and south (see **Figure 4**).

- The groundwater laboratory analytical results indicated exceedances for PHCs in monitoring wells MW1, MW7 and MW10. LPH was detected in monitoring wells MW2, MW3, MW5, MW6, MW6-13 and MW13 and are therefore also considered above the MOE Table 3 Standards.
- Select monitoring wells (MW7, MW11, MW18, MW19 and MW21) were sampled for PAHs. The groundwater laboratory analytical results indicated all samples were below the MOE Table 3 Standards.

The results of the groundwater laboratory analyses are summarized in **Tables 4** and **Table 5**. Groundwater exceedances are illustrated on **Figure 5**. The laboratory reports are included in **Appendix B** for reference.

6.0 CONCLUSIONS

CM3 Environmental Inc. conducted a Phase II ESA on behalf of the Ottawa Carleton District School Board for Earl of March Secondary School located at No. 4 The Parkway, Kanata, Ontario.

CM3 advanced 24 boreholes and the soil samples from the boreholes were analysed for PHCs in all boreholes and PAHs in a select number of boreholes.

23 boreholes were converted to monitoring wells for collection of groundwater samples. Groundwater samples from wells not containing LPH were analysed for PHCs and a select number of wells were analysed for PAHs.

The results of the investigation indicate the following:

SOILS

The soil laboratory analytical results indicated soil samples submitted for PHCs were found to exceed MOE Table 3 Standards in soil samples MW1-SA5, MW2-SA6, MW3-SA5, MW5-SA4, MW6-SA5, MW6-13-SA4, MW7-SA2, MW13-SA3, MW18-SA1 and MW21-SA3.

The soil laboratory analytical results indicated soil samples submitted for PAHs were below the MOE Table 3 standards in all samples.

GROUNDWATER

- Groundwater levels were found to be between 1.452 m and 4.723 m below top of the monitoring well casings;
- The groundwater contour plan from water levels collected on August 7th, 2013, indicates an inferred groundwater flow direction to the north and south based on mounding in the source area.
- LPH was detected in monitoring wells MW2, MW3, MW5, MW6, MW6-13 and MW13 and are considered to be above the MOE Table 3 Standards.
- The groundwater analytical results for PHC analysis indicated groundwater exceeded the MOE Table 3 Standards in monitoring wells MW1, MW7 and MW10.
- The groundwater analytical results for PAH analysis indicated groundwater samples were non-detect or contained concentrations below the MOE Table 3 Standards.

7.0 RECOMMENDATIONS

Based on the exceedances in both soil and groundwater, CM3 recommends further investigation and remedial efforts to bring the site to within MOE Standards. Remedial options will be presented under separate cover.

CLOSURE

This report has been prepared and the work referred to in this report has been undertaken by CM3 Environmental Inc. for the OCDSB. It is intended for the sole and exclusive use of the OCDSB, its affiliated companies and partners and their respective insurers, agents, employees and advisors. Any use, reliance on, or decision made by any person other than the OCDSB based on this report is the sole responsibility of such other person. The OCDSB and CM3 Environmental Inc. make no representation or warranty to any other person with regard to this report and the work referred to in this report, and they accept no duty of care to any other person or any liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm that may be suffered or incurred by any other person as a result of the use of, reliance on, any decision made or any action taken based on this report or the work referred to in this report.

The investigation undertaken by CM3 Environmental Inc. with respect to this report and any conclusions or recommendations made in this report reflect CM3 Environmental Inc.'s judgement based on the site conditions observed at the time of the site inspection on the date(s) set out in this report and on information available at the time of preparation of this report. This report has been prepared for specific application to this site and it is based, in part, upon visual observation of the site, subsurface investigation at discrete locations and depths, and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future site conditions, portions of the site which were unavailable for direct investigation, subsurface locations which were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Substances other than those addressed by the investigation described in this report may exist within the site, substances addressed by the investigation may exist in areas of the site not investigated and concentrations of substances addressed which are different than those reported may exist in areas other than the location from which samples were taken.

If site conditions or applicable standards change or if any additional information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

Other than by the OCDSB, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the express written permission of CM3 Environmental Inc. Nothing in this report is intended to constitute or provide a legal opinion.

We trust that the above is satisfactory for your purposes at this time. Please feel free to contact the undersigned if you have any questions.

Yours sincerely **CM3 Environmental Inc.**

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Marc MacDonald, P. Eng. EP, QP Principal

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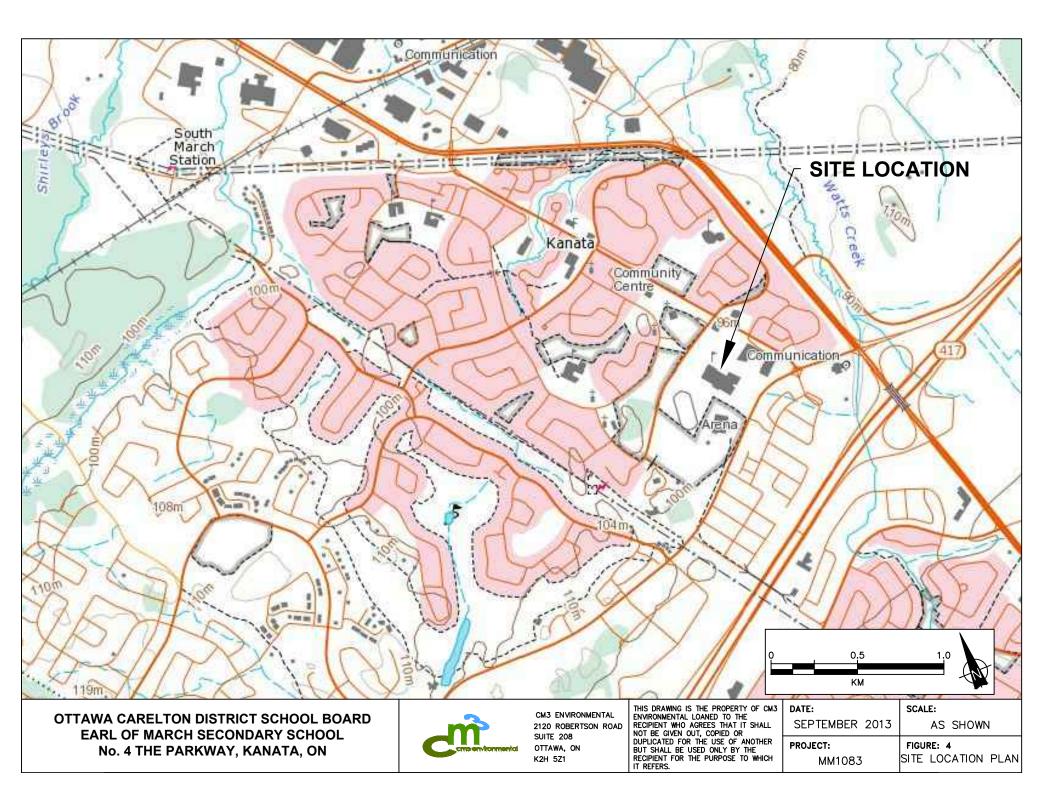
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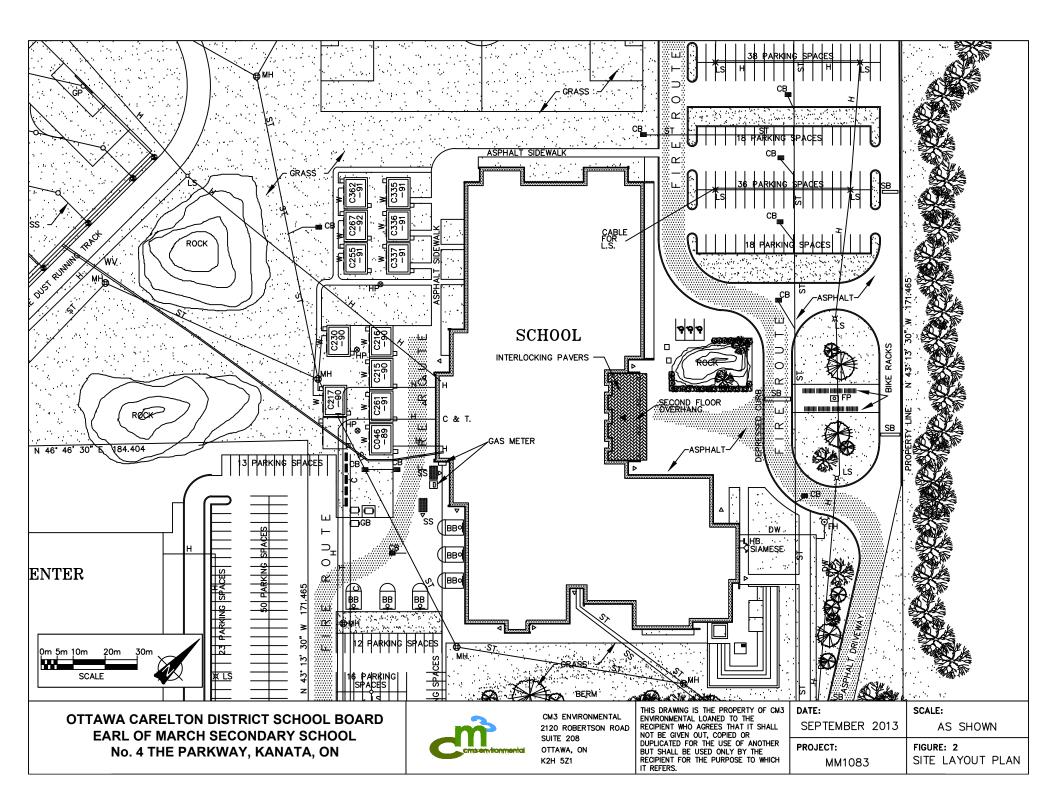
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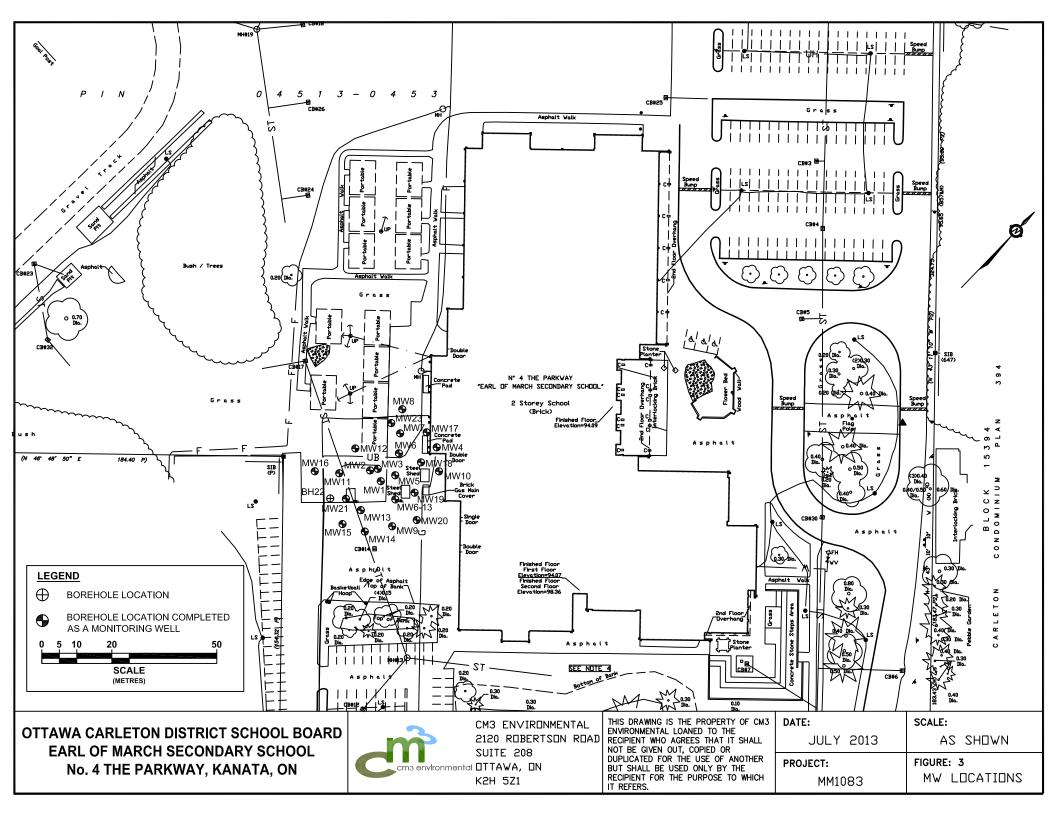
FIGURES

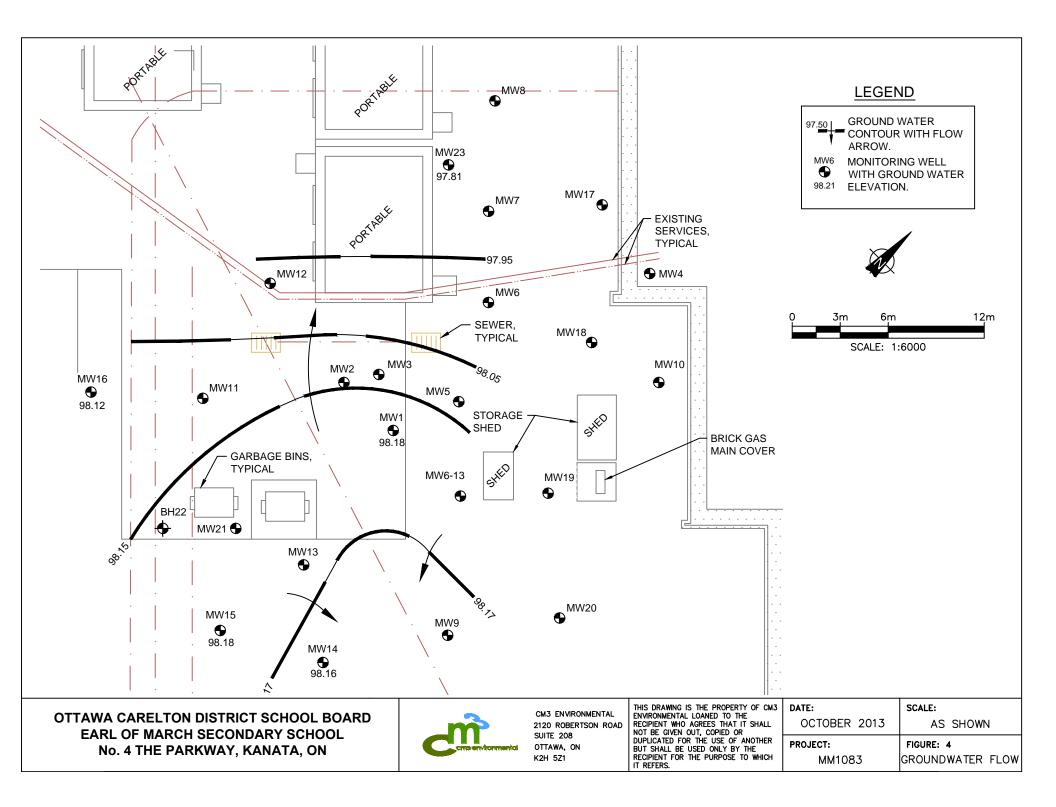
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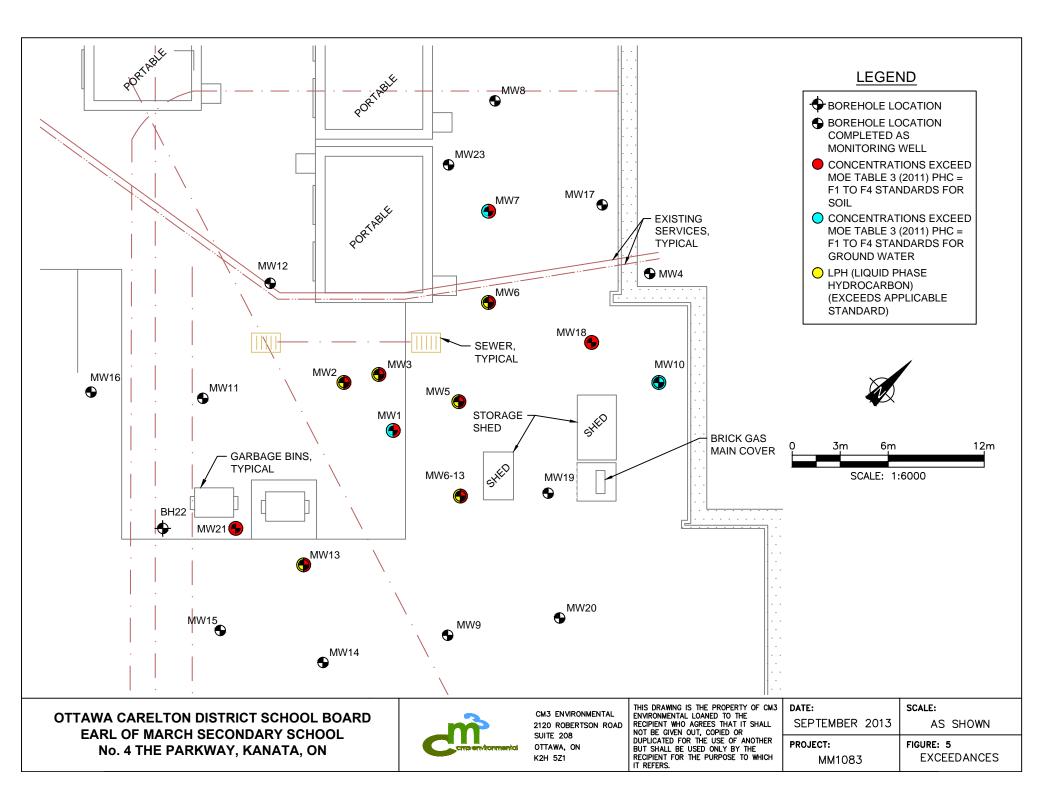
MM-1083











TABLES

Phase II Environmental Site Assessment Earl of March Secondary School No. 4 The Parkway, Kanata, ON

MM-1083

Table 1:
Summary of Soil Analytical Results
BTEX and Petroleum Hydrocarbons F1 to F4 Fractions (mg/kg or ppm)
4 The Parkway, Kanata, ON - Earl of March Secondary School
MM-1083

MM-1083													
Sample ID	Date	Depth (m)	Benzene	Ethyl Benzene	Toluene	m,p-Xylene	o-Xylene	Xylene (Total)	PHC F1 (C6-C10)	PHC F2 (C10-C16)	PHC F3 (C16-C34)	PHC F4 (>C34)	
MOE Standards Table		MDL (ug/g)	0.02	0.05	0.05 2.3	0.05 nv	0.05	0.05	7 55	4 98	8 300	6 2800	
Reg 153/04 (2011)-Table 3 Res	sidential, coarse		0.21		2.3 hole Sampl		nv	3.1	55	98	300	2000	
MW1-SA5	4-Jul-13	2.74 - 3.35	<0.02	0.32	<0.05	<0.05	<0.05	<0.05	61	235	927	138	
MW2-SA6	4-Jul-13	3.35 - 3.96	<0.02	0.47	<0.05	<0.05	<0.05	<0.05	63	454	1300	174	
MW3-SA5	4-Jul-13	2.74 - 3.35	<0.02	1.13	<0.05	<0.05	<0.05	<0.05	48	680	1640	178	
MW4-SA2	4-Jul-13	0.43 - 0.61	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	32	65	
MW5-SA4	5-Jul-13	2.13 - 2.74	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	20	269	574	<6	
MW6-13-SA4	5-Jul-13	2.13 - 2.74	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	48	309	801	112	
MW6 SA5	9-Jul-13	2.44 - 3.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	28	309	857	<6	
MW7-SA2	9-Jul-13	1.52- 2.13	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	70	422	1140	<6	
MW8-SA4	9-Jul-13	2.44 - 3.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW9-SA5	9-Jul-13	3.05 - 3.66	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW10-SA1	10-Jul-13	0.61 - 1.22	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW11-SA3	10-Jul-13	1.52 - 1.98	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW12 SA5	16-Jul-13	2.13 - 2.74	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW13 SA3	16-Jul-13	1.83 - 2.44	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	617	1640	96	
MW14-SA4	17-Jul-13	2.44 - 3.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW15-SA4	17-Jul-13	2.74 - 3.35	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW16-SA4	17-Jul-13	1.83 - 2.44	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW17-SA4	24-Jul-13	2.74 - 3.35	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW18 SA1	24-Jul-13	0.61 - 1.22	<0.02	3.20	5.25	13.70	4.42	18.10	136	<4	<8	<6	
MW19 SA4	24-Jul-13	2.13 - 2.44	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW20 SA3	25-Jul-13	1.83 - 2.44	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW21 SA3	25-Jul-13	1.83 - 2.13	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	536	1330	<6	
MW22 SA2	25-Jul-13	1.22 - 1.83	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
MW23 SA4	25-Jul-13	2.13 - 2.74	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<7	<4	<8	<6	
				i		1				1			

Notes: ppm "<" NV MOE Standards Table

Bold / Italics

- All concentrations provided in parts per million (micrograms per gram - $\mu g/g)$ - Less than detection limits indicated (refer to laboratory report)

Less than detection limits indicated (refer to laboratory report)
 No standard listed
 Standards from the Ontario Ministry of Environment (MOE) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA Reg 153/04 (2011)-Table 3 Residential, coarse
 Indicates exceedance of MOE Table Standards.

Table 2:
Soil Laboratory Analytical Results - Polycyclic Aromatic Hydrocarbons (PAHs)
4 The Parkway, Kanata, ON - Earl of March Secondary School

Sample ID	9 0 MDL (MOE Table		20.0 20.0 20.0	0. So Acenaphthylene	20.0 20.0 20.0	0.0 0.0 0.5 0.5	0.0 0.0 0.3 0.3	0. Benzo[b]fluoranthene 82.0	9.0 Benzo(g,h,ijperylene	0 Benzo[k]fluoranthene 82.0	0.01 0.1,1-Biphenyl	0.02 7	0. Dibenzo[a,h]anthracene	50.0 69.0 69.0	0.02 62	0.00 Indeno[1,2,3-cd]pyrene	66.0 61-Methylnaphthalene	66.0 66.2-Methylnaphthalene	6 ତି Methylnaphthalene (1&2)	0.0 0.0	20.0 20.0 20.0	eueuk 0.02 78
MW6 SA5	09-Jul-13	2.44 - 3.05	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	<0.02	<0.02	0.19	<0.02	0.06	<0.02	0.06	<0.01	0.58	0.05
MW7 SA2	09-Jul-13	1.52 - 2.13	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.34	<0.02	<0.02	<0.02	<0.04	<0.01	<0.02	0.16
MW8 SA4	09-Jul-13	2.44 - 3.05	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.01	<0.02	<0.02
MW9 SA5	09-Jul-13	3.05 - 3.66	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.01	<0.02	<0.02
MW13 SA3	16-Jul-13	1.83 - 2.44	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.01	<0.02	0.14
MW21 SA3	25-Jul-13	1.83 - 2.13	0.08	<0.02	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.47	<0.02	<0.02	<0.02	<0.04	<0.01	0.26	0.13

Notes:

ppm - All concentrations provided in parts per million (micrograms per gram µg/g)

MDL - Method detection limit

"<" - Less than detection limits indicated

NV - No Value

MOE Table 3 - Table 3 Standards from the Ontario Ministry of Environment (MOE) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, for residential land use in a non-potable groundwater situation, for coarse textured soils.

Red Bold - Indicates exceedance of MOE Table 3 standards.

Table 3:
Groundwater Level Measurements
4 The Parkway, Kanata, ON - Earl of March Secondary School
MM-1083

					MM-108	33			
Well	Date	тос		th to		Elevation	-	LPH	Comments
ID			LPH	GW	LPH	GW	Corr. GW	Thickness	
		(marl)	(mbtoc)	(mbtoc)	(marl)	(marl)	(marl)	(m)	
MW1	7-Aug-13	99.849		1.672		98.177	98.177		
MW2	7-Aug-13	99.837		1.725		98.112	98.112		LPH noted
мwз	7-Aug-13	99.820		1.818		98.002	98.002		LPH noted
MW4	7-Aug-13	NS		1.462					
MW5	7-Aug-13	99.909		1.931		97.978	97.978		LPH noted
MW6	7-Aug-13	99.953		2.015		97.938	97.938		LPH noted
MW6-13	7-Aug-13	99.833		1.883		97.950	97.950		LPH noted
MW7	7-Aug-13	99.873		2.075		97.798	97.798		
MW8	7-Aug-13	99.916		2.335		97.581	97.581		
MW9	7-Aug-13	99.738		1.618		98.120	98.120		
MW10	7-Aug-13	99.993		4.723		95.270	95.270		
MW11	7-Aug-13	99.778		1.745		98.033	98.033		
MW12	7-Aug-13	99.813		1.785		98.028	98.028		
MW13	7-Aug-13	99.852		1.722		98.130	98.130		LPH noted
MW14	7-Aug-13	99.686		1.523		98.163	98.163		
MW15	7-Aug-13	99.790		1.611		98.179	98.179		
MW16	7-Aug-13	99.882		1.761		98.121	98.121		
MW17	7-Aug-13	99.996		NM		NV	NV		dry
MW18	7-Aug-13	99.963		4.705		95.258	95.258		
MW19	7-Aug-13	99.955		2.165		97.790	97.790		
MW20	7-Aug-13	99.752		1.650		98.102	98.102		
MW21	7-Aug-13	99.854		1.805		98.049	98.049		
MW23	7-Aug-13	99.828		2.020		97.808	97.808		

Notes: TOC - top of casing

marl - metres above arbitrary reference level

mbtoc - metres below top of casing LPH - liquid phase hydrocarbons GW - groundwater

Corr. GW - corrected water level calculated for monitoring wells containing LPH, assuming an LPH density of 0.86 g/ml

NM - not measured

NV no value

-- - no value/LPH not present

Table 4: Summary of Groundwater Analytical Results BTEX and Petroleum Hydrocarbons F1 to F4 Fractions (ug/L or ppb) 4 The Parkway, Kanata, ON - Earl of March Secondary School

MM-1083													
Sample ID		Benzene	Ethyl Benzene	Toluene	m,p-Xylene	o-Xylene	Xylene (Total)	PHC F1 (C6-C10)	PHC F2 (C10-C16)	PHC F3 (C16-C34)	PHC F4 (>C34)		
MOE Standards Table	MDL (ug/L)	0.5	0.5	0.5	0.5	0.5	0.5	25	100	100	100		
Reg 153/04 (2011)-Table 3 Non-Potable	Date	44	2300	18000 Monitorin	nv g Well Samp	nv /cc	4200	750	150	500	500		
	1		[]	womoring	g wen samp	les		1					
MW1	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	201	980	<100		
MW2						LPH							
MW3						LPH			1				
MW4	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW5						LPH			1				
MW6						LPH							
MW6-13						LPH							
MW7	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	414	1140	<100		
MW8	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW9	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW10	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	555	<100		
MW11	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW12			I			DRY							
MW13						LPH							
MW14	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW15	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW16	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW17			[1	DRY		[
MW18	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW19	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW20	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW21	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		
MW23	07-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<25	<100	<100	<100		

Notes:

ppb "<"

< NV

MOE Standards Table

- No standard listed - Standards from the Ontario Ministry of Environment (MOE) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act

Bold / Italics

Reg 153/04 (2011)-Table 3 Non-Potable Groundwater, coarse - Indicates exceedance of MOE Table Standards.

- Less than detection limits indicated (refer to laboratory report)

- All concentrations provided in parts per billion (micrograms per gram - $\mu g/L)$

Table 5:
Groundwater Laboratory Analytical Results - Polycyclic Aromatic Hydrocarbons (PAHs)
4 The Parkway, Kanata, ON - Earl of March Secondary School
MM-1083

										/1-1083											
Sample ID		00 50 Acenaphthene	8.1 G Acenaphthylene	9001 0.01	10.0 10.0 4.7	0. 10. 18.0	0.05 0.75 0.75	0.05 0.20 0.20	0.05 0.4	000 001-1,1-Biphenyl	Chrysene 1	0. 0. 26 Dibenzo[a,h]anthracene	ene Fluoranthene 0.01 130	е оп ц. 0.05 400	0.000000000000000000000000000000000000	0081 50 1-Methylnaphthalene	0081 00 2-Methylnaphthalene	0081 .0 Methylnaphthalene (1&2)	0.00 1000	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	88
MW7	7-Aug-13	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.15	<0.05	<0.05	<0.05	<0.10	<0.05	<0.05	0.17
MW11	7-Aug-13	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.23	<0.05	<0.05	<0.05	<0.10	<0.05	<0.05	<0.01
MW18	7-Aug-13	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.10	<0.05	<0.05	<0.01
MW19	7-Aug-13	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.10	0.15	0.09	<0.01
MW21	7-Aug-13	0.16	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.09	<0.05	<0.05	<0.05	<0.10	<0.05	<0.05	<0.01

Notes:

ppb $\,$ - All concentrations provided in parts per billion (micrograms per gram $\mu g/L)$

"<" - Less than detection limits indicated

Table 3 standards - From the Ontario Ministry of Environment (MOE) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 2011, for institutional land use in a non-potable groundwater situation, coarse textured soils.

Bold / Italic - Indicates exceedance of applicable MOE standards.

Appendix A

Borehole and Monitoring Well Logs Phase II Environmental Site Assessment Earl of March Secondary School No. 4 The Parkway, Kanata, ON MM-1083

	Ľ	~	>	CLIENT: Ottawa Carleton District School Board PROJECT: Phase II Environmental Assessment			BORE		LE	LOG	
	C			Earl of March Secondary School							
	B NO:		<u>/l-1083</u>	4 The Parkway, Kanata, Ontario		ELEVATION		7			Т
SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION		C VAPOUF (ppmv)	LEVEL	WELL COMPLETIOI	WATER LEVEL	WELL COMPLETION NOTES	
-											
				Ground Surface							
\bigcirc				FILL SAND and GRAVEL, brown						roadbox, jplug, cement bentonite seal	
	SA1					25					
	SAT										
	SA2									32 mm solid PVC pipe	
	342					\mathbb{T}					
	SA3					55			Ţ	GW = 1.74 mbg (Water Level measured on Aug	
	JAJ									7, 2013)	
	SA4			silty SAND brown, wet		95				32 mm 010 slot PVC pipe	
	0/14						\setminus			silica sand	
V	SA5						- 458				
							200				
×	SA6			End of borehole at 3.5 m			200	<u>:</u>			_
				Well Completion Details: Screened interval from 1.0 m to 3.5 m below surface							
				Elevation at top of pipe (TOP) = 99.849 m							
				Groundwater Information: Depth to groundwater from TOP = 1.67 m (Water Level measured on Aug 7, 2013)							
				measured on Aug 7, 2013)							
	LING ME EHOLE D			Portable Drilling Notes: NO RE 0.032 m (OD) SPLIT	COVERY SPOON						

		ñ	>	CLIENT: Ottawa Carleton District School Board PROJECT: Phase II Environmental Assessment							LE	LOG	
^ / / 3	JOB NO:		И-1083	Earl of March Secondary School 4 The Parkway, Kanata, Ontario	E				/W2	2			
	SAMPLE TYPE CC	SPT COUNT		SOIL DESCRIPTION		LD TE IC VA	ST DA	АТА		FLETION	WATER LEVEL	WELL COMPLETION	
	SAM	SPT	SOIL		1	(pp 10	mv) 10	0	1000	WELI	WAT	NOTES	
-				Ground Surface									
			\bigotimes	FILL sand and gravel, brown								roadbox, jplug, cement	-
	SA1		¥.¥.¥.	SAND LPH observed from 1.52 to 3.96 meters below grade, brown	5				· · · · · · · · · · · · · · · · · · ·			bentonite seal 32 mm solid PVC pipe	-
	SA2						75						
			· · · · · ·				T						
	SA3		· · · · · ·				13				Ţ	GW = 1.79 mbg (Water Level measured on Aug	
								+				7, 2013)	
	SA4						110					32 mm 010 slot PVC pipe	
												silica sand	
	SA5						89						
1/													
	SA6		· · · · · · ·					70					
				End of borehole at 4.0 m									+
				Well Completion Details: Screened interval from 0.9 m to 4.0 m below surface Elevation at top of pipe (TOP) = 99.837 m									
				Groundwater Information:									
				Depth to groundwater from TOP = 1.73 m (Water Level measured on Aug 7, 2013)									
				1									
	RILLING MI OREHOLE			Portable Drilling Notes: SPLIT SP 0.032 m (OD)	OON								

	m		CLIENT: Ottawa Carleton District School Board PROJECT: Phase II Environmental Assessment	BOREHOLE LOG BOREHOLE NO: MW3
M ³ JOB NO:	 	1083	Earl of March Secondary School 4 The Parkway, Kanata, Ontario	BOREHOLE NO: IVIVVO SURFACE ELEVATION: 99.89 m
SAMPLE TYPE SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIELD TEST DATA Image: Product of the second seco
-			Ground Surface	
-0		× _	FILL sand and gravel, brown SAND	roadbox, jplug, cement bentonite seal 32 mm solid PVC
SA1			LPH observed from 1.52 to 2.13 meters below grade	brown
SA2				→ → → → → → → → → → → → → → → → → → →
SA3		· · · · · · · · · · · · · · · · · · ·		GW = 1.88 mbg (Water Level measured on Aug
SA4				180 , 7, 2013)
SA5		· · · · · · · · · · · · · · · · · · ·		32 mm 010 slot PVC pipe silica sand
		· · · · · · · · · · · · · · · · · · ·		
SA6				
SA7		· · · · · · · · · · · · · · · · · · ·	End of borehole at 4.3 m	
			Well Completion Details: Screened interval from 1.2 m to 4.3 m below surface Elevation at top of pipe (TOP) = 99.820 m	
			Groundwater Information: Depth to groundwater from TOP = 1.82 m (Water Le measured on Aug 7, 2013)	el
DRILLING M BOREHOLE			ortable Drilling .032 m (OD)	IO RECOVERY SPLIT SPOON
ORILL DATE	: 2013 Ju	ıly 4	LOGGED BY: DB	Sheet 1 of 1

		r	ñ	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental)LE	LOG	
C	1 ³ .10	C B NO:	MI	<u>M-1083</u>		Earl of March Secondar 4 The Parkway, Kanata,	y School		SUF	BC RFACE		OLE N /ATION		100	4			
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION				FIELD	D TE	ST D/ POUF	ATA	/EL	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	DEPTH (m)
DEP	SAM	SAM	SPT	SOIL				1		10	(pp	10	00	1000	N N N N N N N N N N N N N N N N N N N	WAT	NOTES	DEP
						Ground Surface	2											-
0-	0					VCRETE AVEL							_		ĬП		roadbox, jplug, cement bentonite seal	+0.0
		SA1 SA2			fine	To medium DROCK						· · · · · · · · · · · · · · · · · · ·					32 mm solid PVC pipe	-
1-					DEL	JOUCK		-								·		-1.0
	\bigcirc															•	32 mm 010 slot PVC pipe silica sand	-
					Enc	of borehole at 1.9 m									·			
					Scr	Il Completion Details: eened interval from 0.9 m to 1.9 m vation at top of pipe (TOP) = m	below surface											
					Der	undwater Information: th to groundwater from TOP = 1.46 asured on Aug 7, 2013)	6 m (Water Level											
	BOR	LING ME EHOLE D L DATE:	IAME	TER:	Portabl 0.032 ı	e Drilling n (OD) LOGGED BY: DB	Notes: NO RE	ECOVE SPOOI	RY N	<u> </u>	<u>.</u>					She	eet 1 of 1	

		r	ñ	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental				BORE		LE	LOG	
C	M ³ JO	C B NO:	M	M-1083	3	Earl of March Secondar 4 The Parkway, Kanata,	y School		OREHOLE N					
	/PE		Ţ	ш				FIEL	.D TEST DA	ATA	NOI	EVEL		(m) N
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION		ORGANI	C VAPOUF (ppmv)	RLEVEL	WELL	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
DE	SAI	SA	SP	SO				1 1	0 10	0 1000	¥8	M	NOTES	ELE
	-					Ground Surface	6							-100
0.	0					PHALT AVEL							roadbox, jplug, cement bentonite seal	-
		SA1			silty	/ SAND wn, wet		2					32 mm solid PVC pipe	-
1.													silica sand	-99
	X	SA2											Silica Saliu	ŀ
													32 mm 010 slot PVC pipe	-
2.		SA3							39			Ţ	GW = 1.97 mbg (Water Level measured on Aug	-98
					CLA grey	Y, wet			100				7, 2013)	
		SA4			0,				/					
3		SA5												-97
					End	of borehole at 3.4 m								-
					Wel	I Completion Details:								
					Scre Elev	eened interval from 0.9 m to 3.4 m vation at top of pipe (TOP) = 99.90	below surface 9 m							
					Dep	undwater Information: oth to groundwater from TOP = 1.93	3 m (Water Level							
					mea	asured on Aug 7, 2013)								
		LING ME EHOLE D			Portabl 0.032 r	e Drilling n (OD)	Notes: NO RECOV	/ERY OON	<u> </u>			1	1	_
		L DATE: 2				LOGGED BY: DB						She	et 1 of 1	

		_r	ñ	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental				BORE			LOG	
C	M ³ JO	C B NO:	M	M-1083	3	Earl of March Secondar 4 The Parkway, Kanata,	y School		REHOLE NO			3		
	ΥPE							FIELD	D TEST DA	TA	NOI	EVEL		(m) N
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION		ORGANIC	VAPOUR (ppmv)	LEVEL	WELL	WATER LEVEL	WELL COMPLETION	ELEVATION (m)
DEF	SAN	SAN	SPT	SOI				1 10) 1000	WEI	WA.	NOTES	
														-
0	\square					Ground Surfact	e						roadbox, jplug, cement	100 -
						/ SAND							bentonite seal 32 mm solid PVC	-
		SA1			brov	wn							pipe	-
1					CLA grey									-99 -
		SA2												-
		SA3							25			-	GW = 1.97 mbg	-
2		0/10											GW = 1.97 mbg (Water Level measured on Aug 7, 2013)	-98 -
		SA4							13				.,,_,	-
													32 mm 010 slot PVC pipe	-
3	┦	SA5											silica sand	-97
														-
		SA6						10						-
4		SA7						5						-96
-		0/11			End	of borehole at 4.3 m								
					Scre	ll Completion Details: eened interval from 1.2 m to 4.3 m vation at top of pipe (TOP) = 99.83	below surface 3 m							
					Dep	undwater Information: th to groundwater from TOP = 1.8 asured on Aug 7, 2013)	8 m (Water Level							
					D - • • •	- Delline -								
	BOR	LING ME	DIAME	TER:	Portabl 0.032 r		Notes: NO RECO	POON						
	DRIL	L DATE:	2013	July 5		LOGGED BY: DB						She	et 1 of 1	

		r	ñ	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental					BORE		LE	LOG	
CI	M ³ JO	B NO:	M	M-1083	}	Earl of March Secondar 4 The Parkway, Kanata,	y School	SURFA		REHOLE N					
(E	SAMPLE TYPE	D	DUNT	ΥΡΕ		SOIL DESCRIPTION				D TEST DA		WELL COMPLETION	WATER LEVEL	WELL	ELEVATION (m)
DEPTH (m)	SAMPL	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION		1	10	(ppmv)	0 1000	WELL	WATEF	WELL COMPLETION NOTES	ELEVA
	-					Ground Surface	e								-
0-		SA1		°0 - °	_`GR/	PHALT AVEL Ilders and Cobbles			10					roadbox, jplug, cement bentonite seal 32 mm solid PVC	-100 - -
		SA2		0000					· · · · · · · · · · · · · · · · · · ·	25				pipe	-
1.						wn, wet								silica sand	-99 -
		SA3			CLA LPF	AY I observed from 1.83 to 3.05 meter	rs bgs, grey, wet		1	≸				32 mm 010 slot PVC pipe	-
2-		SA4							/					GW = 2.08 mbg (Water Level measured on Aug 7, 2013)	-98 -
		SA5							10						-
3.					End	l of borehole at 3.1 m		<u> </u>		<u> </u>	<u>——:::</u>				-97
					Scre	ll Completion Details: eened interval from 0.9 m to 3.1 m vation at top of pipe (TOP) = 99.95	below surface 3 m								
					Dep	undwater Information: oth to groundwater from TOP = 2.0 asured on Aug 7, 2013)	2 m (Water Level								
		LING ME): TER [.]	Portabl 0.032 r	e Drilling m (OD)	Notes: SPLIT SPO	ON	::::L			I	1	1	
		L DATE:				LOGGED BY: SP							She	et 1 of 1	

		_ r	n	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental	Assessment		B OREHOLE NO:			LE	LOG	
CI		B NO:		M-1083	3	Earl of March Secondar 4 The Parkway, Kanata,			DREHOLE NO: 1 ELEVATION: 9	9.93 m				
Ê	ТҮРЕ	₽	INT	щ					D TEST DATA	4	TION	EVEL		ON (m)
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION			C VAPOUR LE (ppmv)	A EVEL 1000	VELL	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
		0		05				1 1	0 100	1000	>0	>		
0-						Ground Surface	e						roadbox, jplug,	-100
					_ GR/	AVEL JLDERS and COBBLES	/	4					cement bentonite seal	-
	\bigcirc			000	БОС						E		32 mm solid PVC pipe	-
1-	-			000								-		-99
	X	SA1		0 0	SIL	SAND and GRAVEL		R					32 mm 010 slot	
	\bigcirc			0000	BOI	JLDERS and COBBLES							PVC pipe	-
2-												Ţ	GW = 2.14 mbg (Water Level	-98 -
		SA2			SIIty LPF	r CLAY I and PHC odours, grey, wet			25				measured on Aug 7, 2013) silica sand	-
												-	Silica Salia	-
3-		SA3							-29					-97 -
		SA4							35					-
					End	of borehole at 3.7 m				· · · · · · · · · · · · · · · · · · ·				
					Scre	Il Completion Details: eened interval from 0.6 m to 3.7 m vation at top of pipe (TOP) = 99.87	below surface 3 m							
					Dep	undwater Information: th to groundwater from TOP = 2.0 asured on Aug 7, 2013)	8 m (Water Level							
		LING ME EHOLE D			Portabl 0.032 r	e Drilling n (OD)	Notes: NO RECO SPLIT SPC							<u> </u>
		L DATE:				LOGGED BY: SP						She	et 1 of 1	

	Ľ	~	>		CLIENT: Ottawa Carleton Distric								LE	LOG	
	C				PROJECT: Phase II Environmental Earl of March Secondar	ry School		BOREHO				3			
CM ³ JC		M	M-1083	}	4 The Parkway, Kanata	, Ontario	SURFAC								Ê
DEPTH (m) SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION		ORGAN	IIC VAF (ppm 10	POUF	ATA R LEVE	∃L 1000	WELL	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0-					Ground Surfac PHALT AVEL	e				-				roadbox, jplug, cement bentonite seal	- 100
	SA1			silty trac	/ CLAY e sand from 0.61 to 1.22 meters by , grey	gs, wet at 2.44 meters								32 mm solid PVC pipe	- - - -99
	SA2							15						32 mm 010 slot PVC pipe	-
2-	SA3 SA4							20					Ţ	GW = 2.41 mbg (Water Level measured on Aug 7, 2013)	-98 - -
3-	SA5							25						silica sand	-97 -
4-	SA6							_ 25_							- - -96
				Wel Scre Elev	l of borehole at 4.3 m Il Completion Details: eened interval from 1.2 m to 4.3 m vation at top of pipe (TOP) = 99.91 undwater Information:	below surface 6 m									
				Dep	th to groundwater from TOP = 2.3 asured on Aug 7, 2013)	4 m (Water Level									
	LLING ME				e Drilling	Notes: NO RECOV	/ERY	::1 : :			T		I		
	REHOLE D		TER:	0.032 r	m (OD)	SPLIT SPO									
DRI	LL DATE:	2013	July 9		LOGGED BY: SP								She	et 1 of 1	

		2	>		CLIENT: Ottawa Carleton Distric							LE	LOG	
CM ³ JO		. I I . MN	M-1083		PROJECT: Phase II Environmental Earl of March Secondar 4 The Parkway, Kanata,	y School	SURF		REHOLE NO					
ΡE					, , , , , ,				TEST DA			VEL		(m) N
DEPTH (m) SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION		ORG		VAPOUR	LEVEL	WELL	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
DEP ⁻ SAM	SAM	SPT	SOIL				1	10	(ppmv) 10(0 1000	WEL	WAT	NOTES	ELEV
														-100
0-					Ground Surface	e		:				3	roadbox, jplug,	+ 100
					AVEL	/							cement bentonite seal	Ľ
				silty	/ CLAY								32 mm solid PVC pipe	-
	SA1			wet	at 1.83 meters bgs, grey		<u>R</u>							-99
													32 mm 010 slot PVC pipe	-
▏▕▎	SA2								29			-	GW = 1.68 mbg (Water Level	
												¦ ⊻	measured on Aug 7, 2013)	-98
2-	SA3								30					
													silica sand	-
	SA4								40					-97
3-														-
	SA5								50					
														-
					l of borehole at 3.7 m Il Completion Details:									
				Scre	eened interval from 0.6 m to 3.7 m vation at top of pipe (TOP) = 99.73	below surface 8 m								
				Gro	undwater Information:									
				Dep	oth to groundwater from TOP = 1.62 as ured on Aug 7, 2013)	2 m (Water Level								
							· · · · · · · · · · · · · · · · · · ·							
	LING ME			Portabl 0.032 r	e Drilling n (OD)	Notes: NO RECOV	ERY				I	1	1	
	L DATE:				LOGGED BY: SP							She	et 1 of 1	

	r	ñ		CLIENT: Ottawa Carleton District School Board PROJECT: Phase II Environmental Assessment						LE	LOG	
	C B NO:		1-1083	Earl of March Secondary School 4 The Parkway, Kanata, Ontario	SUBE		REHOLE NC					
SAMPLE TYPE	SAMPLE ID	SPT COUNT		SOIL DESCRIPTION	F		D TEST DA VAPOUR (ppmv)	ТА		WATER LEVEL	WELL COMPLETION NOTES	
SAN	SAN	SPT	SOI		1	10) 1000	₩Ō	WA	NOTES	\downarrow
												-
+				Ground Surface							roadbox, jplug, cement	_
				GRAVEL							bentonite seal	-
			• • •	SILT SAND and GRAVEL								-
	SA1		0		A						32 mm solid PVC	-
	•			BEDROCK				· · · · · · · · · · · · · · · · · · ·			pipe	
			\sum									
			X						1. I.			
												-
											silica sand	
			\sum									
			>>								32 mm 010 slot PVC pipe	
-			X									-
												ľ
-												
										T	GW = 4.81 mbg (Water Level measured on Aug	
			\bigcirc								7, 2013)	-
			>>									
-												
			\times	End of borehole at 5.9 m								-
				Well Completion Details:								
				Screened interval from 2.1 m to 5.9 m below surface Elevation at top of pipe (TOP) = 99.993 m								
				Groundwater Information: Depth to groundwater from TOP = 4.72 m (Water Level								
				measured on Aug 7, 2013)								
	LING ME			Portable Drilling Notes: NC	RECOVERY	::::		<u> </u>				
BOR	EHOLE D		TER: July 16	D.032 m (OD) SP	IT SPOON					She		

		r	ñ	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental								LE	LOG	
CN	∕l³ JO	C B NO:	M	M-108	3	Earl of March Secondar 4 The Parkway, Kanata	ry School	SU		REHOLE N			11			
			F	ш						D TEST D			NOI	EVEL		(m) N0
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION		OR	GANIC	VAPOUF (ppmv)	RLEVE	ΞL	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
DE	SAI	SAI	SP	S				1	10		00	1000	₩S N	WA	NOTES	ELE
-						Ground Surfac	e									-100
0-						/ CLAY e sand, brown, moist		,						01/	roadbox, jplug, cement bentonite seal	
-		SA1				wn, wet										
1-																-99
		SA2						R							32 mm solid PVC pipe	F
.		SA3													GW = 1.84 mbg (Water Level	-
2-		0/10				JLDERS and COBBLES		+							measured on Aug 7, 2013)	-98 -
						ed to final depth										ŀ
				000											32 mm 010 slot	-
3-	0			000							-				PVC pipe silica sand	-97 -
				000												
-				0000	2											-96
						of borehole at 4.0 m										
					Scre	ll Completion Details: eened interval from 1.8 m to 4.0 m vation at top of pipe (TOP) = 99.77	below surface '8 m									
					Gro	undwater Information: oth to groundwater from TOP = 1.7										
						asured on Aug 7, 2013)	5 m (water Lever									
		LING ME			Portabl	e Drilling	Notes: SPLIT SP									
		EHOLE D			0.032 r	n (OD) LOGGED BY: SP		VERY	,					She	et 1 of 1	

CLIENT: Ottawa Carleton District School Board PROJECT: Phase II Environmental Assessment							BOREHOLE LOG			
					Earl of March Secondary School		BOREHOLE NO: MW12 SURFACE ELEVATION: 99.88 m			
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION		ELEVATION (m)			
DE	SAI	SAI	SP.	SO		1 10 100 1000 ¥S ≸ NOTES	ELE			
0-				<u>- 117 - 11</u>	Ground Surface		-100			
	V	SA1			SILT SAND and GRAVEL ¬trace cobbles, brown, moist silty CLAY	cement bentonite seal				
	Ă	SA2			grey, wet	32 mm solid PVC	-99			
	X	SA3				pipe 32 mm 010 slot PVC pipe				
-	X	SA4				GW = 1.85 mbg (Water Level measured on Aug	-98			
		SA5				2 7, 2013) silica sand				
					End of borehole at 2.7 m					
					Well Completion Details: Screened interval from 1.2 m to 2.7 m below surface Elevation at top of pipe (TOP) = 99.813 m					
				De	Groundwater Information: Depth to groundwater from TOP = 1.79 m (Water Level measured on Aug 7, 2013)					
	BOR	LING ME EHOLE D	IAME	TER:	Portable Drilling 0.032 m (OD) LOGGED BY: SP	AB SAMPLE PLIT SPOON Sheet 1 of 1				

		Ľ	2	>		CLIENT: Ottawa Carleton Distric				BORE		LE	LOG	
CM	³ JOI	C B NO:	_ M	<u>M-1083</u>	.	PROJECT: Phase II Environmental Earl of March Secondar 4 The Parkway, Kanata,	ry School		OREHOLE N E ELEVATIOI		13			
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION			<u>D TEST D</u> C VAPOUF (ppmv)	ATA R LEVEL	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
DEP	SAM	SAM	SPT	SOIL				1 1		0 1000	WEL	WAT	NOTES	ELE
						Ground Surface	e							-100
0-	0				∼ASF FILI brov	PHALT							roadbox, jplug, cement bentonite seal 32 mm solid PVC	
	Y	SA1			silty LPF	/ CLAY I and PHC odour, grey			49				pipe	- -99
									40				32 mm 010 slot PVC pipe	-
2-		SA2										Ţ	GW = 1.79 mbg (Water Level measured on Aug 7, 2013)	-98
		SA3											silica sand	-
3-	Á	SA4		0	SIL	T SAND and GRAVEL								-97
	X	SA5		0	grey			8				•		-
					Wel Scre	I of borehole at 3.7 m Il Completion Details: eened interval from 0.6 m to 3.7 m	below surface							
					Gro Dep	vation at top of pipe (TOP) = 99.85 undwater Information: oth to groundwater from TOP = 1.73 asured on Aug 7, 2013)								
		LING ME EHOLE D			Portabl 0.032 r	e Drilling n (OD)	Notes: NO RECO		L : : · · · · · · · · · · · · · · · · ·		<u> </u>	1	1	1
	DRIL	L DATE:	2013	July 16		LOGGED BY: SP						She	et 1 of 1	

		ľ	ñ	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental										LE	ELOG	
	1 ³ 10	C B NO:	. I I	<u>M-1083</u>	2	Earl of March Secondar 4 The Parkway, Kanata,	y School	SL	IRF			HOLE N						
		BINU:		VI-1000		4 The Farkway, Nahala,	Ontario					EST D				ĒL		(E)
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION		OF			c v	APOUF pmv)		VEL	WELL	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
DEP	SAN	SAN	SPT	soll				1		10		10	00	1000	N N N N N N N	MA	NOTES	ELE
																		-100
0-			+	XXX		Ground Surface	e/	+									roadbox, jplug, cement	ł
	0				FILI brov												bentonite seal 32 mm solid PVC pipe	
1-	Y	SA1			SAN med	ND Jium, brown			_	1	15		_				hihe	-99
		•			SAN wet	ND with gravel											GW = 1.56 mbg	-
	Á	SA2			silty	/ SAND					20						(Water Level measured on Aug 7, 2013)	- 98
2-		SA3			wet				-	10	/						32 mm 010 slot PVC pipe	-
	T	SA4									2	X					r vo pipe	- -97
3-		•			silty wet	/ CLAY						/	_				silica sand	-
	Á	SA5			Wet											•		- - -96
4-		SA6						<u> </u>			2							
						of borehole at 4.2 m												
					Scre Elev	Il Completion Details: eened interval from 0.5 m to 4.2 m vation at top of pipe (TOP) = 99.68	below surface 6 m											
					Dep	undwater Information: oth to groundwater from TOP = 1.5 asured on Aug 7, 2013)	2 m (Water Level											
										· · · · · · · · · · · · · · · · · · ·								
										· · · · · · · · · · · · · · · · · · ·								
										· · · · · · · · · · · · · · · · · · ·								
										· · · · · · · · · · · · · · · · · · ·								
										· · · · · · · · · · · · · · · · · · ·								
										· · · · · · · · · · · · · · · · · · ·								
-		LING ME				e Drilling	Notes: NO RECO	VERY	::: (::::		: : : : : : :	:	<u> </u>				
-		EHOLE [.L DATE:			0.032 r	n (OD) LOGGED BY: SP	SPLIT SPC	DON								Ch	aat 1 of 1	
																Sne	eet 1 of 1	

		ہے	n	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental	Assessment				EHOL					LE	LOG	
С	M ³ JC	B NO:	_ M	M-1083	}	Earl of March Secondar 4 The Parkway, Kanata		SL	JRFA		EHOL LEVA1			89 m	1	1	1	-
(m) H	SAMPLE TYPE	LE ID	SPT COUNT	'YPE		SOIL DESCRIPTION		OF			TEST VAPC			'EL	WELL	WATER LEVEL	WELL	ELEVATION (m)
DEPTH (m)	SAMP	SAMPLE ID	SPT C	SOIL TYPE				1		(10	ppmv	') 10	0	1000	WELL	WATE	COMPLETION NOTES	ELEV
0	-					Ground Surfac	e											- -100
					∼ ASF FILI brov	PHALT L	/										roadbox, jplug, cement bentonite seal	-
						dium, brown												-99
1		SA1			silty grey	y CLAY y, moist						-					32 mm solid PVC pipe	-
2		SA2							5								GW = 1.71 mbg (Water Level measured on Aug 7, 2013)	- - -98
		SA3								10							32 mm 010 slot PVC pipe	-
3		SA4				dy CLAY y, wet				15							silica sand	- -97 -
		SA5			gra grey	vely CLAY y, wet				2		· · · · · · · · · · · · · · · · · · ·						-
					We Scr	d of borehole at 3.9 m Il Completion Details: eened interval from 0.8 m to 3.9 m vation at top of pipe (TOP) = 99.79	below surface 0 m			· · · · · · · · · · · · · · · · · · ·								
					Dep	undwater Information: oth to groundwater from TOP = 1.6 asured on Aug 7, 2013)	1 m (Water Level			· · · · · · · · · · · · · · · · · · ·								
										· · · · · · · · · · · · · · · · · · ·								
										· · · · · · · · · · · · · · · · · · ·								
										· · · · · · · · · · · · · · · · · · ·								
										· · · · · · · · · · · · · · · · · · ·								
	BOF	LING ME	DIAME	TER:	Portabl 0.032 ı		Notes: NO RECO SPLIT SPC	VER DON	(<u> </u>				<u> </u>	1	1	
L	DKI	L DATE:	2013	July 1/		LOGGED BY: SP										She	et 1 of 1	

		ñ		CLIENT: Ottawa Carleton District School Board PROJECT: Phase II Environmental Assessment								LE	LOG	
M ³ JO			<i>I</i> -1083	Earl of March Secondary School 4 The Parkway, Kanata, Ontario	Q1					MW 1 99.92 m	0			
	B NO:		/1-1083	4 The Parkway, Kanata, Ontario				EST D		1	7			Т
SAMPLE TYPE	0	UNT	믭								IOI	WATER LEVEL		
SAMPLE TY	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	O	RGAN		APOUF pmv)	٢L	EVEL	APLE APLE	TER	WELL COMPLETION NOTES	
SAN	SAN	SPT	sol		1		10	10	00	1000	NON	WA ⁻	NOTES	
-														
				Ground Surface										
			0	TOPSOIL organics									roadbox, jplug, cement	-
	SA1		0	SILT SAND and GRAVEL	/		15						bentonite seal	
			<u> </u>	brown silty SAND										
┦♥	SA2			brown		1	d i					:		
							1 -		-		目		32 mm solid PVC	-
			XXX	silty CLAY grey, wet		/					目		pipe	
	SA3		XXX	groy, wet		5						_	GW = 1.80 mbg (Water Level	
			XXX			· · · · · · · · · · · · · · · · · · ·						Ţ	measured on Aug	
T	SA4		XXX				15		-		:目·		7, 2013)	
			XXX										32 mm 010 slot PVC pipe	
			XXX			_/					· E			
	SA5		XXX			¥.					目			
			<i> }} </i>	SILT SAND and GRAVEL			+ -	\rightarrow	-		E		silica sand	
	SA6		0	grey, wet		5								
			0								: 8			
	SA7		0	Find of houshold at 0.0 m										_
				End of borehole at 3.9 m										
				Well Completion Details: Screened interval from 0.8 m to 3.9 m below surface										
				Elevation at top of pipe (TOP) = 99.882 m										
				Groundwater Information: Depth to groundwater from TOP = 1.76 m (Water Level										
				measured on Aug 7, 2013)										
	LING ME			Portable Drilling Notes: SPI	IT SPOON					<u> </u>		1	1	
ROK	EHOLE [TER: July 17	0.032 m (OD) LOGGED BY: SP										

		r	ñ	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental									LE	LOG	
	M ³ JO	B NO:	M	M-1083		Earl of March Secondar 4 The Parkway, Kanata	ry School		E SURFAC								
						· · · · · · · · · · · · · · · · · · ·	,				TEST				VEL		N (m)
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION			ORGAN			R LEV	EL	PLETI	WATER LEVEL	WELL COMPLETION	ELEVATION (m)
DEPI	SAMI	SAMI	SPT (SOIL					1	(10	ppmv)	00	EL 1000	WELL	WAT	NOTES	ELEV
	-																-
0	1					Ground Surfac	е									roadbox, jplug,	-
				\bigotimes	FILL			/								cement bentonite seal	-100 -
	Μ			\bigotimes	brov	vn										32 mm solid PVC pipe	-
						SAND and GRAVEL											
1		SA1		0	brov	vn, wet			R							32 mm 010 slot PVC pipe	-99
				0 X												F VC pipe	
		SA2		0						15							-
2				0						4-							-98
		SA3		0													-
																silica sand	F
3	T				san grey	dy SILT , wet				_							07
		SA4								15							-97 -
-					End	of borehole at 3.5 m								:=:			-
					Wel	l Completion Details:	holow ourfood										
					Elev	eened interval from 1.1 m to 3.5 m vation at top of pipe (TOP) = 99.99	6 m										
		LING ME			Portable 0.032 r	e Drilling n (OD)	Notes: NC	RECO	/ERY ON	_	_	_		_	_		
	DRIL	L DATE:	2013	July 24		LOGGED BY: SP									She	et 1 of 1	

			2	>		CLIENT: Ottawa Carleton Distric						BC	DRE	HO	LE	LOG	
		C	I	_		PROJECT: Phase II Environmental Earl of March Secondar	y School				EHOLE N						
С		B NO:	M	M-1083	3	4 The Parkway, Kanata,	, Ontario	S			EVATIO						Ê
Ê	SAMPLE TYPE	₽	INT	щ							TEST D		VEL 1000	TION	WATER LEVEL		ELEVATION (m)
DEPTH (m)	IPLE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION		0	RGAN		/APOUF opmv)	R LE	VEL	L L	ER L	WELL COMPLETION	VATI
DEP	SAN	SAN	SPT	SOIL				1		10	10	00	1000	WEL	WAT	NOTES	ELE
	-																-
0	1					Ground Surface	e										ł
				\bigotimes	_\ASF _ FILL	PHALT										roadbox, jplug, cement	-100
					\brov	wn										bentonite seal	[
		SA1			_ SAN ∖brov	ND wn	Г				35						-
					_ silty	/ CLAY	/ /									32 mm solid PVC	ł
]				brov BEC	Nn DROCK	/									pipe	-99
	-																-
	-																-
2																	F
																	-98
	-			KK							· · · · · · · · · · · · · · · · · · ·					silica sand	-
	-															Silica Saliu	-
3													· · · · · · · · · · · · · · · · · · ·				F
																	-97
	-															32 mm 010 slot	-
	-															PVC pipe	-
4																	-
4	\mathbb{P}									T							-96
	-																-
	-													目		GW = 4.78 mbg (Water Level	-
5	-														-	measured on Aug 7, 2013)	F
5]															,,	-95
	-																-
	-													· E			-
6				KK													-
0															-		-94
	-																-
	-																-
7	1			$\langle \rangle \rangle$													-
					End	l of borehole at 7.1 m					· · · · · · · · · · · · · · · · · · ·			· · · ·			-93
					Wel	Il Completion Details:											
					Scre Elev	eened interval from 2.5 m to 7.1 m vation at top of pipe (TOP) = 99.96	below surface 3 m										
					Gro	undwater Information:											
					Dep	bith to groundwater from TOP = 4.7 asured on Aug 7, 2013)	1 m (Water Level										
													· · · · · · · · · · · · · · · · · · ·				
		LING ME EHOLE D			Portable 0.032 r	e Drilling m (OD)	Notes: NO RECOV	/ER ON	Y								
	DRIL	L DATE:	2013	July 24		LOGGED BY: SP									She	et 1 of 1	

	_	ñ		CLIENT: Ottawa Carleton District School Board PROJECT: Phase II Environmental Assessment			BORE		LE	LOG	_
M ³ IC	B NO:	. . .	<i>I</i> -1083	Earl of March Secondary School 4 The Parkway, Kanata, Ontario	BORE SURFACE EL		: MW1				
ΡE						EST DA	1		VEL		
SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION		pmv)		ELL	WATER LEVEL	WELL COMPLETION NOTES	
0 -	ۍ ا	-S	ŏ		1 10	100	0 1000	≥ŏ	3		+
-				Ground Surface							-
			$\times\!\!\times\!\!\times$	ASPHALT						roadbox, jplug, cement	_
V			°	FILL brown						bentonite seal	-
Å	SA1		0	SILT SAND and GRAVEL brown							
				SILT						32 mm solid PVC pipe	
X	SA2			grey, moist							
X	SA3										
-	SA4				15				Ţ	GW = 2.23 mbg (Water Level measured on Aug	
				BEDROCK						7, 2013) silica sand	
-								Ē		32 mm 010 slot	
										PVC pipe	
			>>>								
1											
]											
-											
				End of borehole at 6.2 m							-
				Well Completion Details: Screened interval from 3.2 m to 6.2 m below surface Elevation at top of pipe (TOP) = 99.955 m							
				Groundwater Information: Depth to groundwater from TOP = 2.17 m (Water Level							
				measured on Aug 7, 2013)							
	LING ME			ortable Drilling Notes: D NO I 032 m (OD) SPL	ECOVERY T SPOON						
	L DATE:			LOGGED BY: SP					She	et 1 of 1	

		Ľ	3	>	CLIENT: Ottawa Carleton Distri				BORE	HO	LE	LOG	
CM ³	JOE	C 3 NO:		<u>M-1083</u>	PROJECT: Phase II Environmenta Earl of March Seconda 3 4 The Parkway, Kanata	ary School			o: MW2 ₄: 99.85 m	20			
						,) TEST DA		NOI	EVEL		(m) N
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	١	ORGANIC	VAPOUF (ppmv)	ATA R LEVEL 1000 1000	APLET	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
DEF	SAN	SAN	SPT	SOI			1 10		0 1000	WEI COP	-MA	NOTES	ELE
					Ground Surfa	CP							-100
0-				$\times\!\!\times$	ASPHALT FILL							roadbox, jplug, cement bentonite seal	
					brown							32 mm solid PVC pipe	-
		SA1			silty CLAY wet at 1.83 meters bgs, grey		0						- -99
		0/11				-						silica sand	
		SA2										GW = 1.75 mbg	-
											Ţ	(Water Level measured on Aug 7, 2013)	- -98
2-		SA3						35				32 mm 010 slot PVC pipe	-
													-
	<u> </u>	SA4						34					-97
					End of borehole at 2.9 m Well Completion Details:								
					Screened interval from 0.8 m to 2.9 r Elevation at top of pipe (TOP) = 99.7	n below surface 52 m							
					Groundwater Information: Depth to groundwater from TOP = 1.	65 m (Water Lovel							
					measured on Aug 7, 2013)	os in (water Lever							
	RILL	ING ME	 ТНОГ	 D:	Portable Drilling	Notes: NO RECOV	/ERY						
В	ORE	HOLE D	IAME	TER:	0.032 m (OD) LOGGED BY: SP	_ SPLIT SPO	ON				04-	ot 1 of 1	
				20.9 20							Sne	et 1 of 1	

	C OB NO:	m	► И-1083	CLIENT: Ottawa Carleton District School Board PROJECT: Phase II Environmental Assessment Earl of March Secondary School 4 The Parkway, Kanata, Ontario				: MW	21	DLE	LOG	
DEPTH (m)		SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIE	ELD NIC	TEST DA VAPOUR (ppmv) 100		WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
-				Ground Surface							roadbox, jplug,	- - 100
				FILL brown							cement bentonite seal	-
1-	SA1			silty CLAY LPH and PHC odours encountered from 1.83 to 2.13 meters bgs, grey	A						32 mm solid PVC pipe	- -99 -
	SA2						201			V	GW = 1.93 mbg (Water Level	-
2-	SA3			BEDROCK							measured on Aug 7, 2013) silica sand	-98
3-										•		-97
-										•	32 mm 010 slot PVC pipe	-
4-								_				-96 - -
5-												- - -95
-												-
6-										•		-94 - -
-				End of borehole at 6.8 m								-
				Well Completion Details: Screened interval from 3.2 m to 6.8 m below surface Elevation at top of pipe (TOP) = 99.854 m								
				Groundwater Information: Depth to groundwater from TOP = 1.81 m (Water Level measured on Aug 7, 2013)								
				Portable Drilling Notes: O NO RECO								
	REHOLE			0.032 m (OD) SPLIT SP						She	et 1 of 1	

		Ľ	2	>	CLIENT: Ottawa Carleton					B	ORE	HO	LE	LOG	
CM	³ .IO	C B NO:		<u>M-1083</u>	PROJECT: Phase II Environ Earl of March Se 4 The Parkway, I	condary School	SUF		OREHOLI E ELEVAT		3H2	2			
									D TEST		L	"z	VEL		
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRI	PTION	OR	GANI	C VAPO	UR LE	VEL	BOREHOLE COMPLETION	WATER LEVEL	WELL	DEPTH (m)
DEPT	SAMF	SAMF	SPT (SOIL			1	1	(ppmv) 0	100	1000	BORE	WATE	WELL COMPLETION NOTES	DEPT
				\times	- ASPHALT FILL										-
	\bigcirc				brown										-
					silty CLAY grey										-
1-	Å	SA1			gicy										-1.0
	V	•													-
	Å	SA2							15						-
					End of borehole at 1.8 m										-
		LING ME EHOLE D		D: ETER:	Portable Drilling 0.032 m (OD)	Notes: NO REC	COVERY SPOON								
		L DATE:			LOGGED BY: SP								Shee	et 1 of 1	

		۲	n	>		CLIENT: Ottawa Carleton Distric PROJECT: Phase II Environmental	Assessment	R		BORE		LE	LOG	
CI		B NO:	_ MI	<u> М-1083</u>	3	Earl of March Secondar 4 The Parkway, Kanata				N: 99.93 m	۱			
DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE		SOIL DESCRIPTION			D TEST D C VAPOU (ppmv)	ATA R LEVEL 00 100	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0-				55 ×××		Ground Surfac	e/						roadbox, jplug, cement	
		SA1					/	-					bentonite seal 32 mm solid PVC pipe	- - -99
		SA2		0 0 0									silica sand 32 mm 010 slot PVC pipe	-
2.		SA3 SA4		0		/ CLAY /, wet			15				GW = 2.12 mbg (Water Level measured on Aug 7, 2013)	-98 - -
3.		SA5			CLA grey	AY /, wet								-97
					We Scre	l of borehole at 3.4 m Il Completion Details: eened interval from 0.9 m to 3.4 m vation at top of pipe (TOP) = 99.82	below surface 8 m							
					Dep	undwater Information: oth to groundwater from TOP = 2.0 asured on Aug 7, 2013)	2 m (Water Level							
	BOR	LING ME EHOLE D	DIAME	TER:	Portabl 0.032 r	e Drilling n (OD) LOGGED BY: SP	Notes: NO RECO SPLIT SPC				.1	She	et 1 of 1	

Appendix B

Analytical Results

Phase II Environmental Site Assessment

Earl of March Secondary School

No. 4 The Parkway, Kanata, ON

MM-1083



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Certificate of Analysis

CM3 Environmental Inc.

2120 Robertson Road, Suite 208 Ottawa, ON K2H 5Z1 Attn: Marc MacDonald

Phone: (613) 820-4343 Fax: (613) 820-7695

Client PO: Rep	oort Date: 10-Jul-2013
Project: MM-1083 C	Order Date: 4-Jul-2013
Custody: 11161	Order #: 1327176

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
1327176-01	MW1-SA5
1327176-02	MW2-SA6
1327176-03	MW3-SA5
1327176-04	MW4-SA2

Nack -Approved By:

Mark Foto, M.Sc. For Dale Robertson, BSc Laboratory Director

Any use of these results implies your agreement that our total liability in connection with this work, however arising shall be limited to the amount paid by you for this work, and that our employees or agents shall not under circumstances be liable to you in connection with this work



Client: CM3 Environmental Inc. Client PO:

Project Description: MM-1083

Report Date: 10-Jul-2013

Order #: 1327176

Order Date:4-Jul-2013

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	5-Jul-13	7-Jul-13
PHC F1	CWS Tier 1 - P&T GC-FID	5-Jul-13	7-Jul-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	5-Jul-13	8-Jul-13
Solids, %	Gravimetric, calculation	6-Jul-13	6-Jul-13

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SARNIA 123 Christina St. N. Sarnia, ON N7T 5T7

Page 2 of 7



Client: CM3 Environmental Inc.

Order #: 1327176

Report Date: 10-Jul-2013 Order Date:4-Jul-2013

Client PO:		Project Descriptio	n: MM-1083		
	Client ID: Sample Date: Sample ID:	MW1-SA5 04-Jul-13 1327176-01	MW2-SA6 04-Jul-13 1327176-02	MW3-SA5 04-Jul-13 1327176-03	MW4-SA2 04-Jul-13 1327176-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics				-	
% Solids	0.1 % by Wt.	87.2	80.6	89.0	88.8
Volatiles			•		
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	0.32	0.47	1.13	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	102%	102%	98.3%	104%
Hydrocarbons			•		
F1 PHCs (C6-C10)	7 ug/g dry	61	63	48	<7
F2 PHCs (C10-C16)	4 ug/g dry	235	454	680	<4
F3 PHCs (C16-C34)	8 ug/g dry	927	1300	1640	32
F4 PHCs (C34-C50)	6 ug/g dry	138	174	178	65

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Page 3 of 7



Client: **CM3 Environmental Inc.** Client PO:

Order #: 1327176

Report Date: 10-Jul-2013 Order Date:4-Jul-2013

Project Description: MM-1083

Method Quality Control: Bla	ank								
Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	3.56		ug/g		111	50-140			

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Client: CM3 Environmental Inc.

Report Date: 10-Jul-2013

Project Description: MM-1083

Order Date:4-Jul-2013

		Reporting		Source		%REC		RPD	
Analyte	Result	Limit	Units	Result	%REC	Limit	RPD	Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	43	8	ug/g dry	87			68.0	30	QR-01
F4 PHCs (C34-C50)	12	6	ug/g dry	39			107.0	30	QR-01
Physical Characteristics									
% Solids	90.9	0.1	% by Wt.	91.7			0.9	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	2.18		ug/g dry	ND	106	50-140			

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SARNIA 123 Christina St. N. Sarnia, ON N7T 5T7

Page 5 of 7



Client: **CM3 Environmental Inc.** Client PO:

Method Quality Control: Spike

Order #: 1327176

Report Date: 10-Jul-2013 Order Date:4-Jul-2013

Project Description: MM-1083

3		
	Order Date:4-Jui-20	113
	()rder 1)ate 4- 111-71	113

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	170	7	ug/g	ND	85.0	80-120			
F2 PHCs (C10-C16)	80	4	ug/g	ND	77.4	60-140			
F3 PHCs (C16-C34)	277	8	ug/g	87	88.6	60-140			
F4 PHCs (C34-C50)	135	6	ug/g	39	67.1	60-140			
Volatiles									
Benzene	3.29	0.02	ug/g	ND	82.2	60-130			
Ethylbenzene	3.72	0.05	ug/g	ND	93.0	60-130			
Toluene	3.57	0.05	ug/g	ND	89.3	60-130			
m,p-Xylenes	7.24	0.05	ug/g	ND	90.5	60-130			
o-Xylene	3.85	0.05	ug/g	ND	96.1	60-130			
Surrogate: Toluene-d8	2.85		ug/g		89.0	50-140			

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Page 6 of 7



Client: CM3 Environmental Inc.

Client PO:

Report Date: 10-Jul-2013 Order Date:4-Jul-2013

Qualifier Notes:

QC Qualifiers :

QR-01: Duplicate RPD is high, however, the sample result is less than 10x the MDL.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'. Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Certificate of Analysis

CM3 Environmental Inc.

2120 Robertson Road, Suite 208 Ottawa, ON K2H 5Z1 Attn: Marc MacDonald

Phone: (613) 820-4343 Fax: (613) 820-7695

Client PO:	Report Date: 23-Jul-2013
Project: MM-1083	Order Date: 5-Jul-2013
Custody: 8976	Revised Report Order #: 1327226

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1327226-01	MW5-SA4
1327226-02	MW6-13-SA4

Approved By:

Mark Frata

Mark Foto, M.Sc. For Dale Robertson, BSc Laboratory Director

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Client: **CM3 Environmental Inc.** Client PO:

Project Description: MM-1083

Order #: 1327226

Report Date: 23-Jul-2013 Order Date:5-Jul-2013

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date Analysis Date				
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	5-Jul-13 7-Jul-13				
PHC F1	CWS Tier 1 - P&T GC-FID	5-Jul-13 7-Jul-13				
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	5-Jul-13 9-Jul-13				
Solids, %	Gravimetric, calculation	6-Jul-13 6-Jul-13				

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Order #: 1327226

Report Date: 23-Jul-2013 Order Date:5-Jul-2013

Client: CM3 Environmental Inc. Client PO:

Client PO:		Project Descript	tion: MM-1083		
	Client ID: Sample Date:	MW5-SA4 05-Jul-13	MW6-13-SA4 05-Jul-13	-	-
г	Sample ID:	1327226-01 Soil	1327226-02	-	-
Physical Characteristics	MDL/Units	Soil	Soil	-	-
% Solids	0.1 % by Wt.	66.2	64.4	-	-
Volatiles				4	
Benzene	0.02 ug/g dry	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene-d8	Surrogate	101%	115%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	20	48	-	-
F2 PHCs (C10-C16)	4 ug/g dry	269	309	-	-
F3 PHCs (C16-C34)	8 ug/g dry	574	801	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	112	-	-

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Client: CM3 Environmental Inc. Client PO:

Method Quality Control: Blank

Order #: 1327226

Report Date: 23-Jul-2013 Order Date:5-Jul-2013

Notes

Project Description: MM-1083

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
Volatiles								
Benzene	ND	0.02	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
m,p-Xylenes	ND	0.05	ug/g					
o-Xylene	ND	0.05	ug/g					
Xylenes, total	ND	0.05	ug/g					
Surrogate: Toluene-d8	3.56		ug/g		111	50-140		

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Client: **CM3 Environmental Inc.** Client PO:

Order #: 1327226

Report Date: 23-Jul-2013 Order Date:5-Jul-2013

Notes

RPD

Limit

40

RPD

Project Description: MM-1083

Method Quality Control: D	uplicate					
Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit
Hydrocarbons						
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND		
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND		
F3 PHCs (C16-C34)	43	8	ug/g dry	87		
F4 PHCs (C34-C50)	12	6	ug/g dry	39		
Physical Characteristics						

F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30		
F3 PHCs (C16-C34)	43	8	ug/g dry	87			68.0	30	QR-01	
F4 PHCs (C34-C50)	12	6	ug/g dry	39			107.0	30	QR-01	
Physical Characteristics										
% Solids	90.9	0.1	% by Wt.	91.7			0.9	25		
Volatiles										
Benzene	ND	0.02	ug/g dry	ND				50		
Ethylbenzene	ND	0.05	ug/g dry	ND				50		
Toluene	ND	0.05	ug/g dry	ND				50		
m,p-Xylenes	ND	0.05	ug/g dry	ND				50		
o-Xylene	ND	0.05	ug/g dry	ND				50		
Surrogate: Toluene-d8	2.41		ug/g dry	ND	106	50-140				

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Page 5 of 7



Client: CM3 Environmental Inc. Client PO:

Project Description: MM-1083

Report Date: 23-Jul-2013 Order Date:5-Jul-2013

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	170	7	ug/g	ND	85.0	80-120			
F2 PHCs (C10-C16)	80	4	ug/g	ND	77.4	60-140			
F3 PHCs (C16-C34)	277	8	ug/g	87	88.6	60-140			
F4 PHCs (C34-C50)	135	6	ug/g	39	67.1	60-140			
Volatiles									
Benzene	3.29	0.02	ug/g	ND	82.2	60-130			
Ethylbenzene	3.72	0.05	ug/g	ND	93.0	60-130			
Toluene	3.57	0.05	ug/g	ND	89.3	60-130			
m,p-Xylenes	7.24	0.05	ug/g	ND	90.5	60-130			
o-Xylene	3.85	0.05	ug/g	ND	96.1	60-130			
Surrogate: Toluene-d8	2.85		ug/g		89.0	50-140			

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Page 6 of 7

Order #: 1327226



Client: **CM3 Environmental Inc.** Client PO:

Qualifier Notes:

QC Qualifiers :

QR-01 : Duplicate RPD is high, however, the sample result is less than 10x the MDL.

Sample Data Revisions

None

Work Order Revisions / Comments:

Revision 1 - This report includes an updated client Sample ID.

Other Report Notes:

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'. Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Certificate of Analysis

CM3 Environmental Inc.

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Phone: (613) 820-4343 Fax: (613) 820-7695

Client PO: Earl of March	Report Date: 15-Jul-2013
Project: MM-1083	Order Date: 9-Jul-2013
Custody: 96440	Order #: 1328147

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1328147-01	MW6 SA5
1328147-02	MW7 SA2
1328147-03	MW8 SA4
1328147-04	MW9 SA5

Approved By:

Mark Foto

Mark Foto, M.Sc. For Dale Robertson, BSc Laboratory Director

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Order #: 1328147

Report Date: 15-Jul-2013 Order Date:9-Jul-2013

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	10-Jul-13 13-Jul-13
PAHs by GC-MS	EPA 8270 - GC-MS, extraction	10-Jul-13 14-Jul-13
PHC F1	CWS Tier 1 - P&T GC-FID	10-Jul-13 13-Jul-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	10-Jul-13 11-Jul-13
Solids, %	Gravimetric, calculation	11-Jul-13 11-Jul-13

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SARNIA 123 Christina St. N. Sarnia, ON N7T 5T7

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Order #: 1328147

Report Date: 15-Jul-2013 Order Date:9-Jul-2013

Client: **CM3 Environmental Inc.**

lient: CM3 Environmental Ir		Project Descript	ion: MM-1083		
	Client ID: Sample Date: Sample ID:	MW6 SA5 09-Jul-13 1328147-01	MW7 SA2 09-Jul-13 1328147-02	MW8 SA4 09-Jul-13 1328147-03	MW9 SA5 09-Jul-13 1328147-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics	0.1 % by Wt.			00.5	
% Solids /olatiles	0.1 % by Wt.	66.1	68.7	68.5	63.2
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.02	<0.02	<0.02	<0.02
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
	0.05 ug/g dry				
m,p-Xylenes	0.05 ug/g dry	<0.05	< 0.05	< 0.05	< 0.05
o-Xylene		<0.05	< 0.05	< 0.05	<0.05
Xylenes, total Toluene-d8	0.05 ug/g dry Surrogate	<0.05 107%	<0.05 106%	<0.05 108%	<0.05 111%
Hydrocarbons	Carrogato	10770	10070	10070	11170
F1 PHCs (C6-C10)	7 ug/g dry	28	70	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	309	422	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	857	1140	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	< 0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Biphenyl	0.02 ug/g dry	0.08	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	0.19	0.34	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	0.06	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	0.06	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	0.58	<0.02	<0.02	<0.02

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Order #: 1328147

Report Date: 15-Jul-2013 Order Date:9-Jul-2013

Certificate of Analysis

Client: CM3 Environmental Inc.

				010	
Client PO: Earl of March		Project Descript	ion: MM-1083		
	Client ID: Sample Date: Sample ID:	09-Jul-13	MW7 SA2 09-Jul-13 1328147-02	MW8 SA4 09-Jul-13 1328147-03	MW9 SA5 09-Jul-13 1328147-04
	MDL/Units	Soil	Soil	Soil	Soil
Pyrene	0.02 ug/g dry	0.05	0.16	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	58.9%	79.4%	53.2%	67.1%
Terphenyl-d14	Surrogate	84.3%	90.2%	89.6%	92.5%

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Hydrocarbons F1 PHCs (C6-C10)

F2 PHCs (C10-C16)

F3 PHCs (C16-C34)

F4 PHCs (C34-C50)

Acenaphthene Acenaphthylene

Anthracene

Biphenyl

Chrysene

Semi-Volatiles

Benzo [a] anthracene

Benzo [b] fluoranthene

Benzo [g,h,i] perylene

Benzo [k] fluoranthene

Benzo [a] pyrene

Analyte

Certificate of Analysis

Client: CM3 Environmental Inc. Client PO: Earl of March

Method Quality Control: Blank

	Order #:	1328147
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RPD

%REC

Limit

Report Date: 15-Jul-2013 Order Date:9-Jul-2013

RPD

Limit

Notes

Project Description: MM-1083

Units

ug/g

Source

Result

%REC

Reporting

Limit

7

4

8

6

0.02

0.02

0.02

0.02

0.02

0.02

0.02

0.02

0.02

0.02

Result

ND

Onlysene	ND	0.02	ug/g			
Dibenzo [a,h] anthracene	ND	0.02	ug/g			
Fluoranthene	ND	0.02	ug/g			
Fluorene	ND	0.02	ug/g			
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g			
1-Methylnaphthalene	ND	0.02	ug/g			
2-Methylnaphthalene	ND	0.02	ug/g			
Methylnaphthalene (1&2)	ND	0.04	ug/g			
Naphthalene	ND	0.01	ug/g			
Phenanthrene	ND	0.02	ug/g			
Pyrene	ND	0.02	ug/g			
Surrogate: 2-Fluorobiphenyl	0.764		ug/g	57.3	50-140	
Surrogate: Terphenyl-d14	0.916		ug/g	68.7	50-140	
0 1 1						
Volatiles						
Benzene	ND	0.02	ug/g			
Ethylbenzene	ND	0.05	ug/g			
Toluene	ND	0.05	ug/g			
m,p-Xylenes	ND	0.05	ug/g			
o-Xylene	ND	0.05	ug/g			
Xylenes, total	ND	0.05	ug/g			
Surrogate: Toluene-d8	7.43		ug/g	92.8	50-140	

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Page 5 of 8



Client: **CM3 Environmental Inc.** Client PO: Earl of March

Method Quality Control: Duplicate

Analyte Res		eporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
	`	7	ua/a da					40	
F1 PHCs (C6-C10) NE F2 PHCs (C10-C16) NE		7	ug/g dry	ND ND				40 30	
F3 PHCs (C10-C16) NL F3 PHCs (C16-C34) 51		4	ug/g dry	ND			0.0	30 30	QR-01
F4 PHCs (C34-C50)		8 6	ug/g dry ug/g dry	ND			0.0	30 30	
Physical Characteristics		-							
% Solids 65.	9	0.1	% by Wt.	66.1			0.4	25	
Semi-Volatiles			-						
Acenaphthene NE)	0.02	ug/g dry	ND				40	
Acenaphthylene NE		0.02	ug/g dry	ND			0.0	40	
Anthracene NE		0.02	ug/g dry	ND			0.0	40	
Benzo [a] anthracene 0.04		0.02	ug/g dry	0.041			5.6	40	
Benzo [a] pyrene 0.04	13	0.02	ug/g dry	0.039			10.4	40	
Benzo [b] fluoranthene 0.06		0.02	ug/g dry	0.059			9.7	40	
Benzo [g,h,i] perylene 0.04	10	0.02	ug/g dry	0.034			17.6	40	
Benzo [k] fluoranthene 0.02		0.02	ug/g dry	0.027			2.5	40	
Biphenyl)	0.02	ug/g dry	ND			0.0	40	
Chrysene 0.05	52	0.02	ug/g dry	0.046			12.5	40	
Dibenzo [a,h] anthracene ND)	0.02	ug/g dry	ND				40	
Fluoranthene 0.07	74	0.02	ug/g dry	0.076			2.7	40	
Fluorene ND)	0.02	ug/g dry	ND			0.0	40	
Indeno [1,2,3-cd] pyrene 0.03	34	0.02	ug/g dry	0.029			16.7	40	
1-Methylnaphthalene ND)	0.02	ug/g dry	ND			0.0	40	
2-Methylnaphthalene ND)	0.02	ug/g dry	ND			0.0	40	
Naphthalene 0.01	13	0.01	ug/g dry	ND			0.0	40	
Phenanthrene 0.03	39	0.02	ug/g dry	0.043			8.4	40	
Pyrene 0.07	71	0.02	ug/g dry	0.070			1.6	40	
Surrogate: 2-Fluorobiphenyl 1.4	6		ug/g dry	ND	81.9	50-140			
Surrogate: Terphenyl-d14 1.1	9		ug/g dry	ND	66.9	50-140			
Volatiles									
Benzene ND)	0.02	ug/g dry	ND				50	
Ethylbenzene ND)	0.05	ug/g dry	ND				50	
Toluene ND)	0.05	ug/g dry	ND				50	
m,p-Xylenes ND)	0.05	ug/g dry	ND				50	
o-Xylene NE)	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8 7.6	9		ug/g dry	ND	109	50-140			

Project Description: MM-1083

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MISSISSAUGA 6645 Kitimat Rd. Unit #27 Mississauga, ON L5N 6J3 Niagara Falls, ON L2J 0A

123 Christina St. N. Sarnia, ON N7T 5T7 Order #: 1328147

Report Date: 15-Jul-2013 Order Date:9-Jul-2013



Client: **CM3 Environmental Inc.** Client PO: Earl of March

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	196	7	ug/g	ND	98.1	80-120			
F2 PHCs (C10-C16)	109	4	ug/g	ND	98.7	60-140			
F3 PHCs (C16-C34)	271	8	ug/g	ND	118	60-140			
F4 PHCs (C34-C50)	212	6	ug/g	ND	139	60-140			
Semi-Volatiles									
Acenaphthene	0.138	0.02	ug/g	ND	62.0	50-140			
Acenaphthylene	0.157	0.02	ug/g	ND	70.6	50-140			
Anthracene	0.190	0.02	ug/g	ND	85.0	50-140			
Benzo [a] anthracene	0.187	0.02	ug/g	0.041	65.6	50-140			
Benzo [a] pyrene	0.188	0.02	ug/g	0.039	66.6	50-140			
Benzo [b] fluoranthene	0.218	0.02	ug/g	0.059	71.1	50-140			
Benzo [g,h,i] perylene	0.189	0.02	ug/g	0.034	69.6	50-140			
Benzo [k] fluoranthene	0.202	0.02	ug/g	0.027	78.7	50-140			
Biphenyl	0.137	0.02	ug/g	ND	61.5	50-140			
Chrysene	0.188	0.02	ug/g	0.046	63.6	50-140			
Dibenzo [a,h] anthracene	0.168	0.02	ug/g	ND	75.5	50-140			
Fluoranthene	0.217	0.02	ug/g	0.076	63.2	50-140			
Fluorene	0.155	0.02	ug/g	ND	69.3	50-140			
Indeno [1,2,3-cd] pyrene	0.194	0.02	ug/g	0.029	74.0	50-140			
1-Methylnaphthalene	0.124	0.02	ug/g	ND	55.8	50-140			
2-Methylnaphthalene	0.138	0.02	ug/g	ND	61.7	50-140			
Naphthalene	0.116	0.01	ug/g	ND	52.2	50-140			
Phenanthrene	0.192	0.02	ug/g	0.043	66.8	50-140			
Pyrene	0.221	0.02	ug/g	0.070	67.9	50-140			
Surrogate: 2-Fluorobiphenyl	1.21		ug/g		67.5	50-140			
Volatiles									
Benzene	3.71	0.02	ug/g	ND	92.8	60-130			
Ethylbenzene	3.56	0.05	ug/g	ND	88.9	60-130			
Toluene	3.60	0.05	ug/g	ND	89.9	60-130			
m,p-Xylenes	7.61	0.05	ug/g	ND	95.1	60-130			
o-Xylene	3.89	0.05	ug/g	ND	97.2	60-130			

Project Description: MM-1083

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MISSISSAUGA 6645 Kitimat Rd. Unit #27 Mississauga, ON L5N 6J3 Order #: 1328147

Report Date: 15-Jul-2013 Order Date:9-Jul-2013

Page 7 of 8



Client: **CM3 Environmental Inc.** Client PO: Earl of March

Qualifier Notes:

QC Qualifiers :

QR-01 : Duplicate RPD is high, however, the sample result is less than 10x the MDL.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'. Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Certificate of Analysis

CM3 Environmental Inc.

2120 Robertson Road, Suite 208 Ottawa, ON K2H 5Z1 Attn: Marc MacDonald

Phone: (613) 820-4343 Fax: (613) 820-7695

Client PO: Earl of March	Report Date: 16-Jul-2013
Project: MM-1083	Order Date: 10-Jul-2013
Custody: 97840	Order #: 1328175

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID **Client ID MW10 SA1** 1328175-01 1328175-02 **MW11 SA3**

Approved By:

Mark Frata

Mark Foto, M.Sc. For Dale Robertson, BSc Laboratory Director

Any use of these results implies your agreement that our total liability in connection with this work, however arising shall be limited to the amount paid by you for this work, and that our employees or agents shall not under circumstances be liable to you in connection with this work



Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Order #: 1328175

Report Date: 16-Jul-2013 Order Date:10-Jul-2013

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	10-Jul-13 14-Jul-13
PHC F1	CWS Tier 1 - P&T GC-FID	10-Jul-13 14-Jul-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	11-Jul-13 12-Jul-13
Solids, %	Gravimetric, calculation	11-Jul-13 11-Jul-13

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Report Date: 16-Jul-2013 Order Date:10-Jul-2013

Client: CM3 Environmental Inc.				Orc	der Date:10-Jul-2013
Client PO: Earl of March		Project Descript	tion: MM-1083		
	Client ID: Sample Date:	MW10 SA1 10-Jul-13	MW11 SA3 10-Jul-13	-	-
Г	Sample ID: MDL/Units	1328175-01 Soil	1328175-02 Soil	-	-
Physical Characteristics					•
% Solids	0.1 % by Wt.	88.2	73.3	-	-
Volatiles	-				-
Benzene	0.02 ug/g dry	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene-d8	Surrogate	106%	108%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	-
	A starlar shares				

F1 PHCS (C6-C10)	r ug/g ury	</th <th><!--</th--><th>-</th><th>-</th></th>	</th <th>-</th> <th>-</th>	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	-	-

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Page 3 of 7



Client: **CM3 Environmental Inc.** Client PO: Earl of March

Order #: 1328175

Report Date: 16-Jul-2013 Order Date:10-Jul-2013

Project Description: MM-1083

Method	Quality	Control:	Blank
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Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	7.43		ug/g		92.8	50-140			

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Order #: 1328175

Report Date: 16-Jul-2013 Order Date:10-Jul-2013

Project Description: MM-1083

Method	Quality	Control:	Duplicate
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Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	65.9	0.1	% by Wt.	66.1			0.4	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	7.69		ug/g dry	ND	109	50-140			

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Toluene

o-Xylene

m,p-Xylenes

Surrogate: Toluene-d8

Certificate of Analysis

Client: CM3 Environmental Inc. Client PO: Earl of March

Order #: 1328175

RPD

Limit

Report Date: 16-Jul-2013 Order Date:10-Jul-2013

Notes

Project Description: MM-1083

ug/g

ug/g

ug/g

ug/g

ND

ND

ND

89.9

95.1

97.2

97.2

60-130

60-130

60-130

50-140

Method Quality Contro	I: Spike						
Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD
Hydrocarbons							
F1 PHCs (C6-C10)	196	7	ug/g	ND	98.1	80-120	
F2 PHCs (C10-C16)	69	4	ug/g	ND	64.2	60-140	
F3 PHCs (C16-C34)	185	8	ug/g	ND	83.2	60-140	
F4 PHCs (C34-C50)	159	6	ug/g	ND	107	60-140	
Volatiles							
Benzene	3.71	0.02	ug/g	ND	92.8	60-130	
Ethylbenzene	3.56	0.05	ug/g	ND	88.9	60-130	

0.05

0.05

0.05

3.60

7.61

3.89

7.78

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Order #: 1328175 Report Date: 16-Jul-2013

Order Date:10-Jul-2013

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'. Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Certificate of Analysis

CM3 Environmental Inc.

2120 Robertson Road, Suite 208 Ottawa, ON K2H 5Z1 Attn: Marc MacDonald

Phone: (613) 820-4343 Fax: (613) 820-7695

Client PO: Earl of March	Report Date: 22-Jul-2013
Project: MM-1083	Order Date: 16-Jul-2013
Custody: 11590	Order #: 1329174

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID **Client ID MW12 SA5** 1329174-01 1329174-02 **MW13 SA3**

Approved By:

Mark Frata

Mark Foto, M.Sc. For Dale Robertson, BSc Laboratory Director

Any use of these results implies your agreement that our total liability in connection with this work, however arising shall be limited to the amount paid by you for this work, and that our employees or agents shall not under circumstances be liable to you in connection with this work



Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Order #: 1329174

Report Date: 22-Jul-2013 Order Date:16-Jul-2013

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	17-Jul-13 20-Jul-13
PAHs by GC-MS	EPA 8270 - GC-MS, extraction	17-Jul-13 18-Jul-13
PHC F1	CWS Tier 1 - P&T GC-FID	17-Jul-13 20-Jul-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	18-Jul-13 19-Jul-13
Solids, %	Gravimetric, calculation	18-Jul-13 18-Jul-13

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Order #: 1329174

Client: CM3 Environmental Inc.

Report Date: 22-Jul-2013
Order Date:16-Jul-2013

Client PO: Earl of March		Project Description: MM-1083					
	Client ID: Sample Date: Sample ID:	MW12 SA5 16-Jul-13 1329174-01	MW13 SA3 16-Jul-13 1329174-02	- - -			
	MDL/Units	Soil	Soil	-	-		
Physical Characteristics			I I				
% Solids	0.1 % by Wt.	64.2	75.1	-	-		
Volatiles					[
Benzene	0.02 ug/g dry	<0.02	<0.02	-	-		
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	-		
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-		
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	-		
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	-		
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	-		
Toluene-d8	Surrogate	97.6%	97.5%	-	-		
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	-		
F2 PHCs (C10-C16)	4 ug/g dry	<4	617	-	-		
F3 PHCs (C16-C34)	8 ug/g dry	<8	1640	-	-		
F4 PHCs (C34-C50)	6 ug/g dry	<6	96	-	-		
Semi-Volatiles							
Acenaphthene	0.02 ug/g dry	-	0.09	-	-		
Acenaphthylene	0.02 ug/g dry	-	<0.02	-	-		
Anthracene	0.02 ug/g dry	-	<0.02	-	-		
Benzo [a] anthracene	0.02 ug/g dry	-	<0.02	-	-		
Benzo [a] pyrene	0.02 ug/g dry	-	<0.02	-	-		
Benzo [b] fluoranthene	0.02 ug/g dry	-	<0.02	-	-		
Benzo [g,h,i] perylene	0.02 ug/g dry	-	<0.02	-	-		
Benzo [k] fluoranthene	0.02 ug/g dry	-	<0.02	-	-		
Biphenyl	0.02 ug/g dry	-	<0.02	-	-		
Chrysene	0.02 ug/g dry	-	<0.02	-	-		
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	<0.02	-	-		
Fluoranthene	0.02 ug/g dry	-	<0.02	-	-		
Fluorene	0.02 ug/g dry	-	<0.02	-	-		
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	<0.02	-	-		
1-Methylnaphthalene	0.02 ug/g dry	-	<0.02	-	-		
2-Methylnaphthalene	0.02 ug/g dry	-	<0.02	-	-		
Methylnaphthalene (1&2)	0.04 ug/g dry	-	<0.04	-	-		
Naphthalene	0.01 ug/g dry	-	<0.01	-	-		
Phenanthrene	0.02 ug/g dry	-	<0.02	-	-		

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Report Date: 22-Jul-2013 Order Date:16-Jul-2013

Certificate of Analysis

Client: **CM3 Environmental Inc.** Client PO: Earl of March

				0140	Daterre dai Lorio
Client PO: Earl of March		Project Descript	ion: MM-1083		
	Client ID:	MW12 SA5	MW13 SA3	-	-
	Sample Date:	16-Jul-13	16-Jul-13	-	-
	Sample ID:	1329174-01	1329174-02	-	-
	MDL/Units	Soil	Soil	-	-
Pyrene	0.02 ug/g dry	-	0.14	-	-
2-Fluorobiphenyl	Surrogate	-	67.0%	-	-
Terphenyl-d14	Surrogate	-	80.0%	-	-

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Benzo [a] anthracene

Benzo [b] fluoranthene

Benzo [g,h,i] perylene

Benzo [k] fluoranthene

Dibenzo [a,h] anthracene

Benzo [a] pyrene

Biphenyl

Chrysene

Fluoranthene

Certificate of Analysis

Client: CM3 Environmental Inc. Client PO: Earl of March

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
Semi-Volatiles								
Acenaphthene	ND	0.02	ug/g					
Acenaphthylene	ND	0.02	ug/g					
Anthracene	ND	0.02	ug/g					

ug/g

ug/g

ug/g

ug/g

ug/g

ug/g

ug/g

ug/g

ug/g

Project Description: MM-1083

Fluorene	ND	0.02	ug/g		
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g		
1-Methylnaphthalene	ND	0.02	ug/g		
2-Methylnaphthalene	ND	0.02	ug/g		
Methylnaphthalene (1&2)	ND	0.04	ug/g		
Naphthalene	ND	0.01	ug/g		
Phenanthrene	ND	0.02	ug/g		
Pyrene	ND	0.02	ug/g		
Surrogate: 2-Fluorobiphenyl	1.28		ug/g	95.9	50-140
Surrogate: Terphenyl-d14	1.36		ug/g	102	50-140
Volatiles					
Benzene	ND	0.02	ug/g		
Ethylbenzene	ND	0.05	ug/g		
Toluene	ND	0.05	ug/g		
m,p-Xylenes	ND	0.05	ug/g		
o-Xylene	ND	0.05	ug/g		
Xylenes, total	ND	0.05	ug/g		
Surrogate: Toluene-d8	8.04		ug/g	100	50-140

ND

ND

ND

ND

ND

ND

ND

ND

ND

0.02

0.02

0.02

0.02

0.02

0.02

0.02

0.02

0.02

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Order #: 1329174

Report Date: 22-Jul-2013 Order Date:16-Jul-2013

Notes



Client: **CM3 Environmental Inc.** Client PO: Earl of March

Order #: 1329174

Report Date: 22-Jul-2013 Order Date:16-Jul-2013

Project Description: MM-1083

Method Quality Control: D	uplicate								
Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	87.9	0.1	% by Wt.	87.3			0.6	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	0.090			0.0	40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND				40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND				40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND				40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND				40	
Biphenyl	ND	0.02	ug/g dry	ND				40	
Chrysene	ND	0.02	ug/g dry	ND				40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	ND	0.02	ug/g dry	ND				40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND				40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	ND	0.02	ug/g dry	ND				40	
Pyrene	ND	0.02	ug/g dry	0.138			0.0	40	
Surrogate: 2-Fluorobiphenyl	1.36		ug/g dry	ND	76.3	50-140			
Surrogate: Terphenyl-d14	1.73		ug/g dry	ND	97.6	50-140			
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	4.67		ug/g dry	ND	95.7	50-140			

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Client: CM3 Environmental Inc. Client PO: Earl of March

Method Quality Control: Spike

Hydrocarbons F1 PHCs (C6-C10) 210 F2 PHCs (C10-C16) 117 F3 PHCs (C16-C34) 286 F4 PHCs (C34-C50) 183 Semi-Volatiles 0.240 Acenaphthene 0.195 Anthracene 0.183 Benzo [a] anthracene 0.233 Benzo [a] pyrene 0.158 Benzo [b] fluoranthene 0.233 Benzo [g,h,i] perylene 0.157 Benzo [k] fluoranthene 0.200 Chrysene 0.200 Dibenzo [a,h] anthracene 0.200 Fyrene 0.200 Dibenzo [a,h] anthracene 0.225	7 4	ug/g					
F1 PHCs (C6-C10) 210 F2 PHCs (C10-C16) 117 F3 PHCs (C16-C34) 286 F4 PHCs (C34-C50) 183 Semi-Volatiles 0.240 Acenaphthene 0.195 Anthracene 0.183 Benzo [a] anthracene 0.233 Benzo [a] pyrene 0.158 Benzo [b] fluoranthene 0.233 Benzo [g,h,i] perylene 0.157 Benzo [k] fluoranthene 0.206 Biphenyl 0.200 Chrysene 0.200 Dibenzo [a,h] anthracene 0.200		ua/a					
F3 PHCs (C16-C34) 286 F4 PHCs (C34-C50) 183 Semi-Volatiles 0.240 Acenaphthene 0.195 Anthracene 0.183 Benzo [a] anthracene 0.233 Benzo [a] pyrene 0.158 Benzo [b] fluoranthene 0.233 Benzo [c],h,i] perylene 0.157 Benzo [k] fluoranthene 0.206 Biphenyl 0.200 Chrysene 0.200 Dibenzo [a,h] anthracene 0.172	4	ug/g	ND	105	80-120		
F4 PHCs (C34-C50) 183 Semi-Volatiles 0.240 Acenaphthene 0.195 Anthracene 0.183 Benzo [a] anthracene 0.233 Benzo [a] pyrene 0.158 Benzo [b] fluoranthene 0.233 Benzo [c],h,i] perylene 0.157 Benzo [k] fluoranthene 0.206 Biphenyl 0.200 Chrysene 0.200 Dibenzo [a,h] anthracene 0.172	•	ug/g	ND	94.3	60-140		
Semi-VolatilesAcenaphthene0.240Acenaphthylene0.195Anthracene0.183Benzo [a] anthracene0.233Benzo [a] pyrene0.158Benzo [b] fluoranthene0.233Benzo [g,h,i] perylene0.157Benzo [k] fluoranthene0.206Biphenyl0.200Chrysene0.200Dibenzo [a,h] anthracene0.172	8	ug/g	ND	112	60-140		
Acenaphthene 0.240 Acenaphthylene 0.195 Anthracene 0.183 Benzo [a] anthracene 0.233 Benzo [a] pyrene 0.158 Benzo [b] fluoranthene 0.233 Benzo [g,h,i] perylene 0.157 Benzo [k] fluoranthene 0.206 Biphenyl 0.200 Chrysene 0.200 Dibenzo [a,h] anthracene 0.172	6	ug/g	ND	108	60-140		
Acenaphthylene0.195Anthracene0.183Benzo [a] anthracene0.233Benzo [a] pyrene0.158Benzo [b] fluoranthene0.233Benzo [g,h,i] perylene0.157Benzo [k] fluoranthene0.206Biphenyl0.200Chrysene0.200Dibenzo [a,h] anthracene0.172							
Anthracene0.183Benzo [a] anthracene0.233Benzo [a] pyrene0.158Benzo [b] fluoranthene0.233Benzo [g,h,i] perylene0.157Benzo [k] fluoranthene0.206Biphenyl0.200Chrysene0.200Dibenzo [a,h] anthracene0.172	0.02	ug/g	0.090	67.8	50-140		
Benzo [a] anthracene0.233Benzo [a] pyrene0.158Benzo [b] fluoranthene0.233Benzo [g,h,i] perylene0.157Benzo [k] fluoranthene0.206Biphenyl0.200Chrysene0.200Dibenzo [a,h] anthracene0.172	0.02	ug/g	ND	87.8	50-140		
Benzo [a] pyrene0.158Benzo [b] fluoranthene0.233Benzo [g,h,i] perylene0.157Benzo [k] fluoranthene0.206Biphenyl0.200Chrysene0.200Dibenzo [a,h] anthracene0.172	0.02	ug/g	ND	82.4	50-140		
Benzo [b] fluoranthene0.233Benzo [g,h,i] perylene0.157Benzo [k] fluoranthene0.206Biphenyl0.200Chrysene0.200Dibenzo [a,h] anthracene0.172	0.02	ug/g	ND	105	50-140		
Benzo [g,h,i] perylene0.157Benzo [k] fluoranthene0.206Biphenyl0.200Chrysene0.200Dibenzo [a,h] anthracene0.172	0.02	ug/g	ND	71.1	50-140		
Benzo [k] fluoranthene0.206Biphenyl0.200Chrysene0.200Dibenzo [a,h] anthracene0.172	0.02	ug/g	ND	105	50-140		
Biphenyl0.200Chrysene0.200Dibenzo [a,h] anthracene0.172	0.02	ug/g	ND	70.8	50-140		
Chrysene0.200Dibenzo [a,h] anthracene0.172	0.02	ug/g	ND	92.9	50-140		
Dibenzo [a,h] anthracene 0.172	0.02	ug/g	ND	90.2	50-140		
	0.02	ug/g	ND	90.1	50-140		
Fluoranthene 0.225	0.02	ug/g	ND	77.6	50-140		
0.220	0.02	ug/g	ND	101	50-140		
Fluorene 0.226	0.02	ug/g	ND	102	50-140		
Indeno [1,2,3-cd] pyrene 0.174	0.02	ug/g	ND	78.3	50-140		
1-Methylnaphthalene 0.182	0.02	ug/g	ND	81.8	50-140		
2-Methylnaphthalene 0.171	0.02	ug/g	ND	76.9	50-140		
Naphthalene 0.152	0.01	ug/g	ND	68.5	50-140		
Phenanthrene 0.168	0.02	ug/g	ND	75.5	50-140		
Pyrene 0.308	0.02	ug/g	0.138	76.6	50-140		
Surrogate: 2-Fluorobiphenyl 1.07		ug/g		60.1	50-140		
Volatiles							
Benzene 4.25	0.02	ug/g	ND	106	60-130		
Ethylbenzene 3.86	0.05	ug/g	ND	96.5	60-130		
Toluene 3.31	0.05	ug/g	ND	82.7	60-130		
m,p-Xylenes 7.75	0.05	ug/g	ND	96.9	60-130		
o-Xylene 4.15	0.05	ug/g	ND	104	60-130		

Project Description: MM-1083

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Order #: 1329174

Report Date: 22-Jul-2013 Order Date:16-Jul-2013

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Report Date: 22-Jul-2013

Order #: 1329174

Order Date:16-Jul-2013

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'. Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Certificate of Analysis

CM3 Environmental Inc.

2120 Robertson Road, Suite 208 Ottawa, ON K2H 5Z1 Attn: Marc MacDonald

Phone: (613) 820-4343 Fax: (613) 820-7695

Client PO: Earl of March	Report Date: 23-Jul-2013
Project: MM-1083	Order Date: 17-Jul-2013
Custody: 11626	Order #: 1329232

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1329232-01	MW14 SA4
1329232-02	MW15 SA4
1329232-03	MW16 SA4

Mark Fato Approved By:

Mark Foto, M.Sc. For Dale Robertson, BSc Laboratory Director

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Report Date: 23-Jul-2013 Order Date:17-Jul-2013

Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	18-Jul-13 23-Jul-13
PHC F1	CWS Tier 1 - P&T GC-FID	18-Jul-13 23-Jul-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	19-Jul-13 22-Jul-13
Solids, %	Gravimetric, calculation	19-Jul-13 19-Jul-13

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F4 PHCs (C34-C50)

Order #: 1329232

Report Date: 23-Jul-2013 rdor Date:17- Jul-2013

-

Client: CM3 Environmental Inc	_				er Date:17-Jul-2013
Client PO: Earl of March	-	Project Descript	ion: MM-1083		
	Client ID: Sample Date: Sample ID:	MW14 SA4 17-Jul-13 1329232-01	MW15 SA4 17-Jul-13 1329232-02	MW16 SA4 17-Jul-13 1329232-03	
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	66.5	71.4	67.7	-
Volatiles			-		-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene-d8	Surrogate	106%	115%	116%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	-

<6

<6

<6

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6 ug/g dry

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Order #: 1329232

Report Date: 23-Jul-2013 Order Date:17-Jul-2013

Project Description: MM-1083

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	3.21		ug/g		100	50-140			

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Order #: 1329232

Report Date: 23-Jul-2013 Order Date:17-Jul-2013

Project Description: MM-1083

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	25	8	ug/g dry	30			17.5	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	87.5	0.1	% by Wt.	87.3			0.2	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	3.63		ug/g dry	ND	95.2	50-140			

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Client: CM3 Environmental Inc. Client PO: Earl of March

Project Description: MM-1083

Order #: 1329232 Report Date: 23-Jul-2013

Order Date:17-Jul-2013

Method Quality Control: Spike									
Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	176	7	ug/g	ND	88.0	80-120			
F2 PHCs (C10-C16)	90	4	ug/g	ND	87.0	60-140			
F3 PHCs (C16-C34)	213	8	ug/g	30	85.7	60-140			
F4 PHCs (C34-C50)	120	6	ug/g	ND	84.4	60-140			
Volatiles									
Benzene	3.76	0.02	ug/g	ND	94.0	60-130			
Ethylbenzene	4.24	0.05	ug/g	ND	106	60-130			
Toluene	4.16	0.05	ug/g	ND	104	60-130			
m,p-Xylenes	7.94	0.05	ug/g	ND	99.3	60-130			
o-Xylene	4.43	0.05	ug/g	ND	111	60-130			
Surrogate: Toluene-d8	2.63		ug/g		82.1	50-140			

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Order #: 1329232 Report Date: 23-Jul-2013

Order Date:17-Jul-2013

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'. Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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CM3 Environmental Inc.

2120 Robertson Road, Suite 208 Ottawa, ON K2H 5Z1 Attn: Marc MacDonald

Phone: (613) 820-4343 Fax: (613) 820-7695

Client PO: Earl of March	Report Date: 1-Aug-2013
Project: MM-1083	Order Date: 26-Jul-2013
Custody: 11825	Order #: 1330333

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1330333-01	MW17 SA4
1330333-02	MW18 SA1
1330333-03	MW19 SA4
1330333-04	MW20 SA3
1330333-05	MW21 SA3
1330333-06	MW22 SA2
1330333-07	MW23 SA4

Approved By:

Mark Fato

Mark Foto, M.Sc. For Dale Robertson, BSc Laboratory Director

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Order #: 1330333

Report Date: 01-Aug-2013 Order Date:26-Jul-2013

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	29-Jul-13 31-Jul-13
PAHs by GC-MS	EPA 8270 - GC-MS, extraction	29-Jul-13 31-Jul-13
PHC F1	CWS Tier 1 - P&T GC-FID	29-Jul-13 31-Jul-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	30-Jul-13 31-Jul-13
Solids, %	Gravimetric, calculation	29-Jul-13 29-Jul-13

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Report Date: 01-Aug-2013 Order Date 26- Jul-2013

Client: CM3 Environmental Inc.					er Date:26-Jul-201		
Client PO: Earl of March	Project Description: MM-1083						
	Client ID: Sample Date:	MW17 SA4 24-Jul-13	MW18 SA1 24-Jul-13	MW19 SA4 24-Jul-13	MW20 SA3 25-Jul-13		
Г	Sample ID: MDL/Units	1330333-01 Soil	1330333-02 Soil	1330333-03 Soil	1330333-04 Soil		
Physical Characteristics					1		
% Solids	0.1 % by Wt.	73.8	76.3	66.8	67.6		
Volatiles					•		
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02		
Ethylbenzene	0.05 ug/g dry	<0.05	3.20	<0.05	<0.05		
Toluene	0.05 ug/g dry	<0.05	5.25	<0.05	<0.05		
m,p-Xylenes	0.05 ug/g dry	<0.05	13.7	<0.05	<0.05		
o-Xylene	0.05 ug/g dry	<0.05	4.42	<0.05	<0.05		
Xylenes, total	0.05 ug/g dry	<0.05	18.1	<0.05	<0.05		
Toluene-d8	Surrogate	98.9%	114%	99.9%	101%		
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g dry	<7	136	<7	<7		
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4		
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8		
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6		

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Order #: 1330333

Client: CM3 Environmental Inc.

Report Date: 01-Aug-2013 Order Date:26-Jul-2013

Client: CM3 Environmental Ir Client PO: Earl of March		Order Date:26-Ju Project Description: MM-1083					
	Client ID: Sample Date: Sample ID:	MW21 SA3 25-Jul-13 1330333-05	MW22 SA2 25-Jul-13 1330333-06	MW23 SA4 25-Jul-13 1330333-07			
	MDL/Units	Soil	Soil	Soil	-		
Physical Characteristics			I	1			
% Solids	0.1 % by Wt.	79.5	71.6	65.0	-		
Volatiles	0.00.00/m.dm						
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-		
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-		
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-		
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-		
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-		
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-		
Toluene-d8	Surrogate	113%	103%	115%	-		
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-		
F2 PHCs (C10-C16)	4 ug/g dry	536	<4	<4	-		
F3 PHCs (C16-C34)	8 ug/g dry	1330	<8	<8	-		
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	-		
Semi-Volatiles							
Acenaphthene	0.02 ug/g dry	0.08	-	-	-		
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-		
Anthracene	0.02 ug/g dry	0.08	-	-	-		
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	-		
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-		
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	-	-		
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	-		
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-		
Biphenyl	0.02 ug/g dry	<0.02	-	-	-		
Chrysene	0.02 ug/g dry	<0.02	-	-	-		
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-		
Fluoranthene	0.02 ug/g dry	<0.02	-	-	_		
Fluorene	0.02 ug/g dry	0.47	-	-	-		
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-		
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-		
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	_		
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-		
Naphthalene	0.01 ug/g dry	<0.01	-	_	-		

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Report Date: 01-Aug-2013 Order Date:26-Jul-2013

Certificate of Analysis Client: CM3 Environmental Inc.

Client PO: Earl of March

Client PO: Earl of March		Project Descript			
	Client ID:	MW21 SA3	MW22 SA2	MW23 SA4	-
	Sample Date:	25-Jul-13	25-Jul-13	25-Jul-13	-
	Sample ID:	1330333-05	1330333-06	1330333-07	-
	MDL/Units	Soil	Soil	Soil	-
Phenanthrene	0.02 ug/g dry	0.26	-	-	-
Pyrene	0.02 ug/g dry	0.13	-	-	-
2-Fluorobiphenyl	Surrogate	92.0%	-	-	-
Terphenyl-d14	Surrogate	68.3%	-	-	-

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Hydrocarbons F1 PHCs (C6-C10)

Analyte

Certificate of Analysis

Client: CM3 Environmental Inc. Client PO: Earl of March

Method Quality Contr

Project Description: MM-1083								
rol: Blank								
	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit
	ND ND	7 4	ug/g ug/g					

FT PHUS (U0-U10)	ND	1	ug/g			
F2 PHCs (C10-C16)	ND	4	ug/g			
F3 PHCs (C16-C34)	ND	8	ug/g			
F4 PHCs (C34-C50)	ND	6	ug/g			
Semi-Volatiles						
Acenaphthene	ND	0.02	ug/g			
Acenaphthylene	ND	0.02	ug/g			
Anthracene	ND	0.02	ug/g			
Benzo [a] anthracene	ND	0.02	ug/g			
Benzo a pyrene	ND	0.02	ug/g			
Benzo [b] fluoranthene	ND	0.02	ug/g			
Benzo [g,h,i] perylene	ND	0.02	ug/g			
Benzo [k] fluoranthene	ND	0.02	ug/g			
Biphenyl	ND	0.02	ug/g			
Chrysene	ND	0.02	ug/g			
Dibenzo [a,h] anthracene	ND	0.02	ug/g			
Fluoranthene	ND	0.02	ug/g			
Fluorene	ND	0.02	ug/g			
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g			
1-Methylnaphthalene	ND	0.02	ug/g			
2-Methylnaphthalene	ND	0.02	ug/g			
Methylnaphthalene (1&2)	ND	0.04	ug/g			
Naphthalene	ND	0.01	ug/g			
Phenanthrene	ND	0.02	ug/g			
Pyrene	ND	0.02	ug/g			
Surrogate: 2-Fluorobiphenyl	0.739		ug/g	55.4	50-140	
Surrogate: Terphenyl-d14	0.886		ug/g	66.4	50-140	
Volatiles						
Benzene	ND	0.02	ug/g			
Ethylbenzene	ND	0.05	ug/g			
Toluene	ND	0.05	ug/g			
m,p-Xylenes	ND	0.05	ug/g			
o-Xylene	ND	0.05	ug/g			
Xylenes, total	ND	0.05	ug/g			
Surrogate: Toluene-d8	9.07		ug/g	113	50-140	
-			00			

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Order #: 1330333

Report Date: 01-Aug-2013

Order Date:26-Jul-2013

Notes



Client: CM3 Environmental Inc. Client PO: Earl of March

Project Description: MM-1083

Report Date: 01-Aug-2013

Order #: 1330333

Order Date:26-Jul-2013

		Reporting		Source		%REC		RPD	
Analyte	Result	Limit	Units	Result	%REC	Limit	RPD	Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics			00,						
% Solids	85.0	0.1	% by Wt.	85.4			0.4	25	
Semi-Volatiles									
Acenaphthene	0.036	0.02	ug/g dry	ND			0.0	40	
Acenaphthylene	0.115	0.02	ug/g dry	0.074			43.2	40	QR-04
Anthracene	0.200	0.02	ug/g dry	0.104			63.3	40	QR-04
Benzo [a] anthracene	0.504	0.02	ug/g dry	0.207			83.4	40	QR-04
Benzo [a] pyrene	0.552	0.02	ug/g dry	0.204			92.2	40	QR-04
Benzo [b] fluoranthene	0.583	0.02	ug/g dry	0.240			83.5	40	QR-04
Benzo [g,h,i] perylene	0.336	0.02	ug/g dry	0.126			90.9	40	QR-04
Benzo [k] fluoranthene	0.217	0.02	ug/g dry	0.087			85.7	40	QR-04
Biphenyl	ND	0.02	ug/g dry	ND			0.0	40	
Chrysene	0.540	0.02	ug/g dry	0.204			90.3	40	QR-04
Dibenzo [a,h] anthracene	0.076	0.02	ug/g dry	0.028			92.3	40	QR-04
Fluoranthene	0.998	0.02	ug/g dry	0.346			96.9	40	QR-04
Fluorene	0.046	0.02	ug/g dry	0.027			54.4	40	QR-04
Indeno [1,2,3-cd] pyrene	0.271	0.02	ug/g dry	0.096			95.4	40	QR-04
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			0.0	40	
2-Methylnaphthalene	0.024	0.02	ug/g dry	ND			0.0	40	
Naphthalene	0.094	0.01	ug/g dry	0.015			145.0	40	QR-04
Phenanthrene	0.535	0.02	ug/g dry	0.224			81.9	40	QR-04
Pyrene	0.806	0.02	ug/g dry	0.311			88.8	40	QR-04
Surrogate: 2-Fluorobiphenyl	1.15		ug/g dry	ND	73.4	50-140			
Surrogate: Terphenyl-d14	1.15		ug/g dry	ND	73.8	50-140			
Volatiles									
Benzene	0.420	0.02	ug/g dry	ND			0.0	50	
Ethylbenzene	0.888	0.05	ug/g dry	ND			0.0	50	
Toluene	1.41	0.05	ug/g dry	ND			0.0	50	
m,p-Xylenes	3.12	0.05	ug/g dry	ND			0.0	50	
o-Xylene	1.39	0.05	ug/g dry	ND			0.0	50	
Surrogate: Toluene-d8	12.2		ug/g dry	ND	113	50-140			

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Client: CM3 Environmental Inc. Client PO: Earl of March

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	93	7	ug/g	ND	92.7	80-120			
F2 PHCs (C10-C16)	76	4	ug/g	ND	75.1	60-140			
F3 PHCs (C16-C34)	201	8	ug/g	ND	96.4	60-140			
F4 PHCs (C34-C50)	129	6	ug/g	ND	92.7	60-140			
Semi-Volatiles									
Acenaphthene	0.164	0.02	ug/g	ND	84.1	50-140			
Acenaphthylene	0.183	0.02	ug/g	0.074	55.9	50-140			
Anthracene	0.275	0.02	ug/g	0.104	87.5	50-140			
Benzo [a] anthracene	0.462	0.02	ug/g	0.207	131	50-140			
Benzo [a] pyrene	0.355	0.02	ug/g	0.204	77.8	50-140			
Benzo [b] fluoranthene	0.537	0.02	ug/g	0.240	153	50-140		Q	M-06
Benzo [g,h,i] perylene	0.258	0.02	ug/g	0.126	67.5	50-140			
Benzo [k] fluoranthene	0.351	0.02	ug/g	0.087	135	50-140			
Biphenyl	0.108	0.02	ug/g	ND	55.1	50-140			
Chrysene	0.492	0.02	ug/g	0.204	148	50-140		Q	M-06
Dibenzo [a,h] anthracene	0.169	0.02	ug/g	0.028	72.2	50-140			
Fluoranthene	0.475	0.02	ug/g	0.346	65.8	50-140			
Fluorene	0.196	0.02	ug/g	0.027	86.9	50-140			
Indeno [1,2,3-cd] pyrene	0.255	0.02	ug/g	0.096	81.5	50-140			
1-Methylnaphthalene	0.098	0.02	ug/g	ND	50.0	50-140			
2-Methylnaphthalene	0.142	0.02	ug/g	ND	72.9	50-140			
Naphthalene	0.123	0.01	ug/g	0.015	55.3	50-140			
Phenanthrene	0.390	0.02	ug/g	0.224	85.3	50-140			
Pyrene	0.485	0.02	ug/g	0.311	89.3	50-140			
Surrogate: 2-Fluorobiphenyl	0.936		ug/g		59.9	50-140			
Volatiles									
Benzene	0.739	0.02	ug/g	ND	79.1	60-130			
Ethylbenzene	1.96	0.05	ug/g	ND	88.4	60-130			
Toluene	10.5	0.05	ug/g	ND	96.9	60-130			
m,p-Xylenes	6.51	0.05	ug/g	ND	96.7	60-130			
o-Xylene	2.50	0.05	ug/g	ND	92.7	60-130			

Project Description: MM-1083

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MISSISSAUGA 6645 Kitimat Rd. Unit #27 Mississauga, ON L5N 6J3

Order #: 1330333

Report Date: 01-Aug-2013 Order Date:26-Jul-2013



Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Order #: 1330333

Report Date: 01-Aug-2013 Order Date:26-Jul-2013

Qualifier Notes:

QC Qualifiers :

QM-06 : Due to noted non-homogeneity of the QC sample matrix, the spike recoveries were out side the accepted range. Batch data accepted based on other QC.

QR-04 : Duplicate results exceeds RPD limits due to non-homogeneous matrix.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'. Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Certificate of Analysis

CM3 Environmental Inc.

2120 Robertson Road, Suite 208 Ottawa, ON K2H 5Z1 Attn: Marc MacDonald

Phone: (613) 820-4343 Fax: (613) 820-7695

Client PO: Earl of March	Report Date: 13-Aug-2013
Project: MM-1083	Order Date: 7-Aug-2013
Custody: 10651/10601	Order #: 1332131

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1332131-01	MW10
1332131-02	MW4
1332131-03	MW21
1332131-04	MW20
1332131-05	MW15
1332131-06	MW1
1332131-07	MW19
1332131-08	MW11
1332131-09	MW16
1332131-10	MW7
1332131-11	MW14
1332131-12	MW9
1332131-13	MW23
1332131-14	MW18
1332131-15	MW8

Dale Robertson, BSc Laboratory Director

Approved By:

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising shall be limited to the amount paid by you for this work, and that our employees or agents shall not under circumstances be liable to you in connection with this work



Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Certificate of Analysis

Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date A	nalysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	9-Aug-13	10-Aug-13
PAHs by GC-MS	EPA 625 - GC-MS, extraction	10-Aug-13	11-Aug-13
PHC F1	CWS Tier 1 - P&T GC-FID	9-Aug-13	10-Aug-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	12-Aug-13	12-Aug-13

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Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Client: CM3 Environmental Ir Client PO: Earl of March	1C.	Project Descript	ion: MM-1083	Orde	er Date:7-Aug-2
	Client ID: Sample Date: Sample ID: MDL/Units	MW10 07-Aug-13 1332131-01 Water	MW4 07-Aug-13 1332131-02 Water	MW21 07-Aug-13 1332131-03 Water	MW20 07-Aug-13 1332131-04 Water
Volatiles			•	•	
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene-d8	Surrogate	90.0%	87.1%	85.7%	86.8%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100
F3 PHCs (C16-C34)	100 ug/L	555	<100	<100	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100
F1 + F2 PHCs	125 ug/L	<125	<125	<125	<125
F3 + F4 PHCs	200 ug/L	555	<200	<200	<200
Semi-Volatiles					•
Acenaphthene	0.05 ug/L	-	-	0.16	-
Acenaphthylene	0.05 ug/L	-	-	<0.05	-
Anthracene	0.01 ug/L	-	-	<0.01	-
Benzo [a] anthracene	0.01 ug/L	-	-	<0.01	-
Benzo [a] pyrene	0.01 ug/L	-	-	<0.01	-
Benzo [b] fluoranthene	0.05 ug/L	-	-	<0.05	-
Benzo [g,h,i] perylene	0.05 ug/L	-	-	<0.05	-
Benzo [k] fluoranthene	0.05 ug/L	-	-	<0.05	-
Biphenyl	0.05 ug/L	-	-	<0.05	-
Chrysene	0.05 ug/L	-	-	<0.05	-
Dibenzo [a,h] anthracene	0.05 ug/L	-	-	<0.05	-
Fluoranthene	0.01 ug/L	-	-	<0.01	-
Fluorene	0.05 ug/L	-	-	0.09	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	-	<0.05	-
1-Methylnaphthalene	0.05 ug/L	-	-	<0.05	-
2-Methylnaphthalene	0.05 ug/L	-	-	<0.05	-
Methylnaphthalene (1&2)	0.10 ug/L	-	-	<0.10	-
Naphthalene	0.05 ug/L	-	-	<0.05	-
Phenanthrene	0.05 ug/L	_	_	< 0.05	_

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Report Date: 13-Aug-2013 Order Date:7-Aug-2013

> MW20 07-Aug-13 1332131-04 Water

> > --

> > -

Certificate of Analysis

Client: CM3 Environmental Inc	C.			Örde	ər Da
Client PO: Earl of March		Project Descripti	on: MM-1083		
	Client ID:	MW10	MW4	MW21	Ι
	Sample Date:		07-Aug-13	07-Aug-13	
	Sample ID:	1332131-01	1332131-02	1332131-03	
	MDL/Units	Water	Water	Water	
Pyrene	0.01 ug/L	-	-	<0.01	
2-Fluorobiphenyl	Surrogate	-	-	113%	
Terphenyl-d14	Surrogate	-	-	65.7%	

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Client: CM3 Environmental Inc.

Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Client: CM3 Environmental In		Project Description: MM-1083					
	Client ID: Sample Date: Sample ID: MDL/Units	MW15 07-Aug-13 1332131-05 Water	MW1 07-Aug-13 1332131-06 Water	MW19 07-Aug-13 1332131-07 Water	MW11 07-Aug-13 1332131-08 Water		
/olatiles			-	-	-		
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5		
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5		
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5		
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5		
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5		
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5		
Toluene-d8	Surrogate	83.8%	82.9%	82.4%	82.1%		
lydrocarbons							
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25		
F2 PHCs (C10-C16)	100 ug/L	<100	201	<100	<100		
F3 PHCs (C16-C34)	100 ug/L	<100	980	<100	<100		
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100		
F1 + F2 PHCs	125 ug/L	<125	201	<125	<125		
F3 + F4 PHCs	200 ug/L	<200	980	<200	<200		
Semi-Volatiles			1	r	1		
Acenaphthene	0.05 ug/L	-	-	<0.05	<0.05		
Acenaphthylene	0.05 ug/L	-	-	<0.05	<0.05		
Anthracene	0.01 ug/L	-	-	<0.01	<0.01		
Benzo [a] anthracene	0.01 ug/L	-	-	<0.01	<0.01		
Benzo [a] pyrene	0.01 ug/L	-	-	<0.01	<0.01		
Benzo [b] fluoranthene	0.05 ug/L	-	-	<0.05	<0.05		
Benzo [g,h,i] perylene	0.05 ug/L	-	-	<0.05	<0.05		
Benzo [k] fluoranthene	0.05 ug/L	-	-	<0.05	<0.05		
Biphenyl	0.05 ug/L	-	-	<0.05	<0.05		
Chrysene	0.05 ug/L	-	-	<0.05	<0.05		
Dibenzo [a,h] anthracene	0.05 ug/L	-	-	<0.05	<0.05		
Fluoranthene	0.01 ug/L	-	-	<0.01	<0.01		
Fluorene	0.05 ug/L	-	-	<0.05	0.23		
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	-	<0.05	<0.05		
1-Methylnaphthalene	0.05 ug/L	-	-	<0.05	<0.05		
2-Methylnaphthalene	0.05 ug/L	-	-	<0.05	<0.05		
Methylnaphthalene (1&2)	0.10 ug/L	-	-	<0.10	<0.10		
Naphthalene	0.05 ug/L	-	-	0.15	<0.05		

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Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Certificate of Analysis

Client: CM3 Environmental Inc.

Client PO: Earl of March Project Description: MM-1083 MW1 **MW19** MW11 **Client ID:** MW15 Sample Date: 07-Aug-13 07-Aug-13 07-Aug-13 07-Aug-13 1332131-05 1332131-06 1332131-07 1332131-08 Sample ID: Water Water Water Water **MDL/Units** 0.05 ug/L Phenanthrene --0.09 < 0.05 0.01 ug/L --Pyrene < 0.01 <0.01 2-Fluorobiphenyl Surrogate 119% --120% Surrogate 68.3% Terphenyl-d14 -88.3% -

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Client: CM3 Environmental Inc.

Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Client: CM3 Environmental Ir	ion: MM-1083	Order Date:7-Aug-201 83			
	Client ID: Sample Date: Sample ID: MDL/Units	MW16 07-Aug-13 1332131-09 Water	MW7 07-Aug-13 1332131-10 Water	MW14 07-Aug-13 1332131-11 Water	MW9 07-Aug-13 1332131-12 Water
/olatiles					
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene-d8	Surrogate	82.9%	81.5%	84.2%	82.0%
Hydrocarbons	· ·		-	-	-
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25
F2 PHCs (C10-C16)	100 ug/L	<100	414	<100	<100
F3 PHCs (C16-C34)	100 ug/L	<100	1140	<100	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100
F1 + F2 PHCs	125 ug/L	<125	414	<125	<125
F3 + F4 PHCs	200 ug/L	<200	1140	<200	<200
Semi-Volatiles					
Acenaphthene	0.05 ug/L	-	<0.05	-	-
Acenaphthylene	0.05 ug/L	-	<0.05	-	-
Anthracene	0.01 ug/L	-	<0.01	-	-
Benzo [a] anthracene	0.01 ug/L	-	<0.01	-	-
Benzo [a] pyrene	0.01 ug/L	-	<0.01	-	-
Benzo [b] fluoranthene	0.05 ug/L	-	<0.05	-	-
Benzo [g,h,i] perylene	0.05 ug/L	-	<0.05	-	-
Benzo [k] fluoranthene	0.05 ug/L	-	<0.05	-	-
Biphenyl	0.05 ug/L	-	<0.05	-	-
Chrysene	0.05 ug/L	-	<0.05	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	-	<0.05	-	-
Fluoranthene	0.01 ug/L	-	<0.01	-	-
Fluorene	0.05 ug/L	-	0.15	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	<0.05	-	-
1-Methylnaphthalene	0.05 ug/L	-	<0.05	-	-
2-Methylnaphthalene	0.05 ug/L	-	<0.05	-	-
Methylnaphthalene (1&2)	0.10 ug/L	-	<0.10	-	-
Naphthalene	0.05 ug/L	-	<0.05	-	-

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Client: CM3 Environmental Inc.

Order #: 1332131

Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Client PO: Earl of March	Project Description: MM-1083							
	Client ID: Sample Date: Sample ID:	07-Aug-13	MW7 07-Aug-13 1332131-10	MW14 07-Aug-13 1332131-11	MW9 07-Aug-13 1332131-12			
	MDL/Units	Water	Water	Water	Water			
Phenanthrene	0.05 ug/L	-	<0.05	-	-			
Pyrene	0.01 ug/L	-	0.17	-	-			
2-Fluorobiphenyl	Surrogate	-	122%	-	-			
Terphenyl-d14	Surrogate	-	70.3%	-	-			

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Client: CM3 Environmental Inc.

Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Client: CM3 Environmental Ir Client PO: Earl of March	1C.	Order Date:7-Aug-2 Project Description: MM-1083				
	Client ID: Sample Date: Sample ID:	MW23 07-Aug-13 1332131-13	MW18 07-Aug-13 1332131-14	MW8 07-Aug-13 1332131-15		
	MDL/Units	Water	Water	Water	-	
Volatiles						
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-	
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-	
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-	
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	-	
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-	
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-	
Toluene-d8	Surrogate	81.3%	83.5%	82.8%	-	
Hydrocarbons						
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-	
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	-	
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	-	
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-	
F1 + F2 PHCs	125 ug/L	<125	<125	<125	-	
F3 + F4 PHCs	200 ug/L	<200	<200	<200	-	
Semi-Volatiles			1	1		
Acenaphthene	0.05 ug/L	-	<0.05	-	-	
Acenaphthylene	0.05 ug/L	-	<0.05	-	-	
Anthracene	0.01 ug/L	-	<0.01	-	-	
Benzo [a] anthracene	0.01 ug/L	-	<0.01	-	-	
Benzo [a] pyrene	0.01 ug/L	-	<0.01	-	-	
Benzo [b] fluoranthene	0.05 ug/L	-	<0.05	-	-	
Benzo [g,h,i] perylene	0.05 ug/L	-	<0.05	-	-	
Benzo [k] fluoranthene	0.05 ug/L	-	<0.05	-	-	
Biphenyl	0.05 ug/L	-	<0.05	-	-	
Chrysene	0.05 ug/L	-	<0.05	-	-	
Dibenzo [a,h] anthracene	0.05 ug/L	-	<0.05	-	-	
Fluoranthene	0.01 ug/L	-	<0.01	-	-	
Fluorene	0.05 ug/L	-	<0.05	-	-	
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	<0.05	-	-	
1-Methylnaphthalene	0.05 ug/L	-	<0.05	-	-	
2-Methylnaphthalene	0.05 ug/L	-	<0.05	-	-	
Methylnaphthalene (1&2)	0.10 ug/L	-	<0.10	-	-	
Naphthalene	0.05 ug/L	-	<0.05	-	-	

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Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Certificate of Analysis

Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

	Client ID:	MW23	MW18	MW8	-	
	Sample Date:	07-Aug-13	07-Aug-13	07-Aug-13	-	
	Sample ID:	1332131-13	1332131-14	1332131-15	-	
	MDL/Units	Water	Water	Water	-	
Phenanthrene	0.05 ug/L	-	<0.05	-	-	
Pyrene	0.01 ug/L	-	<0.01	-	-	
2-Fluorobiphenyl	Surrogate	-	113%	-	-	
Terphenyl-d14	Surrogate	-	76.7%	-	-	

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Analyte

Certificate of Analysis

Client: CM3 Environmental Inc. Client PO: Earl of March

Method Quality Control: Blank

Project Description: MM-1083

Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Notes

Order #: 1332131

Units

Reporting

Limit

Result

Source Result	%REC	%REC Limit	RPD	RPD Limit

					-	-	
Hydrocarbons							
F1 PHCs (C6-C10)	ND	25	ug/L				
F2 PHCs (C10-C16)	ND	100	ug/L				
F3 PHCs (C16-C34)	ND	100	ug/L				
F4 PHCs (C34-C50)	ND	100	ug/L				
Semi-Volatiles							
Acenaphthene	ND	0.05	ug/L				
Acenaphthylene	ND	0.05	ug/L				
Anthracene	ND	0.01	ug/L				
Benzo [a] anthracene	ND	0.01	ug/L				
Benzo [a] pyrene	ND	0.01	ug/L				
Benzo [b] fluoranthene	ND	0.05	ug/L				
Benzo [g,h,i] perylene	ND	0.05	ug/L				
Benzo [k] fluoranthene	ND	0.05	ug/L				
Biphenyl	ND	0.05	ug/L				
Chrysene	ND	0.05	ug/L				
Dibenzo [a,h] anthracene	ND	0.05	ug/L				
Fluoranthene	ND	0.01	ug/L				
Fluorene	ND	0.05	ug/L				
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L				
1-Methylnaphthalene	ND	0.05	ug/L				
2-Methylnaphthalene	ND	0.05	ug/L				
Methylnaphthalene (1&2)	ND	0.10	ug/L				
Naphthalene	ND	0.05	ug/L				
Phenanthrene	ND	0.05	ug/L				
Pyrene	ND	0.01	ug/L				
Surrogate: 2-Fluorobiphenyl	18.8		ug/L	93.8	50-140		
Surrogate: Terphenyl-d14	23.4		ug/L	117	50-140		
Volatiles							
Benzene	ND	0.5	ug/L				
Ethylbenzene	ND	0.5	ug/L				
Toluene	ND	0.5	ug/L				
m,p-Xylenes	ND	0.5	ug/L				
o-Xylene	ND	0.5	ug/L				
Xylenes, total	ND	0.5	ug/L				
Surrogate: Toluene-d8	36.2		ug/L	113	50-140		

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MISSISSAUGA 6645 Kitimat Rd. Unit #27 Mississauga, ON L5N 6J3

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND				30	
Volatiles									
Benzene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND				30	
Surrogate: Toluene-d8	29.5		ug/L	ND	92.2	50-140			

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OTTAWA 300–2319 St. Laurent Blvd. Ottawa, ON K1G 4J8 NIAGARA FALLS 5415 Morning Glory Crt. Niagara Falls, ON L2J 0A3 SARNIA 123 Christina St. N. Sarnia, ON N7T 5T7

MISSISSAUGA 6645 Kitimat Rd. Unit #27 Mississauga, ON L5N 6J3

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Client: CM3 Environmental Inc. Client PO: Earl of March

Method Quality Control: Spike

Hydrocarbons F1 PHCs (C6-C10) 2030 25 ug/L ND 101 68-117 F2 PHCs (C10-C16) 2200 100 ug/L ND 122 60-140 F3 PHCs (C16-C34) 4730 100 ug/L ND 127 60-140 F4 PHCs (C34-C50) 2770 100 ug/L ND 112 60-140 Acenaphthene 4.46 0.05 ug/L ND 89.1 50-140 Acenaphthene 4.46 0.05 ug/L ND 94.1 50-140 Acenaphthene 4.77 0.01 ug/L ND 95.3 50-140 Benzo [a] anthracene 4.77 0.01 ug/L ND 93.7 50-140 Benzo [b] fluoranthene 5.19 0.05 ug/L ND 91.8 50-140 Benzo [k] fluoranthene 5.48 0.05 ug/L ND 91.8 50-140 Benzo [k] fluoranthene 4.65 0.05 ug/L ND	Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
F2 PHCs (C10-C16) 2200 100 ug/L ND 122 60-140 F3 PHCs (C16-C34) 4730 100 ug/L ND 112 60-140 F4 PHCs (C34-C50) 2770 100 ug/L ND 112 60-140 Semi-Volatiles	Hydrocarbons									
F3 PHCs (C16-C34) 4730 100 ug/L ND 127 60-140 F4 PHCs (C34-C50) 2770 100 ug/L ND 112 60-140 Semi-Volatiles	F1 PHCs (C6-C10)	2030	25	ug/L	ND	101	68-117			
F4 PHCs (C34-C50) 2770 100 ug/L ND 112 60-140 Semi-Volatiles	F2 PHCs (C10-C16)	2200	100	ug/L	ND	122	60-140			
Semi-Volatiles Acenaphthene 4.46 0.05 ug/L ND 89.1 50-140 Acenaphthylene 4.62 0.05 ug/L ND 92.4 50-140 Anthracene 4.70 0.01 ug/L ND 94.1 50-140 Benzo [a] anthracene 4.77 0.01 ug/L ND 95.3 50-140 Benzo [a] pyrene 4.68 0.01 ug/L ND 93.7 50-140 Benzo [a,h] perylene 4.59 0.05 ug/L ND 91.3 50-140 Benzo [g,h,i] perylene 4.59 0.05 ug/L ND 91.4 50-140 Benzo [g,h,i] perylene 5.48 0.05 ug/L ND 110 50-140 Biphenyl 6.17 0.05 ug/L ND 93.0 50-140 Dibenzo [a,h] anthracene 4.66 0.05 ug/L ND 93.0 50-140 Fluorente 5.01 0.05 ug/L ND 93.1 50-140 Inden [1,2,3-cd] pyrene 4.61 0.05 ug/L </td <td>F3 PHCs (C16-C34)</td> <td>4730</td> <td>100</td> <td>ug/L</td> <td>ND</td> <td>127</td> <td>60-140</td> <td></td> <td></td> <td></td>	F3 PHCs (C16-C34)	4730	100	ug/L	ND	127	60-140			
Acenaphthene 4.46 0.05 ug/L ND 89.1 50-140 Acenaphthylene 4.62 0.05 ug/L ND 92.4 50-140 Anthracene 4.70 0.01 ug/L ND 94.1 50-140 Benzo [a] anthracene 4.77 0.01 ug/L ND 93.7 50-140 Benzo [a] pyrene 4.68 0.01 ug/L ND 93.7 50-140 Benzo [g], hi] perylene 5.19 0.05 ug/L ND 104 50-140 Benzo [g], hi] perylene 5.48 0.05 ug/L ND 110 50-140 Benzo [k] fluoranthene 5.48 0.05 ug/L ND 110 50-140 Biphenyl 6.17 0.05 ug/L ND 123 50-140 Chrysene 4.65 0.05 ug/L ND 93.0 50-140 Dibenzo [a,h] anthracene 4.61 0.01 ug/L ND 93.1 50-140 Fluorene 5.01 0.05 ug/L ND 95.8 50-140	F4 PHCs (C34-C50)	2770	100	ug/L	ND	112	60-140			
Acenaphthylene 4.62 0.05 ug/L ND 92.4 50-140 Anthracene 4.70 0.01 ug/L ND 94.1 50-140 Benzo [a] anthracene 4.77 0.01 ug/L ND 93.7 50-140 Benzo [a] pyrene 4.68 0.01 ug/L ND 93.7 50-140 Benzo [g,h,i] perylene 5.19 0.05 ug/L ND 91.8 50-140 Benzo [g,h,i] perylene 4.59 0.05 ug/L ND 91.8 50-140 Benzo [g,h,i] perylene 4.68 0.05 ug/L ND 110 50-140 Benzo [g,h] anthracene 6.46 0.05 ug/L ND 93.1 50-140 Dibenzo [a,h] anthracene 4.66 0.05 ug/L ND 93.1 50-140 Fluoranthene 4.61 0.01 ug/L ND 93.1 50-140 Indeno [1,2,3-cd] pyrene 4.61 0.05 ug/L ND 95.8 50-140 1-Methylnaphthalene 4.11 0.05 ug/L ND	Semi-Volatiles									
Anthracene 4.70 0.01 ug/L ND 94.1 50-140 Benzo [a] anthracene 4.77 0.01 ug/L ND 95.3 50-140 Benzo [a] pyrene 4.68 0.01 ug/L ND 93.7 50-140 Benzo [b] fluoranthene 5.19 0.05 ug/L ND 104 50-140 Benzo [k] fluoranthene 5.48 0.05 ug/L ND 91.8 50-140 Benzo [k] fluoranthene 5.48 0.05 ug/L ND 91.8 50-140 Biphenyl 6.17 0.05 ug/L ND 93.0 50-140 Chrysene 4.65 0.05 ug/L ND 93.0 50-140 Dibenzo [a,h] anthracene 4.66 0.05 ug/L ND 93.1 50-140 Fluoranthene 4.61 0.01 ug/L ND 95.8 50-140 Indeno [1,2,3-cd] pyrene 4.61 0.05 ug/L ND 95.5 50-140 Indeno [1,2,3-cd] pyrene 4.79 0.05 ug/L ND 95.5<	Acenaphthene	4.46	0.05	ug/L	ND	89.1	50-140			
Benzo [a] anthracene 4.77 0.01 ug/L ND 95.3 50-140 Benzo [a] pyrene 4.68 0.01 ug/L ND 93.7 50-140 Benzo [b] fluoranthene 5.19 0.05 ug/L ND 104 50-140 Benzo [g,h,i] perylene 4.59 0.05 ug/L ND 91.8 50-140 Benzo [g,hi] thoranthene 5.48 0.05 ug/L ND 110 50-140 Biphenyl 6.17 0.05 ug/L ND 93.0 50-140 Chrysene 4.65 0.05 ug/L ND 93.0 50-140 Pluoranthene 4.66 0.05 ug/L ND 93.1 50-140 Fluoranthene 4.61 0.01 ug/L ND 92.3 50-140 Fluoranthene 4.61 0.05 ug/L ND 95.8 50-140 Indeno [1,2,3-cd] pyrene 4.79 0.05 ug/L ND 82.3 50-140 <tr< td=""><td>Acenaphthylene</td><td>4.62</td><td>0.05</td><td>ug/L</td><td>ND</td><td>92.4</td><td>50-140</td><td></td><td></td><td></td></tr<>	Acenaphthylene	4.62	0.05	ug/L	ND	92.4	50-140			
Benzo [a] pyrene 4.68 0.01 ug/L ND 93.7 50-140 Benzo [b] fluoranthene 5.19 0.05 ug/L ND 104 50-140 Benzo [g, h,i] perylene 4.59 0.05 ug/L ND 91.8 50-140 Benzo [k] fluoranthene 5.48 0.05 ug/L ND 110 50-140 Biphenyl 6.17 0.05 ug/L ND 123 50-140 Chrysene 4.66 0.05 ug/L ND 93.0 50-140 Dibenzo [a,h] anthracene 4.66 0.05 ug/L ND 93.0 50-140 Fluoranthene 4.61 0.01 ug/L ND 93.1 50-140 Fluorene 5.01 0.05 ug/L ND 90.5 50-140 Indeno [1,2,3-cd] pyrene 4.79 0.05 ug/L ND 95.8 50-140 2-Methylnaphthalene 4.11 0.05 ug/L ND 90.2 50-140 Naphthalene 4.51 0.05 ug/L ND 93.1 50	Anthracene	4.70	0.01	ug/L	ND	94.1	50-140			
Benzo [b] fluoranthene 5.19 0.05 ug/L ND 104 50-140 Benzo [g,h,i] perylene 4.59 0.05 ug/L ND 91.8 50-140 Benzo [k] fluoranthene 5.48 0.05 ug/L ND 110 50-140 Biphenyl 6.17 0.05 ug/L ND 123 50-140 Chrysene 4.65 0.05 ug/L ND 93.0 50-140 Dibenzo [a,h] anthracene 4.66 0.05 ug/L ND 93.1 50-140 Fluoranthene 4.66 0.05 ug/L ND 92.3 50-140 Fluorene 5.01 0.05 ug/L ND 90.5 50-140 Indeno [1,2,3-cd] pyrene 4.79 0.05 ug/L ND 95.8 50-140 2-Methylnaphthalene 4.11 0.05 ug/L ND 92.3 50-140 Pyrene 4.65 0.01 ug/L ND 93.1 50-140	Benzo [a] anthracene	4.77	0.01	ug/L	ND	95.3	50-140			
Benzo [g,h,i] perylene4.590.05ug/LND91.850-140Benzo [k] fluoranthene5.480.05ug/LND11050-140Biphenyl6.170.05ug/LND12350-140Chrysene4.650.05ug/LND93.050-140Dibenzo [a,h] anthracene4.660.05ug/LND93.150-140Fluoranthene4.610.01ug/LND92.350-140Fluoranthene5.010.05ug/LND10050-140Indeno [1,2,3-cd] pyrene4.790.05ug/LND95.850-1401-Methylnaphthalene3.840.05ug/LND82.350-1402-Methylnaphthalene4.510.05ug/LND90.250-140Pyrene4.650.01ug/LND92.350-140Surrogate: 2-Fluorobiphenyl25.9ug/LND93.150-140Surrogate: 2-Fluorobiphenyl25.9ug/LND93.150-140Pyrene4.650.01ug/LND93.150-140Surrogate: 2-Fluorobiphenyl25.9ug/LND93.150-140Pyrene4.650.01ug/LND93.150-140Surrogate: 2-Fluorobiphenyl25.9ug/LND93.150-140Pyrene4.650.05ug/LND93.150-140Benzene	Benzo [a] pyrene	4.68	0.01	ug/L	ND	93.7	50-140			
Benzo [g,h,i] perylene 4.59 0.05 ug/L ND 91.8 50-140 Benzo [k] fluoranthene 5.48 0.05 ug/L ND 110 50-140 Biphenyl 6.17 0.05 ug/L ND 123 50-140 Chrysene 4.65 0.05 ug/L ND 93.0 50-140 Dibenzo [a,h] anthracene 4.66 0.05 ug/L ND 93.1 50-140 Fluoranthene 4.61 0.01 ug/L ND 92.3 50-140 Indeno [1,2,3-cd] pyrene 4.61 0.05 ug/L ND 100 50-140 1-Methylnaphthalene 3.84 0.05 ug/L ND 92.3 50-140 2-Methylnaphthalene 4.51 0.05 ug/L ND 95.8 50-140 Naphthalene 4.51 0.05 ug/L ND 96.2 50-140 Pyrene 4.56 0.01 ug/L ND 93.1 50-140	Benzo [b] fluoranthene	5.19	0.05	ug/L	ND	104	50-140			
Biphenyl 6.17 0.05 ug/L ND 123 50-140 Chrysene 4.65 0.05 ug/L ND 93.0 50-140 Dibenzo [a,h] anthracene 4.66 0.05 ug/L ND 93.1 50-140 Fluoranthene 4.61 0.01 ug/L ND 92.3 50-140 Fluorene 5.01 0.05 ug/L ND 92.3 50-140 Indeno [1,2,3-cd] pyrene 4.79 0.05 ug/L ND 95.8 50-140 1-Methylnaphthalene 3.84 0.05 ug/L ND 76.9 50-140 2-Methylnaphthalene 4.11 0.05 ug/L ND 82.3 50-140 Naphthalene 4.51 0.05 ug/L ND 90.2 50-140 Pyrene 4.65 0.01 ug/L ND 92.5 50-140 Pyrene 4.65 0.01 ug/L ND 93.1 50-140 Surrogate: 2-Fluorobiphenyl 25.9 ug/L ND 93.1 50-140 Surr	Benzo [g,h,i] perylene	4.59	0.05		ND	91.8	50-140			
Chrysene 4.65 0.05 ug/L ND 93.0 50-140 Dibenzo [a,h] anthracene 4.66 0.05 ug/L ND 93.1 50-140 Fluoranthene 4.61 0.01 ug/L ND 92.3 50-140 Fluorene 5.01 0.05 ug/L ND 100 50-140 Indeno [1,2,3-cd] pyrene 4.79 0.05 ug/L ND 95.8 50-140 1-Methylnaphthalene 3.84 0.05 ug/L ND 95.8 50-140 2-Methylnaphthalene 4.11 0.05 ug/L ND 82.3 50-140 Naphthalene 4.51 0.05 ug/L ND 90.2 50-140 Phenanthrene 4.65 0.01 ug/L ND 95.5 50-140 Pyrene 2.69 ug/L ND 93.1 50-140 Surrogate: 2-Fluorobiphenyl 25.9 ug/L 130 50-140 Surrogate: 2-Fluorobiphenyl 25.9 ug/L 130 50-140 Benzene 43.2 0.5	Benzo [k] fluoranthene	5.48	0.05	ug/L	ND	110	50-140			
Dibenzo [a,h] anthracene4.660.05ug/LND93.150-140Fluoranthene4.610.01ug/LND92.350-140Fluorene5.010.05ug/LND10050-140Indeno [1,2,3-cd] pyrene4.790.05ug/LND95.850-1401-Methylnaphthalene3.840.05ug/LND76.950-1402-Methylnaphthalene4.110.05ug/LND82.350-140Naphthalene4.510.05ug/LND90.250-140Naphthalene4.510.05ug/LND90.250-140Phenanthrene4.650.01ug/LND93.150-140Pyrene25.9ug/LND93.150-140Surrogate: 2-Fluorobiphenyl25.9ug/LND93.150-140Fluorene43.20.5ug/LND93.150-140Surrogate: 2-Fluorobiphenyl25.9ug/L13050-140Surrogate: 2-Fluorobiphenyl25.9ug/LND10860-130EnzeneBenzene43.20.5ug/LND89.060-130Toluene37.10.5ug/LND92.860-130m,p-Xylenes76.70.5ug/LND95.960-130	Biphenyl	6.17	0.05	ug/L	ND	123	50-140			
Fluoranthene 4.61 0.01 ug/L ND 92.3 50-140 Fluorene 5.01 0.05 ug/L ND 100 50-140 Indeno [1,2,3-cd] pyrene 4.79 0.05 ug/L ND 95.8 50-140 1-Methylnaphthalene 3.84 0.05 ug/L ND 76.9 50-140 2-Methylnaphthalene 4.11 0.05 ug/L ND 82.3 50-140 Naphthalene 4.51 0.05 ug/L ND 90.2 50-140 Naphthalene 4.51 0.05 ug/L ND 90.2 50-140 Pyrene 4.65 0.01 ug/L ND 93.1 50-140 Surrogate: 2-Fluorobiphenyl 25.9 ug/L 130 50-140 Volatiles 5 0.5 ug/L ND 93.1 50-140 Benzene 43.2 0.5 ug/L ND 93.1 50-140 Ethylbenzene 35.6 0.5 ug/L ND 89.0 60-130 Toluene 37.1	Chrysene	4.65	0.05	ug/L	ND	93.0	50-140			
Fluorene5.010.05ug/LND10050-140Indeno [1,2,3-cd] pyrene4.790.05ug/LND95.850-1401-Methylnaphthalene3.840.05ug/LND76.950-1402-Methylnaphthalene4.110.05ug/LND82.350-140Naphthalene4.510.05ug/LND90.250-140Naphthalene4.780.05ug/LND95.550-140Phenanthrene4.650.01ug/LND93.150-140Pyrene25.9ug/L13050-140Surrogate: 2-Fluorobiphenyl25.9ug/LND10860-130Enzene43.20.5ug/LND10860-130Ethylbenzene35.60.5ug/LND89.060-130Toluene37.10.5ug/LND92.860-130m,p-Xylenes76.70.5ug/LND95.960-130	Dibenzo [a,h] anthracene	4.66	0.05	ug/L	ND	93.1	50-140			
Indeno [1,2,3-cd] pyrene4.790.05ug/LND95.850-1401-Methylnaphthalene3.840.05ug/LND76.950-1402-Methylnaphthalene4.110.05ug/LND82.350-140Naphthalene4.510.05ug/LND90.250-140Phenanthrene4.780.05ug/LND95.550-140Pyrene4.650.01ug/LND93.150-140Surrogate: 2-Fluorobiphenyl25.9ug/L13050-140VolatilesBenzene43.20.5ug/LND10860-130Ethylbenzene35.60.5ug/LND89.060-130Toluene37.10.5ug/LND92.860-130m,p-Xylenes76.70.5ug/LND95.960-130	Fluoranthene	4.61	0.01	ug/L	ND	92.3	50-140			
1-Methylnaphthalene 3.84 0.05 ug/L ND 76.9 50-140 2-Methylnaphthalene 4.11 0.05 ug/L ND 82.3 50-140 Naphthalene 4.51 0.05 ug/L ND 90.2 50-140 Phenanthrene 4.78 0.05 ug/L ND 95.5 50-140 Pyrene 4.65 0.01 ug/L ND 93.1 50-140 Surrogate: 2-Fluorobiphenyl 25.9 ug/L ND 93.1 50-140 Volatiles 130 50-140 50-140 50-140 50-140 Ethylbenzene 43.2 0.5 ug/L ND 93.1 50-140 Toluene 35.6 0.5 ug/L ND 108 60-130 Toluene 37.1 0.5 ug/L ND 92.8 60-130 m,p-Xylenes 76.7 0.5 ug/L ND 95.9 60-130	Fluorene	5.01	0.05	ug/L	ND	100	50-140			
2-Methylnaphthalene 4.11 0.05 ug/L ND 82.3 50-140 Naphthalene 4.51 0.05 ug/L ND 90.2 50-140 Phenanthrene 4.78 0.05 ug/L ND 95.5 50-140 Pyrene 4.65 0.01 ug/L ND 93.1 50-140 Surrogate: 2-Fluorobiphenyl 25.9 ug/L 130 50-140 Volatiles 130 50-140 50-140 Benzene 43.2 0.5 ug/L ND 93.1 50-140 Ethylbenzene 35.6 0.5 ug/L ND 60-130 Toluene 37.1 0.5 ug/L ND 92.8 60-130 m,p-Xylenes 76.7 0.5 ug/L ND 95.9 60-130	Indeno [1,2,3-cd] pyrene	4.79	0.05	ug/L	ND	95.8	50-140			
2-Methylnaphthalene 4.11 0.05 ug/L ND 82.3 50-140 Naphthalene 4.51 0.05 ug/L ND 90.2 50-140 Phenanthrene 4.78 0.05 ug/L ND 95.5 50-140 Pyrene 4.65 0.01 ug/L ND 93.1 50-140 Surrogate: 2-Fluorobiphenyl 25.9 ug/L 130 50-140 Volatiles 43.2 0.5 ug/L ND 93.1 50-140 Benzene 43.2 0.5 ug/L ND 93.1 50-140 Toluene 35.6 0.5 ug/L ND 93.1 50-140 m,p-Xylenes 76.7 0.5 ug/L ND 93.1 50-140	1-Methylnaphthalene	3.84	0.05	ug/L	ND	76.9	50-140			
Phenanthrene 4.78 0.05 ug/L ND 95.5 50-140 Pyrene 4.65 0.01 ug/L ND 93.1 50-140 Surrogate: 2-Fluorobiphenyl 25.9 ug/L 130 50-140 Volatiles Surrogate: 95.5 50-140 Benzene 43.2 0.5 ug/L 108 60-130 Ethylbenzene 35.6 0.5 ug/L ND 89.0 60-130 Toluene 37.1 0.5 ug/L ND 92.8 60-130 m,p-Xylenes 76.7 0.5 ug/L ND 95.9 60-130	2-Methylnaphthalene	4.11	0.05		ND	82.3	50-140			
Pyrene 4.65 0.01 ug/L ND 93.1 50-140 Surrogate: 2-Fluorobiphenyl 25.9 ug/L 130 50-140 Volatiles Surrogate: 2-Fluorobiphenyl 30.1 50-140 Benzene 43.2 0.5 ug/L ND 108 60-130 Ethylbenzene 35.6 0.5 ug/L ND 89.0 60-130 Toluene 37.1 0.5 ug/L ND 92.8 60-130 m,p-Xylenes 76.7 0.5 ug/L ND 95.9 60-130	Naphthalene	4.51	0.05	ug/L	ND	90.2	50-140			
Surrogate: 2-Fluorobiphenyl25.9ug/L13050-140VolatilesBenzene43.20.5ug/LND10860-130Ethylbenzene35.60.5ug/LND89.060-130Toluene37.10.5ug/LND92.860-130m,p-Xylenes76.70.5ug/LND95.960-130	Phenanthrene	4.78	0.05	ug/L	ND	95.5	50-140			
Volatiles Benzene 43.2 0.5 ug/L ND 108 60-130 Ethylbenzene 35.6 0.5 ug/L ND 89.0 60-130 Toluene 37.1 0.5 ug/L ND 92.8 60-130 m,p-Xylenes 76.7 0.5 ug/L ND 95.9 60-130	Pyrene	4.65	0.01	ug/L	ND	93.1	50-140			
Benzene43.20.5ug/LND10860-130Ethylbenzene35.60.5ug/LND89.060-130Toluene37.10.5ug/LND92.860-130m,p-Xylenes76.70.5ug/LND95.960-130	Surrogate: 2-Fluorobiphenyl	25.9		ug/L		130	50-140			
Ethylbenzene35.60.5ug/LND89.060-130Toluene37.10.5ug/LND92.860-130m,p-Xylenes76.70.5ug/LND95.960-130	Volatiles									
Toluene37.10.5ug/LND92.860-130m,p-Xylenes76.70.5ug/LND95.960-130	Benzene	43.2	0.5	ug/L	ND	108	60-130			
Toluene37.10.5ug/LND92.860-130m,p-Xylenes76.70.5ug/LND95.960-130	Ethylbenzene	35.6	0.5	-	ND	89.0	60-130			
m,p-Xylenes 76.7 0.5 ug/L ND 95.9 60-130	Toluene	37.1	0.5	-	ND	92.8	60-130			
	m,p-Xylenes	76.7	0.5	-	ND	95.9	60-130			
	o-Xylene	36.7	0.5	ug/L	ND	91.8	60-130			

Project Description: MM-1083

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Order #: 1332131

Report Date: 13-Aug-2013 Order Date:7-Aug-2013

MISSISSAUGA 6645 Kitimat Rd. Unit #27 Mississauga, ON L5N 6J3

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Client: **CM3 Environmental Inc.** Client PO: Earl of March

Project Description: MM-1083

Report Date: 13-Aug-2013 Order Date:7-Aug-2013

Qualifier Notes:

Login Qualifiers :

Sample - Received with >5% sediment, instructed to decant and analyze without sediment Applies to samples: MW23, MW8

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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