

**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT  
64 AND 66 THOMAS STREET,  
95 JOYMAR DRIVE, AND 65 TANNERY STREET  
MISSISSAUGA, ONTARIO**

**Prepared for:**

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Project: SP18-306-20-02  
June 17, 2022



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## 1.0 EXECUTIVE SUMMARY

Sirati & Partners Consultants Ltd. (SIRATI) was retained by De Zen Realty (the Client) to complete a Phase Two Environmental Site Assessment (Phase Two ESA), as defined by Ontario Regulation (O. Reg.) 153/04, as amended, for the property (hereinafter referred to as the “Phase Two Property” or the “Property”) located at the northwest side of the intersection of Thomas Street and Joymar Drive, in Mississauga, Ontario. The Property has an area of approximately 2.74 hectares (approximately 6.77 acres) and consisted of four (4) commercial buildings.

The purpose of the Phase Two ESA was to determine the soil and groundwater quality at the Property, as related to the following Areas of Potential Environmental Concerns (APECs) identified in the Phase One ESA:

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-1	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#1)	PHCs/VOCs	Soil and Groundwater
APEC-2	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA #2)	PHCs/VOCs	Soil and Groundwater
APEC-3	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#3)	PHCs/VOCs	Soil and Groundwater
APEC4	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#4)	PHCs/VOCs	Soil and Groundwater
APEC-5	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#5)	PHCs/VOCs	Soil and Groundwater

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
APEC-6	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#6)	PHCs/VOCs	Soil and Groundwater
APEC-7	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#7)	PHCs/VOCs	Soil and Groundwater
APEC-8	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#8)	PHCs, VOCs	Soil and Groundwater
APEC-9	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#9)	PHCs, VOCs	Soil and Groundwater
APEC-10	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#10)	PHCs, VOCs	Soil and Groundwater
APEC-11	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#11)	PHCs, VOCs	Soil and Groundwater
APEC-12	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#12)	PHCs, VOCs	Soil and Groundwater

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-13	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater
APEC-14	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater
APEC-15	Northeast section of the Phase One Property (95 Joymar Drive)	#40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site (PCA#15)	OCPs	Soil
APEC-16	Northeast section of the Phase One Property (95 Joymar Drive)	# 55: Transformer Manufacturing, Processing and Use	On-Site (PCA#16)	PHCs, VOCs, M&I, PCBs	Soil
APEC-17	South section of the Phase One Property	# 33: Metal Treatment, Coating, Plating and Finishing	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater
APEC-18	Northwest section of the Property (95 Joymar Drive)	# 48: Salt Manufacturing, Processing and Bulk Storage	On-Site (PCA#18)	M&I	Soil and Groundwater
APEC-19	Phase One Property	#58: Not listed, Waste generators records	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater



APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-20	Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#20)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater
APEC-21	Southwest section of the Phase One Property	Not listed, Use of de-icing salts	On-Site (PCA#21)	M&I	Soil
APEC-22	East section of the Phase One Property	#28: Gasoline and Associated Products Storage in Fixed Tanks	Off-Site (PCA#22)	PHCs	Soil and Groundwater
APEC-23	East section of the Phase One Property	#43: Plastics (including Fibreglass) Manufacturing and Processing	Off-Site (PCA#23)	PHCs, VOCs	Soil and Groundwater
APEC-24	East section of the Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#24)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater

The findings of the field investigation and analytical results of the Phase Two ESA are summarized below:

- The field investigation for this Phase Two ESA consisted of drilling a total of twenty-two (22) boreholes to the maximum depths ranging from 7.9 of 11.6 mbgs. Seventeen (17) of the boreholes were completed as monitoring wells for groundwater observation, sampling and testing.
- The subsoil condition at the borehole/monitoring wells indicates a layer of asphalt followed by fill material of sand, gravel, clayey silt to sandy silt, overlying native glacial till deposit of sandy silt to clayey silt, followed underneath by residual soil and/or weathered shale deposit consists of clayey silt with till-like texture and contains varying amounts of siltstone/limestone and shale fragments. An auger refusal was observed in BH-E7 at a depth of 2.4 m to 6.1 m

- The soil samples retrieved from the boreholes were examined for visual and olfactory evidence of potential contamination. No evidence of potential contamination was observed in any of the retrieved soil samples.
- Head space vapour screening was conducted for all retrieved soil samples using a combustible gas detector (RKI Eagle) in methane elimination mode. Soil vapour measurements ranged from non-detect to 5 ppm.
- Based on the soil vapour measurements and visual and olfactory observations, representative “worst case” soil samples were selected from each borehole for chemical analyses of the following parameters: M&I, PHCs (F1-F4), PCBs, OCPs and VOCs.
- Based on the field observation and groundwater monitoring records, shallow groundwater is present in the sandy silt till to clayey silt till layers. Water levels were recorded at depths ranging from 1.29 to 3.09 mbgs in the monitoring wells. Based on the groundwater monitoring records, the groundwater flow direction appears to be to the east.
- Based on the available groundwater table elevations, the horizontal hydraulic gradient of the groundwater flow for the site is between 0.01287 and 0.02980 (average 0.021335) in an easterly direction.
- No free product, sheen or odours were observed in the groundwater from monitoring wells installed at the subject Property. Groundwater samples collected from the monitoring wells were submitted for analysis of the following parameters: M&I, PHCs (F1-F4), PCBs and VOCs.
- As part of the QA/QC program for the investigation, QC samples in the form of field duplicate samples were analysed. Field duplicate samples were collected in the field for M&I, PHCs (F1-F4), PCBs and VOCs in soil and in groundwater.
- The analytical test results were evaluated against the MECP Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition as published in the “Soil, Ground Water and Sediment Standards for use under part XV.1 of the Environmental Protection Act” (EPA), April 15, 2011 (MECP Table 8 Standards).
- Based on the lab results, tested parameters in the soil and groundwater samples had concentrations in excess of the applicable site condition standards.
- To determine the lateral and vertical extent contaminants identified during the first round of investigations, delineation program consisted of supplementary soil and groundwater sampling from additional drilled boreholes and monitoring wells were conducted at the Site.

Soil samples with parameters in excess of the applicable site condition standards are summarized in the table below:

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
BH2-SS3	1.5-2.1	F2 (C10-C16)	235	ug/g	10
		F3 (C16-C34)	2750	ug/g	240
		F4 (C34-C50)	802	ug/g	120
		F4G-SG (GHH-Silica)	2230	ug/g	120
BH5-SS1	0.0-0.6	SAR	31.4		5
		EC	10.2	mS/m	0.7
BHE5-SS3	1.5-2.1	SAR	8.62		5
		EC	0.853	mS/m	0.7
		Chromium, Hexavalent	0.78	ug/g	0.66
BHE4-SS4	2.3-2.9	SAR	5.41		5
		EC	0.709	mS/m	0.7
BHE15-SS2	0.8-1.4	Chromium, Hexavalent	0.94	ug/g	0.66
BHE15-SS5	3.1-3.7	n-Hexane	1.06	ug/g	0.05

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		Xylenes (Total)	0.676	ug/g	0.05
		F1 (C6-C10)	35	ug/g	25
		F1-BTEX	34.3	ug/g	25
		F2 (C10-C16)	321	ug/g	10
BHE6-SS4	2.3-2.9	Xylenes (Total)	0.102	ug/g	0.05
BHE11-SS2	0.8-1.4	F2 (C10-C16)	26	ug/g	10
		F3 (C16-C34)	648	ug/g	50
		F4 (C34-C50)	528	ug/g	50
		F4G-SG (GHH-Silica)	1670	ug/g	250
BHE10-SS5	3.1-3.7	F2 (C10-C16)	69	ug/g	10
BHE9-SS4	2.3-2.9	F2 (C10-C16)	108	ug/g	10
BHE2-SS2	0.8-1.4	Chromium, Hexavalent	0.77	ug/g	0.66

Soil samples exceedances from delineation investigation:

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
BH214-SS2	0.8-1.4	SAR	5.13	-	5
BH211-SS3	1.5-2.1	SAR	25.5	-	5
		EC	1.72	mS/m	0.7
BH212-SS3	1.5-2.1	SAR	13	-	5
		EC	1.59	mS/m	0.7
BH213-SS3	1.5-2.1	SAR	5.16	-	5
DUP-S201	-	SAR	5.11	-	5
BH204-SS4	2.3-2.9	Benzene	2.26	ug/g	0.02
		Ethylbenzene	1.77	ug/g	0.05
		n-Hexane	1.49	ug/g	0.05
		Toluene	1	ug/g	0.2
		Xylenes (Total)	10	ug/g	0.05
		F1 (C6-C10)	48	ug/g	25
		F1-BTEX	33	ug/g	25

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		F2 (C10-C16)	37	ug/g	10
BH205-SS3	1.5-2.1	Benzene	0.04	ug/g	0.02
		Ethylbenzene	0.943	ug/g	0.05
		n-Hexane	0.054	ug/g	0.05
		Xylenes (Total)	2.29	ug/g	0.05
		F1 (C6-C10)	71	ug/g	25
		F1-BTEX	68	ug/g	25
		F2 (C10-C16)	331	ug/g	10
BH207-SS4	2.3-2.9	Benzene	0.0786	ug/g	0.02
		n-Hexane	0.072	ug/g	0.05
BH208-SS5	3.1-3.7	Benzene	0.0708	ug/g	0.02
		Bromodichloromethane	<0.15	ug/g	0.05
		Ethylbenzene	0.06	ug/g	0.05
		n-Hexane	0.21	ug/g	0.05

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		Xylenes (Total)	0.075	ug/g	0.05
		F1 (C6-C10)	47.8	ug/g	25
		F1-BTEX	47.6	ug/g	25
		F2 (C10-C16)	15	ug/g	10
DUP-S202	-	Benzene	0.0714	ug/g	0.02
		n-Hexane	0.076	ug/g	0.05
		F2 (C10-C16)	13	ug/g	10
DUP-S203	-	F2 (C10-C16)	12	ug/g	10
BH209-SS7	4.6-5.2	Benzene	0.0886	ug/g	0.02
		Bromodichloromethane	0.608	ug/g	0.05
		Chloroform	0.626	ug/g	0.05
		1,2-Dibromoethane	<0.24	ug/g	0.05
		1,2-Dichloroethane	<0.070	ug/g	0.05
		Ethylbenzene	0.086	ug/g	0.05

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		n-Hexane	8.18	ug/g	0.05
		F1 (C6-C10)	208	ug/g	25
		F1-BTEX	208	ug/g	25
		F2 (C10-C16)	81	ug/g	10
BH210-SS5	3.1-3.7	Benzene	0.0326	ug/g	0.02
		Bromodichloromethane	0.137	ug/g	0.05
		Chloroform	0.065	ug/g	0.05
		n-Hexane	0.207	ug/g	0.05
		Xylenes (Total)	0.094	ug/g	0.05
		F2 (C10-C16)	24	ug/g	10
		F3 (C16-C34)	340	ug/g	240
		F4 (C34-C50)	890	ug/g	120
		F4G-SG (GHH-Silica)	2430	ug/g	120
BH201-SS4	2.3-2.9	F2 (C10-C16)	29	ug/g	10



Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
BH202-SS5	3.1-3.7	n-Hexane	0.208	ug/g	0.05
		F2 (C10-C16)	44	ug/g	10

Groundwater samples exceedances are summarized in the table below:

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
MW E4	Chloride (Cl)	1500	mg/L	790
	Sodium (Na)-Dissolved	768000	ug/L	490000
MW E10	Benzene	18.6	ug/L	5
	F2 (C10-C16)	280	ug/L	150
DUP-W2	Benzene	18.7	ug/L	5
	F2 (C10-C16)	280	ug/L	150
MW-E7	Chloride (Cl)	1280	mg/L	790
MW-E11	F1 (C6-C10)	606	ug/L	420
	F2 (C10-C16)	1650	ug/L	150

Groundwater samples exceedances from delineation investigation:

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
MW 202	F1 (C6-C10)	486	ug/L	420
	F1-BTEX	483	ug/L	420
	F2 (C10-C16)	400	ug/L	150
MW 204	Benzene	3760	ug/L	5
	1,2-Dichloroethane	3.22	ug/L	1.6
	Xylenes (Total)	2930	ug/L	300
	Ethylbenzene	696	ug/L	2.4
	n-Hexane	71.6	ug/L	51
	Toluene	518	ug/L	22
	F1 (C6-C10)	10800	ug/L	420
	F1-BTEX	2900	ug/L	420
	F2 (C10-C16)	1610	ug/L	150
MW 207	Benzene	299	ug/L	5
	Ethylbenzene	90.5	ug/L	2.4
	F1 (C6-C10)	4190	ug/L	420

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
	F1-BTEX	3770	ug/L	420
	F2 (C10-C16)	1400	ug/L	150
MW 210	Benzene	32	ug/L	5
	Ethylbenzene	5.97	ug/L	2.4
	F1 (C6-C10)	1680	ug/L	420
	F1-BTEX	1630	ug/L	420
	F2 (C10-C16)	1810	ug/L	150

Based on the findings of the Phase Two ESA and delineation investigation, further subsurface investigation is required to delineate the vertical and horizontal extent of contamination in both soil and groundwater.

## 2.0 INTRODUCTION

SIRATI was retained by De Zen Realty To complete a Phase Two Environmental Site Assessment (ESA) as defined by Ontario Regulation (O. Reg.) 153/04, as amended for the property located at 64 and 66 Thomas Street, 95 Joymar Drive, and 65 Tannery Street, in Mississauga, Ontario (hereinafter referred to as the “Phase Two Property” or the “Property”). The Property consisted of four (4) commercial buildings.

The Phase Two ESA was conducted to assess the soil and groundwater quality with the Property in the areas of potential environmental concerns identified in the Phase One ESA.

### 2.1 Phase Two Property Information

The information for the Property is provided in the following Table.

Phase One Property	Information		Source
Legal Description	PT LT 4, CON 5 WEST OF HURONTARIO ST TORONTO TWP, AS IN 275328VS; S/T RO947021, ST6612 MISSISSAUGA; CITY OF MISSISSAUGA	PT LT 4, CON 5 WEST OF HURONTARIO ST TORONTO TWP, AS IN 320279VS; S/T ST6612; CITY OF MISSISSAUGA	Service Ontario Land Registry Office #43
Property Identification Numbers (PINs)	13123-0059 (LT)	13123-0126 (LT)	Service Ontario Land Registry Office #43
Municipal Address	64 and 66 Thomas Street, 95 Joymar Drive, Mississauga	65 Tannery Street, Mississauga	Mississauga Map
Zoning	D, Development and G1, Greenbelt		Mississauga Zoning By-law

### 2.2 Contact Information

Contact information for the owner of the Phase Two Property is provided as follows:

Property Owner	Source
De Zen Realty	Land Registry Office

### 2.3 Site Description

The Property is located at located at the northwest side of the intersection of Thomas Street and Joymar Drive in Mississauga, Ontario. The Property is a rectangular shaped parcel of land that covers an area of approximately 2.74 hectares (approximately 6.77 acres). A Plan of Survey dated May 2015 prepared by Elliott and Parr (Peterborough) Ltd., for the Phase One Property is appended in Appendix E. The location of the Property is shown in Figure 1.

## **2.4 Current and Proposed Future Uses**

The Property is currently used for commercial purposes. At the time of this report preparation, no details of the proposed future redevelopment are provided to SIRATI.

## **2.5 Applicable Site Condition Standard**

The applicable soil and groundwater Standards for the Property were those contained in Table 8, Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Groundwater Conditions published in the “Soil, Ground Water and Sediment Standards for use under part XV.1 of the Environmental Protection Act” (EPA), April 15, 2011. The following information was used to select the appropriate criteria:

- The proposed redevelopment for the Property is a mixed of residential and commercial use.
- Bedrock across the site is located at a depth greater than 2 m.
- The Property is located adjacent to Mullet Creek to the north of the Property (within 30 m of a surface water body).
- The Property is not located in or adjacent to a provincial park or an area of natural significance.
- The soil pH was between 5 and 9 for surficial soils or 5 and 11 for subsurface soils.

Based on these considerations, the MECP Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition, Residential/ Parkland/Institutional/ Industrial/Commercial/ Community Property Use have been selected to evaluate the environmental condition at the Phase Two Property.

### **3.0 BACKGROUND INFORMATION**

#### **3.1 Physical Setting**

Based on the topographic information from the 1982 Ontario Base Map, the ground surface is at approximately 155 metres above sea level (mASL), approximately 81 m above the level of Lake Ontario.

The shallow groundwater flow is influenced by the topography; as such it is anticipated to be in a easterly direction towards the Mullet Creek, which is flowing along the northeast section of the Property to the northeast; however groundwater flow direction can only be confirmed by groundwater monitoring.

According to the geological map entitled “Quaternary Geology of Ontario-Southern Sheet” Map 2556, published by the Ministry of Northern Development and Mines, dated 1991, the overburden in the region of the Property consists of Halton Till. This material is generally characterized as silt to silty clay matrix, high in matrix carbonates content and clast poor.

According to the bedrock geology map entitled “Bedrock Geology of Ontario-Southern Sheet” published by the Ministry of Northern Development and Mines, dated 1991, the bedrock in the area consists of Upper Ordovician facies underlain by Queenston Formation, which consists of shale, limestone, dolostone, and siltstone.

Based on the Areas of Natural and Scientific Interests (ANSIs) map, and Ministry of Natural Resources Natural Heritage Information Centre (NHIC) database files for listings of the various classes of natural areas located within the vicinity of the Property, there is no Area of Natural Significance located at the Property or neighbouring properties within 250 m of the Phase Two Property.

#### **3.2 Past Investigations**

Except the recent Phase One ESA which was conducted by SIRATI on July 27, 2018, no other reports were provided to SIRATI for review.

## **4.0 SCOPE OF THE INVESTIGATION**

### **4.1 Overview of Site Investigation**

The purpose of this Phase Two ESA was to assess soil and groundwater quality at the Property, based on the findings of Phase One ESA, Phase Two ESA was conducted in general conformance with the O. Reg. 153/04, as amended.

The scope of work for this investigation included:

- Locating the underground and overhead utilities.
- Drilling a total of twenty-two (22) boreholes on the Property to depths ranging from 2.4 to 6.3 mbgs.
- Analysing twenty-nine (29) selected soil samples including QC/QA assurance samples, for PHCs F1-F4 fractions, VOCs, PCBs, OCPs and M&I.
- Undertaking soil vapour measurements for the retrieved soil samples using a combustible gas detector (RKI Eagle) in methane elimination mode.
- Installation of groundwater monitoring wells in seventeen (17) boreholes to investigate groundwater condition at the Property.
- Surveying the monitoring wells and measuring the groundwater levels for identification of groundwater flow direction and verifying the presence/absence of free product and/or sheen.
- Analysing eighteen (18) groundwater samples including QC/QA samples, and trip blank for PHCs F1-F4, VOCs, and M&I.
- Reviewing the analytical results and comparing them with applicable MOECC Standards.
- Reviewing reports from previous investigations completed at the Property.
- Summarizing the result of investigations and prepare a Phase Two ESA report.

### **4.2 Media Investigated**

Based on the findings of Phase One ESA report, soil and groundwater were investigated during the Phase Two ESA in accordance with the Sampling and Analysis Plan Provided in Appendix A. Sampling was conducted for soil from boreholes BH/MW2, BH3, BH5, BH/MW6, BH/MW7, BH/MW E1, BH/MW E2, BH/MW E4, BH/MW E5, BH/MW E6, BH/MW E8 to BH/MW E15 and for groundwater from monitoring wells BH/MW6, BH/MW7, BH/MW E1 to BH/MW E13. No surface water was present on the Property; therefore, surface water or sediment sampling was not conducted. Soil sampling was conducted during the drilling program by use of a split spoon sampler for visual observation purposes. Groundwater samples were obtained from monitoring wells.

### 4.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model (CSM) provided in the Phase One ESA includes:

- Use of the Property and other properties within 250 m;
- Presence of water bodies located in the Property or Phase One Study Area, if any;
- Areas where any potentially contaminating activity has occurred; and,
- Areas of potential environmental concern on the Phase One Property.

The identified Potentially Contaminating Activities (PCAs) causing Areas of Potential Environmental Concern (APECs) at the Property are summarized in the following table.

Number	Location	Potentially Contaminating Activity	Details
<i>Phase One Property</i>			
PCA-1	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Aussie Auto Inc.)
PCA-2	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	(2) diesel storage tanks are located in a storage yard, east of the building (65 Tannery Street).
PCA-3	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (J. Saleman & Sons Auto Service Ltd.)
PCA-4	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in a landscaping shop (Turf Lawn Care & Maintenance Inc.)
PCA-5	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located against the northeast wall of the building (95 Joymar Drive)
PCA-6	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in a landscaping shop (Cedar Grounds Maintenance Inc.)
PCA-7	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Richard's Auto Repair).
PCA-8	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Meadowvale Collision Centre Atlantic).
PCA-9	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	Meadowvale Collision Centre Atlantic is registered as a commercial autobody shop.
PCA-10	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (L.A. Auto Repairs).



Number	Location	Potentially Contaminating Activity	Details
PCA-11	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	Fix Auto Collision is registered as a commercial autobody shop.
PCA-12	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Jorge's Auto Repair).
PCA-13	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Correct Automotive)
PCA-14	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Streetsville Auto & Tire)
PCA-15	Northeast section of the Phase One Property (95 Joymar Drive)	#40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications	Clitar Groundskeeping and Cedar Grounds Maintenance (95 Joymar Drive) were registered as pesticide operators. The northeast section of the Property was used as the storage area for the landscaping companies.
PCA-16	Northeast section of the Phase One Property (95 Joymar Drive)	# 55: Transformer Manufacturing, Processing and Use	Power line supplies and commercial electrical boxes were observed on the associated parking area of AL Power Lines Ltd located at 95 Joymar Drive.
PCA-17	South section of the Phase One Property	# 33: Metal Treatment, Coating, Plating and Finishing	Metal industrial shops including aluminum shops were located at 66 Thomas Street in the 1980s.
PCA-18	Northwest section of the Property (95 Joymar Drive)	# 48: Salt Manufacturing, Processing and Bulk Storage	Two (2) dome road salt shelters were observed in the northwest section of the Property.
PCA-19	Phase One Property	Not listed, waste generators records	According to the ERIS report, waste generators records were located at the Phase One Property.
PCA-20	Phase One Property	Not listed, use of de-icing salts	The use of de-icing salts on the parking area, driveways, and Thomas Street, Joymar Drive and Tannery Street may have impacted the subsurface soils of the Property in relation to electrical conductivity (EC) and sodium adsorption ratio (SAR)
<b>Phase One Study Area</b>			
PCA-21	80 Thomas Street	Not listed, waste generators records	According to the ERIS report and city directory search, waste generators records were located at the industrial property (CTS Canada). CTS of Canada Limited was listed in Ontario Regulation 347 Waste Generators Summary for producing elect. Parts & component, acid waste – heavy metals, other specified inorganics, inorganic laboratory

Number	Location	Potentially Contaminating Activity	Details
			chemicals, aromatic solvents, aliphatic solvents, petroleum distillates, light fuels, waste oils & lubricants, emulsified oils, organic laboratory chemicals, halogenated solvents, and oil skimmings & sludges from 1989 to 2017.
PCA-22	56 Thomas Street	#28: Gasoline and Associated Products Storage in Fixed Tanks	According to the city directory search, the neighbouring property located adjoint to the east boundary of the Phase One Property (56 Thomas Street), was occupied by a gas station in the 1960s and 1970s.
PCA-23	44 Thomas Street	#43: Plastics (including Fibreglass) Manufacturing and Processing	According to the city directory search, the neighbouring property located approximately 55 m northeast of the Phase One Property (44 Thomas Street), was occupied by a plastic manufacture.
PCA-24	100 Emby Drive	Not listed, waste generators records	According to ERIS report, Mississauga Engines Inc. was listed in Ontario Regulation 347 Waste Generators Summary for producing petroleum distillates, alkaline wastes – other metals, and aromatic solvents from 1992 to 1998 and from 1999 to 2001.

The identified Areas of Potential Environmental Concern (APECs) and Potential Contaminants of Concern (PCOCs) are summarized below (Figure 2):

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-1	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#1)	PHCs/VOCs	Soil and Groundwater
APEC-2	Northwest section of the	#28: Gasoline and Associated Products	On-Site	PHCs/VOCs	Soil and

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
	Property (65 Tannery Street)	Storage in Fixed Tanks	(PCA #2)		Groundwater
APEC-3	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#3)	PHCs/VOCs	Soil and Groundwater
APEC4	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#4)	PHCs/VOCs	Soil and Groundwater
APEC-5	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#5)	PHCs/VOCs	Soil and Groundwater
APEC-6	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#6)	PHCs/VOCs	Soil and Groundwater
APEC-7	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#7)	PHCs/VOCs	Soil and Groundwater

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
APEC-8	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#8)	PHCs, VOCs	Soil and Groundwater
APEC-9	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#9)	PHCs, VOCs	Soil and Groundwater
APEC-10	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#10)	PHCs, VOCs	Soil and Groundwater
APEC-11	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#11)	PHCs, VOCs	Soil and Groundwater
APEC-12	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#12)	PHCs, VOCs	Soil and Groundwater

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
APEC-13	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater
APEC-14	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater
APEC-15	Northeast section of the Phase One Property (95 Joymar Drive)	#40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site (PCA#15)	OCPs	Soil
APEC-16	Northeast section of the Phase One Property (95 Joymar Drive)	# 55: Transformer Manufacturing, Processing and Use	On-Site (PCA#16)	PHCs, VOCs, M&I, PCBs	Soil
APEC-17	South section of the Phase One	# 33: Metal Treatment, Coating, Plating and	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
	Property	Finishing			
APEC-18	Northwest section of the Property (95 Joymar Drive)	# 48: Salt Manufacturing, Processing and Bulk Storage	On-Site (PCA#18)	M&I	Soil and Groundwater
APEC-19	Phase One Property	#58: Not listed, Waste generators records	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater
APEC-20	Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#20)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater
APEC-21	South portion of Phase One Property	Not listed, Use of de-icing salts	On-Site (PCA#21)	M&I	Soil
APEC-22	East section of the Phase One Property	#28: Gasoline and Associated Products Storage in Fixed Tanks	Off-Site (PCA#22)	PHCs	Soil and Groundwater
APEC-23	East section of the Phase One Property	#43: Plastics (including Fibreglass) Manufacturing and	Off-Site (PCA#23)	PHCs, VOCs	Soil and Groundwater

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
		Processing			
APEC-24	East section of the Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#24)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater

#### 4.4 Deviations from Sampling and Analysis Plan

No deviations were made during the investigation for the Phase Two ESA.

#### 4.5 Impediments

No impediments were encountered during the investigation for the Phase Two ESA.

## **5.0 INVESTIGATION METHOD**

### **5.1 General**

The Phase Two ESA was carried out in accordance with the Sampling and Analysis Plan provided in Appendix A, and in accordance with the SIRATI Standard Operating Procedures.

The Phase Two ESA consisted of drilling twenty-two (22) boreholes (denoted BH/MW2, BH3, BH5, BH/MW6, BH/MW7, BH/MW E1, BH/MW E2, BH/MW E4, BH/MW E5, BH/MW E6, and BH/MW E8 to BH/MW E15 ) and installation of monitoring wells in seventeen (17) boreholes (denoted BH/MW2, BH/MW6, BH/MW7, and BH/MW E1 to BH/MW E13) on April 30, May1, May7, May8, 2018 and for BH/MW E3 and BH/MW E7 on June 5, 2018.

The monitoring wells consisted of PVC screen and riser section, with monument casing. A sand pack was placed around the screen section to a height of approximately 600 mm above the top of the screen. A seal consisting of bentonite clay was then added on top of the sand pack, and a final seal of concrete was placed around the top of the well (ground surface).

The sampling and decontamination procedures were conducted in accordance with the “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”, May 1996, revised December 1996, as amended by O. Reg. 511/09.

Laboratory analytical methods, protocols and procedures were carried out in accordance with the “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”, dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11.

### **5.2 Utility Clearance**

Prior to the commencement of the investigation, various utility agencies were contacted to identify buried services on public land in the vicinity of the Property. A private locator was retained to survey the proposed borehole locations for buried services. No conflicts between the proposed borehole locations and underground utilities were encountered.

### **5.3 Health and Safety**

Prior to commencing the investigation, a Health and Safety Plan (H&S) was developed and implemented by SIRATI. The H&S Plan identified and provided mitigative actions for potential physical and chemical hazards associated with the Phase Two ESA activities and information for procedures to follow in the event of an emergency.



## 5.4 Drilling

The field work for this investigation was consisted of drilling twenty-two (22) boreholes (denoted BH/MW2, BH3, BH5, BH/MW6, BH/MW7, BH/MW E1, BH/MW E2, BH/MW E4, BH/MW E5, BH/MW E6, and BH/MW E8 to BH/MW E15 ) and installation of monitoring wells in seventeen (17) boreholes (denoted BH/MW2, BH/MW6, BH/MW7, and BH/MW E1 to BH/MW E13), conducted on April 30, May1, May7, May8, 2018 and for BH/MW E3 and BH/MW E7 on June 5, 2018, to depths ranging from 2.4 to 6.3 mbgs.

The locations of the boreholes/monitoring wells are shown on Figure 4. The drilling information for the Phase Two ESA is provided in the Table below:

<b>Date of Drilling</b>	- April 30, May1, May7, May8, 2018 and June 5, 2018
<b>Name of Contractor</b>	-Tri Phase Group.
<b>Equipment Used</b>	<ul style="list-style-type: none"> <li>• Limited Access Rig</li> <li>• Solid Stem Auger and Pionjar Drilling System</li> <li>• 2-inch split spoon soil sampling device</li> </ul>
<b>Decontamination Measures</b>	The split spoon sampling device was washed between each sample to minimize potential cross-contamination
<b>Sample Frequency</b>	Refer to the borehole logs in Appendix B for recovered soil samples

The borehole drilling activity was supervised by a field technician who logged the boreholes and screened the samples as they were retained. All samples obtained during the investigation were sealed into clean plastic containers, for visual and olfactory inspection. The samples were examined in detail. The results of the boreholes are recorded in detail on the accompanying borehole logs. The complete borehole logs are presented in Appendix B.

## 5.5 Soil Sampling

Soil samples were collected from the overburden materials using a split spoon sampler. Measures were taken in the field and during transport to maintain sample integrity prior to chemical analysis. Recommended volumes of soil samples selected for chemical analysis were collected from the recovered cores into pre-cleaned, laboratory-supplied glass sample jars/vials identified for the specified analytical test group.

Samples intended for VOCs and the F1 fraction of petroleum hydrocarbons analysis were collected using a laboratory-supplied soil core sampler, placed into vials containing methanol for preservation purposes and sealed using teflon lined septa lids. All soil samples were placed in clean coolers containing ice prior to and during transportation to the laboratory, ALS Environmental (ALS) was used to conduct chemical testings on soil and groundwater samples.

Decontamination and other protocols were followed during sample collection and handling to minimize the potential for sample cross-contamination. New, dedicated disposable nitrile gloves were used for the handling and sampling of each retrieved soil core. The core barrel samplers were decontaminated between sampling intervals by the drilling contractor using a potable water/phosphate-free detergent solution followed by rinses with potable water and de-ionized water. Wash and rinse waters were collected in sealed, labeled containers.

The subsurface conditions in the boreholes are summarized in the following paragraphs:

**Ground Cover:**

A layer of asphalt pavement was encountered in BH3, BH4, BH6, BH7, BH-E1, BH-E2, BH-E4, BH-E5 and BH-E8 to BH-E11. The thickness of asphalt was observed to vary between 75 mm to 150 mm. The layer was observed to be underlain by 75 mm to 180 mm of granular material.

BH2, E3 and E7 were advanced through 100 mm to 180 mm-thick concrete slabs underlain by 100 mm of granular material at BH-2.

**Topsoil/Fill Material:**

A layer of fill material was encountered in all boreholes, extending between 0.2 m to 4.6 m depth. The fill was comprised of sand & gravel, clayey silt, construction debris and sandy silt with trace to some topsoil. Buried layers of topsoil were encountered locally in BH-E5 from 0.8 mbgs to 1.5mbgs, and BH-E15 from 2.3 mbgs to 3.0 mbgs.

**Glacial Till Deposit:**

Except BH1, BH-E9 and BH-E10, a layer of glacial till deposit, comprising sandy silt to clayey silt, was encountered in all boreholes underlying the fill material.

**Shale bedrock (Georgian Bay Formation):**

The presence of bedrock was inferred from auger/sampler refusal or confirmed by split spoon sampling in all boreholes at depths, generally varying between 4.0 m and 6.1 m. An auger refusal was observed in BH-E7 at a depth of 2.4 m, which is much shallower than the other locations. This could be due to boulder obstruction and not necessarily a bedrock depth.

Detailed descriptions of the encountered subsurface conditions are presented on the borehole logs provided in Appendix B.

Based on the soil vapour measurements and visual and olfactory observations, representative worst-case soil samples from each borehole were selected and sent to the laboratory for chemical analyses.

## 5.6 Field Screening Measurements (Soil)

The samples were screened using RKI Instruments, Eagle Potable Multi-gas detector (with Methane Elimination Switch), S/N E2F426, operated in the methane elimination mode. The instrument measures combustible gases in the atmosphere. The monitor has a range of 0 ppm to 50,000 ppm and an accuracy of  $\pm 5\%$ . The monitor was calibrated with hexane prior to field screening as per the calibration procedure outlined by RKI Instruments in "Instruction Manual Eagle Series Portable Multi-Gas Detector 71-0154RK" released March 11, 2016.

The representative worst-case soil samples based on the soil vapour measurements and visual and olfactory observations were selected from each borehole and submitted to the laboratory for chemical analyses.

## 5.7 Groundwater Monitoring Well Installation

A total of seventeen (17) monitoring wells (denoted BH/MW2, BH/MW6, BH/MW7, and BH/MW E1 to BH/MW E13) were installed at the Property for groundwater monitoring and sampling. The monitoring wells were installed by Tri Phase Group., licensed well contractors. This was performed under the full-time supervision of a SIRATI field technician. The monitoring wells were constructed using 2-inch (50 mm) diameter PVC screen, 3.05 m in length as shown in the borehole logs. A PVC riser, capped at the top, was installed from the screen section above the top grade. A sand pack, consisting of clean silica sand, was placed around the screened zone with a bentonite seal placed above the sand pack. The top of each well was sealed with concrete to approximately 0.15 mbgs. The monitoring wells were completed with flush mount protector at ground surface. The monitoring well construction details are provided in the borehole logs in Appendix B. The monitoring installation details are summarized in the table below.

Monitoring Well	Bottom of Monitoring Well (mbgs)	Ground Surface Elevation (mASL)	Screen Length (m)	Water elevation (mASL)	Water level (mbgs)
BH/MW2	6.1	155.02	3.05	153.82	1.98
BH/MW4	6.2	154.14	3.05	154.58	3.13
BH/MW6	4.0	154.74	3.05	153.52	1.22
BH/MW7	6.1	154.76	3.05	152.96	1.8
BH/MW E1	5.64	154.63	3.05	151.72	2.91
BH/MW E2	5.49	154.01	3.05	152.453	1.56

BH/MW E3	3.7	154.73	3.05	152.568	2.16
BH/MW E4	5.49	154.31	3.05	152.807	1.05
BH/MW E5	5.8	155.30	3.05	152.853	2.45
BH/MW E6	4.9	154.47	3.05	151.683	2.79
BH/MW E7	2.44	154.78	3.05	153.4	1.38
BH/MW E8	5.18	155.23	3.05	152.142	3.09
BH/MW E9	4.27	155.66	3.05	152.731	2.93
BH/MW E10	4.72	155.72	3.05	152.686	3.03
BH/MW E11	5.79	155.26	3.05	152.409	2.85
BH/MW E12	5.33	157.59	3.05	155.194	2.40
BH/MW E13	5.03	157.04	3.05	154.552	2.49

Note: mASL: metres above sea level, mbgs: metres below ground surface

The monitoring wells were installed with dedicated low-density polyethylene tubing to facilitate well development, purging and sampling requirements. Groundwater development was performed following the drilling date. The monitoring wells were developed to remove any fluids that may have been introduced into the wells during the drilling and to remove particles that may have become entrained in the well screen and filter pack (minimum three well casing volumes of groundwater in each well). Purged water was contained and stored at the Property for future disposal.

## 5.8 Groundwater Field Measurement of Water Quality Parameters

The monitoring wells were allowed to stabilize prior to well development. The monitoring well development, groundwater monitoring and purging were conducted at the Property after being installed. Groundwater observations were recorded for colour, clarity, the presence or absence of any free product/surface sheen and any odours present during the purging of the wells. The water level measuring device was cleaned after each measurement using Alconox solution and water, followed by a distilled water rinse and a methanol rinse, in order to prevent cross-contamination between monitoring wells. Well development continued until approximately 3 to 5 wetted well volumes were removed and monitoring indicated the condition in the purged water had stabilized.

## **5.9 Groundwater Sampling**

Groundwater sampling was conducted on June 12 and 13, 2018 after purging and allowing the water to stabilize. The groundwater purging and sampling activities were carried out using dedicated low-density polyethylene tubing. Groundwater samples were collected into laboratory-supplied containers, prepared with preservative for the analysis being conducted. The samples scheduled for analysis of metals were passed through a 0.45-micron filter as part of the sampling process. Disposable latex gloves were worn at each sample location. The groundwater samples were immediately placed into coolers packed with ice pending delivery to the analytical laboratory.

## **5.10 Sediment Sampling**

Sediment sampling was not carried out as part of this investigation as there were no surface water bodies (ponds, creek, lake) found on the Property.

## **5.11 Analytical Testing**

The soil and groundwater samples were completed by ALS Environmental, located at 5730 Coopers Avenue in Mississauga, Ontario. ALS is accredited by the Canadian Association for Laboratory Accreditation (CALA) in accordance with ISO/IEC 17025:2005 – “General Requirements for the Competence of Testing and Calibration Laboratories” for all the parameters analysed during this investigation.

## **5.12 Residue Management Procedures**

Drilling residue generated by the drilling program was stored at the Property in drums. Groundwater purged from the monitoring wells was stored in containers, using a separate container for each well. The metal barrels and containers are clearly marked and stored temporarily at the Property for later disposal.

## **5.13 Elevation Surveying**

The ground elevations of the boreholes and monitoring wells were surveyed by SIRATI personnel using differential GPS system. The elevations at the borehole and monitoring well locations are presented in the borehole logs (Appendix B).

## **5.14 Quality Assurance (QA) and Quality Control (QC) Measures**

Laboratory-supplied sample containers, containing the appropriate preservatives as required by the given analyses, were used for all sampling conducted on the Property. All sample containers were labelled accordingly to identify the sample location. Documentation related to sample location, and time of

sampling was recorded for each sample. The samples were immediately placed in coolers packed with ice. The sampling and decontamination procedures were conducted in accordance with the “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”, May 1996, revised December 1996, as amended by O. Reg. 511/09. Laboratory analytical methods, protocols and procedures were carried out in accordance with the “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”, dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11.

Soil samples for analytical testing were collected from the undisturbed split spoon samples. Samples that were collected for analysis of BTEX and the F1 fraction of petroleum hydrocarbons were collected directly from the split spoon core using the Terra Core sampling devices. These are dedicated single use sampling devices. There is no potential for cross-contamination associated with this sampling method. Until delivery to the analytical laboratory, custody of the samples was maintained by SIRATI. On completion of daily field activities, the samples were returned to SIRATI facility and stored in a refrigerator pending selection of samples for analytical testing. SIRATI transferred custody of the samples that had been selected for analysis to ALS Environmental within an adequate time frame to ensure ‘hold times’ would be within the acceptable criteria. Chain of Custody forms identifying the samples and analyses were submitted to the laboratory to document the transfer of custody.

Quality control samples included field duplicates. The following quality control measures were implemented for this investigation.

- The collection of at least one field duplicate sample per site for every sampled medium (where three or more such samples are collected).
- Where volatile organic chemical analysis was required, the collection of discrete samples directly into laboratory-prepared sample vials and immediate placement into a cooler with ice to maintain the temperature at less than 10 °C for transport to the laboratory, was conducted.
- The use of dedicated equipment (bailers, Waterra tubing, etc.) for groundwater sampling at different monitors and the thorough cleaning of soil sampling equipment between sample sites, was conducted.
- If trace organics in the collected samples are anticipated (organic chemicals with a concentration of less than 1 µg/g), precautions were made to avoid any possible cross-contamination (eliminating bare hand or latex glove contacts with the soil or water); soil sampling equipment used for the collection of trace organics were cleaned using a phosphate-free detergent and water, followed by a distilled water rinse and a methanol rinse between sampling sites.

There were no deviations from the procedures of the quality assurance and quality control program set out in the sampling and analysis plan. Summary of field Investigation protocol is presented in Appendix A.

## **6.0 SUMMARY OF FINDINGS AND CONCLUSIONS**

### **6.1 Geology**

Detailed descriptions of the encountered subsurface conditions are presented on the borehole logs included in Appendix B. Boundaries of soil indicated on the log sheets are intended to reflect transition zones for the purpose of environmental assessment and should not be interpreted as exact planes of geological change.

The subsurface conditions in the boreholes are summarized in the following paragraphs:

#### **Ground Cover:**

A layer of asphalt pavement was encountered in BH3, BH4, BH6, BH7, BH-E1, BH-E2, BH-E4, BH-E5 and BH-E8 to BH-E11. The thickness of asphalt was observed to vary between 75 mm to 150 mm. The layer was observed to be underlain by 75 mm to 180 mm of granular material.

Borehole 2, E3 and E7 were advanced through 100 mm to 180 mm-thick concrete slabs. The slab was found underlain by 100 mm of granular material at BH-2.

#### **Topsoil/Fill Material:**

A layer of fill material was encountered in all boreholes, extending between 0.2 m to 4.6 m depth. The fill material was comprised of sand & gravel, clayey silt, construction debris and sandy silt with trace to some topsoil. Buried layers of topsoil were encountered locally in BH-E5 from 0.8 mbgs to 1.5mbgs, and BH-E15 from 2.3 mbgs to 3.0 mbgs.

#### **Glacial Till Deposit:**

Except BH1, BH-E9 and BH-E10, a layer of glacial till deposit, comprising sandy silt to clayey silt, was encountered in all boreholes underlying the fill material.

#### **Shale bedrock (Georgian Bay Formation):**

The presence of bedrock was inferred from auger/sampler refusal or confirmed by split spoon sampling in all boreholes at depths, generally varying between 4.0 m and 6.1 m. No bedrock was encountered in BH-E3, BH-E14 and BH-E15. An auger refusal was observed in BH-E7 at a depth of 2.4 m, which is much shallower than the other locations. This could be due to boulder obstruction and not necessarily a bedrock depth.

Detailed descriptions of the encountered subsurface conditions are presented on the borehole logs provided in Appendix B.

## 6.2 Groundwater Elevations and Flow Direction

A total of seventeen (17) monitoring wells (denoted BH/MW2, BH/MW6, BH/MW7, and BH/MW E1 to BH/MW E13) were installed at the Property for environmental monitoring and sampling.

Prior to groundwater sampling activities, the depth to groundwater was measured in the monitoring wells on June 12, 2018 and June 13, 2018. Details of the measured groundwater elevations are summarized in the table below.

Monitoring Well	Bottom of Monitoring Well (mbgs)	Ground Surface Elevation	Screen Length (m)	Water elevation (mASL)	Water level (mbgs)
BH/MW2	6.1	155.02	3.05	153.82	1.98
BH/MW4	6.2	154.14	3.05	154.58	3.13
BH/MW6	4.0	154.74	3.05	153.52	1.22
BH/MW7	6.1	154.76	3.05	152.96	1.8
BH/MW E1	5.64	154.63	3.05	151.72	2.91
BH/MW E2	5.49	154.01	3.05	152.453	1.56
BH/MW E3	3.7	154.73	3.05	152.568	2.16
BH/MW E4	5.49	154.31	3.05	152.807	1.05
BH/MW E5	5.8	155.30	3.05	152.853	2.45
BH/MW E6	4.9	154.47	3.05	151.683	2.79
BH/MW E7	2.44	154.78	3.05	153.4	1.38
BH/MW E8	5.18	155.23	3.05	152.142	3.09
BH/MW E9	4.27	155.66	3.05	152.731	2.93
BH/MW E10	4.72	155.72	3.05	152.686	3.03
BH/MW E11	5.79	155.26	3.05	152.409	2.85
BH/MW E12	5.33	157.59	3.05	155.194	2.40
BH/MW E13	5.03	157.04	3.05	154.552	2.49

The water levels were measured using an interface probe (Solinst Interface Meter, Model 1220). Based on the groundwater elevations, the groundwater below the Property appeared to flow in an easterly direction. No odour, sheen or free-phase product was observed in any of the monitoring wells.



## **6.2.1 Additional Groundwater Sampling**

As a part of delineation investigation, nine (9) additional monitoring wells (MW 201 to MW 210) were installed on the Site as a groundwater delineation program to determine the extents of contaminants identified during the first round of investigations.

As described in section 6.7, eleven (11) groundwater samples [including one (1) duplicate sample and one (1) trip blank sample] were collected from the Site during the delineation program and submitted to ALS for chemical analysis.

## **6.3 Groundwater Hydraulic Gradient**

Based on the groundwater records collected, the horizontal hydraulic gradient was estimated for the aquifer water table. Based on the available information, the horizontal hydraulic gradient of the groundwater flow for the site is between 0.01287 and 0.02980 (average 0.021335) in an easterly direction.

## **6.4 Soil Texture**

No grain size analysis was performed as part of the Phase Two ESA. Therefore, the site condition standards for coarse textured soils were used in the assessment.

## **6.5 Soil Field Screening**

Head space vapour screening was conducted for all retrieved soil samples using a combustible gas detector (RKI Eagle) in methane elimination mode, calibrated with hexane and having a minimum detection level of  $\pm 5\%$ .

Soil vapour measurements ranging from non-detect to 5 ppm were recorded for the soil samples, indicating insignificant combustible gases in the soil samples retrieved from the boreholes.

## **6.6 Soil Quality**

### **6.6.1 Soil Samples**

Soil sampling was conducted on April 30, May 10 and June 5, 2018. Representative “worst case” soil samples from each environmental borehole were selected based on the soil vapour measurements and visual olfactory observations. Based on the field screening, a total of twenty-nine (29) soil samples, including duplicate samples, were submitted for chemical analysis of M&I, PHCs (F1-F4), OCPs, PCBs and VOCs. A summary of the soil samples and selected analyses is presented below.

Sample ID	Date	Sample (mbgs)	Depth	Parameter Analysed (O. Reg. 153/04 as amended)
BH2-SS3	April 30, 2018	1.5-2.1		PHCs
BH6-SS5	May 1, 2018	3.1-3.7		PHCs
BH5-SS1		0-0.6		M&I
BHE5-SS2	May 10, 2018	0.8-1.4		PCBs
BHE15-SS3		1.5-2.1		PCBs
BHE4-SS2		0.8-1.4		PCBs
BHE14-SS3		1.5-2.1		M&I
BHE5-SS3		1.5-2.1		M&I
BHE4-SS4		2.3-2.9		M&I
BHE15-SS2		0.8-1.4		M&I
BHE15-SS5		3.1-3.7		PHCs, VOCs
BHE14-SS1		0-0.6		OCPs
DUP-S1		-		Metals
DUP-S2		-		PCBs
BHE6-SS4		2.3-2.9		PHCs, VOCs
BHE11-SS2		0.8-1.4		PHCs
BHE1-SS4		2.3-2.9		PHCs
BHE8-SS5		3.1-3.7		PHCs
BHE2-SS4		2.3-2.9		PHCs
BHE10-SS5	3.1-3.7		PHCs	
BHE4-SS2	0.8-1.4		PHCs, VOCs	
BHE9-SS2	0.8-1.4		PHCs	

Sample ID	Date	Sample Depth (mbgs)	Parameter Analysed (O. Reg. 153/04 as amended)
BH13-SS1		0-0.6	PHCs
BHE12-SS2		0.8-1.4	PHCs
BHE5-SS4		0-0.6	PHCs, VOCs
BH3-SS5	June 5, 2018	3.1-3.7	PHCs
BH7-SS1		0-0.6	M&I
BH7-SS3		1.5-2.1	PHCs
DUP-S3		-	PHCs

The analytical results of soil samples indicated elevated PHCs, BTEX, M&I, and VOCs in excess of the MECP Table 8 Standard, in the following soil samples:

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
BH2-SS3	1.5-2.1	F2 (C10-C16)	235	ug/g	10
		F3 (C16-C34)	2750	ug/g	240
		F4 (C34-C50)	802	ug/g	120
		F4G-SG (GHH-Silica)	2230	ug/g	120
BH5-SS1	0.0-0.6	SAR	31.4		5
		EC	10.2	mS/m	0.7
BHE5-SS3	1.5-2.1	SAR	8.62		5
		EC	0.853	mS/m	0.7
		Chromium, Hexavalent	0.78	ug/g	0.66
BHE4-SS4	2.3-2.9	SAR	5.41		5

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		EC	0.709	mS/m	0.7
BHE15-SS2	0.8-1.4	Chromium, Hexavalent	0.94	ug/g	0.66
BHE15-SS5	3.1-3.7	n-Hexane	1.06	ug/g	0.05
		Xylenes (Total)	0.676	ug/g	0.05
		F1 (C6-C10)	35	ug/g	25
		F1-BTEX	34.3	ug/g	25
		F2 (C10-C16)	321	ug/g	10
BHE6-SS4	2.3-2.9	Xylenes (Total)	0.102	ug/g	0.05
BHE11-SS2	0.8-1.4	F2 (C10-C16)	26	ug/g	10
		F3 (C16-C34)	648	ug/g	50
		F4 (C34-C50)	528	ug/g	50
		F4G-SG (GHH-Silica)	1670	ug/g	250
BHE10-SS5	3.1-3.7	F2 (C10-C16)	69	ug/g	10
BHE9-SS4	2.3-2.9	F2 (C10-C16)	108	ug/g	10
BHE2-SS2	0.8-1.4	Chromium, Hexavalent	0.77	ug/g	0.66

The concentrations of the tested parameters for the remaining samples were below the MECP Table 8 Standards during the Phase Two ESA.

### **Soil pH**

The pH of all six (6) tested soil samples, representative of surface and subsurface soil, were found in the range of 5 to 9, and 5 to 11, respectively. These pH values are within the limits for the use of the generic criteria of O. Reg. 153/04, as amended. Complete laboratory results are included in Appendix C.

## 6.7 Groundwater Quality

Eighteen (18) groundwater samples from monitoring wells were submitted to the laboratory for chemical analyses on June 12 and 13, 2018. The summary of the chemical analysis is as follows:

Sample ID	Parameter Analysed ( O.Reg.153/04 as amended)
MWE3	PHCs & BTEX
MWE4	M&I, PHCs (F1-F4), VOCs, and PCBs
MWE5	M&I, PHCs (F1-F4), VOCs, and PCBs
MWE9	PHCs & BTEX
MWE10	PHCs & BTEX
MW6	PHCs & BTEX
MW7	PHCs & BTEX
Dup-W2	PHCs & BTEX
MWE1	PHCs
MWE2	M&I, PHCs (F1-F4)
MWE6	PHCs & VOCs
MWE7	M&I, PHCs (F1-F4)
MWE8	PHCs
MWE11	PHCs
MWE12	PHCs
MWE13	PHCs
DUP-W1	M&I
Trip Blank	VOCs

The analytical results of groundwater samples indicated elevated PHCs, BTEX, and M&I in excess of the MECP Table 8 Standard, in the following groundwater samples:

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
MW E4	Chloride (Cl)	1500	mg/L	790
	Sodium (Na)-Dissolved	768000	ug/L	490000
MW E10	Benzene	18.6	ug/L	5
	F2 (C10-C16)	280	ug/L	150
DUP-W2	Benzene	18.7	ug/L	5
	F2 (C10-C16)	280	ug/L	150
MW-E7	Chloride (Cl)	1280	mg/L	790
MW-E11	F1 (C6-C10)	606	ug/L	420
	F2 (C10-C16)	1650	ug/L	150

The concentrations of the tested parameters for the remaining samples were below the MECP Table 8 Standards during the Phase Two ESA.

## 6.8 Sediment Quality

Sediment sampling was not carried out in this investigation.

## 7.0 DELINEATION PROGRAM

Soil delineation program was conducted at the Site to determine the lateral and vertical extents of contaminants identified during the first round of investigations.

Additional eighteen (18) boreholes were drilled on August 22 to 24, 2018. Nine (9) of them were instrumented with groundwater monitoring wells. Twenty-one (21) soil samples including one (3) duplicate sample were collected from the Site during the delineation program and submitted to ALS for chemical analysis. The following samples had concentration of the tested parameters in excess of the Table 8 MECP standards:

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
BH214-SS2	0.8-1.4	SAR	5.13	-	5
BH211-SS3	1.5-2.1	SAR	25.5	-	5
		EC	1.72	mS/m	0.7
BH212-SS3	1.5-2.1	SAR	13	-	5
		EC	1.59	mS/m	0.7
BH213-SS3	1.5-2.1	SAR	5.16	-	5
DUP-S201	-	SAR	5.11	-	5
BH204-SS4	2.3-2.9	Benzene	2.26	ug/g	0.02
		Ethylbenzene	1.77	ug/g	0.05
		n-Hexane	1.49	ug/g	0.05
		Toluene	1	ug/g	0.2
		Xylenes (Total)	10	ug/g	0.05
		F1 (C6-C10)	48	ug/g	25

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		F1-BTEX	33	ug/g	25
		F2 (C10-C16)	37	ug/g	10
BH205-SS3	1.5-2.1	Benzene	0.04	ug/g	0.02
		Ethylbenzene	0.943	ug/g	0.05
		n-Hexane	0.054	ug/g	0.05
		Xylenes (Total)	2.29	ug/g	0.05
		F1 (C6-C10)	71	ug/g	25
		F1-BTEX	68	ug/g	25
		F2 (C10-C16)	331	ug/g	10
BH207-SS4	2.3-2.9	Benzene	0.0786	ug/g	0.02
		n-Hexane	0.072	ug/g	0.05
BH208-SS5	3.1-3.7	Benzene	0.0708	ug/g	0.02
		Bromodichloromethane	<0.15	ug/g	0.05
		Ethylbenzene	0.06	ug/g	0.05
		n-Hexane	0.21	ug/g	0.05
		Xylenes (Total)	0.075	ug/g	0.05
		F1 (C6-C10)	47.8	ug/g	25
		F1-BTEX	47.6	ug/g	25
		F2 (C10-C16)	15	ug/g	10



Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
DUP-S202	-	Benzene	0.0714	ug/g	0.02
		n-Hexane	0.076	ug/g	0.05
		F2 (C10-C16)	13	ug/g	10
DUP-S203	-	F2 (C10-C16)	12	ug/g	10
BH209-SS7	4.6-5.2	Benzene	0.0886	ug/g	0.02
		Bromodichloromethane	0.608	ug/g	0.05
		Chloroform	0.626	ug/g	0.05
		1,2-Dibromoethane	<0.24	ug/g	0.05
		1,2-Dichloroethane	<0.070	ug/g	0.05
		Ethylbenzene	0.086	ug/g	0.05
		n-Hexane	8.18	ug/g	0.05
		F1 (C6-C10)	208	ug/g	25
		F1-BTEX	208	ug/g	25
		F2 (C10-C16)	81	ug/g	10
BH210-SS5	3.1-3.7	Benzene	0.0326	ug/g	0.02
		Bromodichloromethane	0.137	ug/g	0.05
		Chloroform	0.065	ug/g	0.05
		n-Hexane	0.207	ug/g	0.05
		Xylenes (Total)	0.094	ug/g	0.05

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		F2 (C10-C16)	24	ug/g	10
		F3 (C16-C34)	340	ug/g	240
		F4 (C34-C50)	890	ug/g	120
		F4G-SG (GHH-Silica)	2430	ug/g	120
BH201-SS4	2.3-2.9	F2 (C10-C16)	29	ug/g	10
BH202-SS5	3.1-3.7	n-Hexane	0.208	ug/g	0.05
		F2 (C10-C16)	44	ug/g	10

As presented in Figure 5 and 6, nine (9) additional monitoring wells (MW 201 to MW 210) were installed on the Site as a groundwater delineation program to determine the extents of contaminants identified during the first round of investigations.

Eleven (11) groundwater samples [including one (1) duplicate sample and one (1) trip blank sample] were collected from the Site during the delineation program and submitted to ALS for chemical analysis. The following samples had concentration of the tested parameters in excess of the Table 8 MECP standards:

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
MW 202	F1 (C6-C10)	486	ug/L	420
	F1-BTEX	483	ug/L	420
	F2 (C10-C16)	400	ug/L	150
MW 204	Benzene	3760	ug/L	5
	1,2-Dichloroethane	3.22	ug/L	1.6
	Xylenes (Total)	2930	ug/L	300

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
	Ethylbenzene	696	ug/L	2.4
	n-Hexane	71.6	ug/L	51
	Toluene	518	ug/L	22
	F1 (C6-C10)	10800	ug/L	420
	F1-BTEX	2900	ug/L	420
	F2 (C10-C16)	1610	ug/L	150
MW 207	Benzene	299	ug/L	5
	Ethylbenzene	90.5	ug/L	2.4
	F1 (C6-C10)	4190	ug/L	420
	F1-BTEX	3770	ug/L	420
	F2 (C10-C16)	1400	ug/L	150
MW 210	Benzene	32	ug/L	5
	Ethylbenzene	5.97	ug/L	2.4
	F1 (C6-C10)	1680	ug/L	420
	F1-BTEX	1630	ug/L	420
	F2 (C10-C16)	1810	ug/L	150

## 7.1 Quality Assurance and Quality Control Results

The Phase Two ESA was carried out in accordance with the Sampling and Analysis Plan and in accordance with the Standard Operating Procedures. The sampling and decontamination procedures were conducted in accordance with the “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”, May 1996, revised December 1996, as amended by the O. Reg. 511/09.

Laboratory analytical methods, protocols and procedures were carried out in accordance with the “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”, dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11 (herein referred to as Analytical Protocol).

### 7.1.1 Field Quality Assurance / Quality Control Samples

As part of the QA/QC program for the Phase Two ESA, QC samples in the form of field duplicates were analysed. Field duplicates were obtained by collecting one sample and immediately collecting the second sample. Field duplicates represent the precision of the whole method with respect to site heterogeneity, field sampling and laboratory analysis. Field duplicate samples were collected in the field for M&I, PHCs (F1-F4), PCBs and VOCs analysis in soil and groundwater. Details of QC samples including their analysis results are presented below.

#### **Field Duplicates:**

A total of three (3) field duplicate soil sample and two (2) field duplicate groundwater samples were collected and submitted for chemical analysis. Details of duplicate samples and analysis are presented in the table below:

Duplicate Sample ID	Media	Original Sample ID	Test Conducted
DUP-S1	Soil	BH E14-SS3	M&I
DUP-S2		BH E15-SS2	PCBs
DUP-S3		BH E3-SS5	PHCs
DUP-W1	Groundwater	MW E2	M&I
DUP-W2		MW E10	PHC (F1-F4), BTEX

The result of the field duplicate samples is similar to the results for the original samples, and relative percent differences for the detectable tested parameters are within acceptable ranges. However, the relative percent differences could not be calculated between the original and duplicate samples in the situation where the original and/or duplicate samples were below the reported laboratory detection limits.

### **7.1.2 Sample Handling in Accordance with the Analytical Protocol**

The samples analyzed as part of the Phase Two ESA were handled in accordance with the analytical protocol with respect to holding time, preservation method, storage requirement and sample container type.

### **7.1.3 Certification of Results**

Based on the review of the QA/QC sample results for the soil and groundwater samples of this investigation, the Chain of Custody forms and the laboratory Certificate of Analysis, it is certified that:

- All Certificates of Analysis or Analytical Reports received pursuant to Section 47(2) of O. Reg. 153/04 as amended, comply with Section 47(3) of O. Reg. 153/04, as amended.
- A Certificate of Analysis or Analytical Report was received for each sample submitted for analysis. Copies of all Certificates of Analysis are included in Appendix C and D.

The samples analyzed as part of the Phase Two ESA were handled in accordance with the analytical protocol with respect to holding time, preservation method, storage requirement and sample container type.

### **7.1.4 Data Validation**

The Analytical Protocol established Acceptance Limits for use when assessing the reliability of data reported by analytical laboratories including maximum holding times for the storage of sample extracts between collection and analysis, analytical methods, field and/or laboratory quality assurance samples, recovery ranges for spiked samples and surrogates, Reporting Detection Limits (RDLs, mandatory maximum method detection limit) and precision required when analyzing laboratory replicate and spiked samples. The review of the data in the Certificate of Analysis indicates:

- All samples/sample extracts were analyzed within their applicable holding times using approved analytical methods.
- No tested parameters were detected in any laboratory blank samples.
- The Reported Detection Limits met for the tested parameters.
- The result of the laboratory duplicate samples is similar to the results for the original sample, and relative percent differences for the detectable tested parameters are within the acceptable range.

### **7.1.5 Data Quality Objectives**

The overall quality of field data did not affect decision making and the overall objectives of the investigation were met.

## 7.2 Phase Two Conceptual Site Model

The Phase Two Conceptual Site Model is prepared based on the findings of the Phase One ESA and this Phase Two ESA.

### 7.2.1 Description and Assessment

The Property is located at the northwest side of the intersection of Thomas Street and Joymar Drive, Mississauga, Ontario. The Property is an irregular shaped parcel of land that covers an area of approximately 2.744 hectares (approximately 6.782 acres).

The legal description of the Property and Property Identification Numbers (PINs) are summarized in the table below:

Phase One Property	Information		Source
Legal Description	PT LT 4, CON 5 WEST OF HURONTARIO ST TORONTO TWP, AS IN 275328VS; S/T RO947021, ST6612 MISSISSAUGA; CITY OF MISSISSAUGA	PT LT 4, CON 5 WEST OF HURONTARIO ST TORONTO TWP, AS IN 320279VS; S/T ST6612; CITY OF MISSISSAUGA	Service Ontario Land Registry Office #43
Property Identification Numbers (PINs)	13123-0059 (LT)	13123-0126 (LT)	Service Ontario Land Registry Office #43
Municipal Address	64 and 66 Thomas Street, 95 Joymar Drive, Mississauga	65 Tannery Street, Mississauga	Mississauga Map
Zoning	D, Development and G1, Greenbelt		Mississauga Zoning By-law

#### 7.2.1.1 Description and Assessment

The Phase One ESA identified the Potentially Contaminating Activities (PCAs) at the Property and within the Phase One Study Area that may contribute to Areas of Potential Environmental Concern (APECs) for the soil and groundwater condition at the Property, based on records reviews, interviews, and site reconnaissance.

The areas of PCAs along with the corresponding list in Table 2 Schedule D of O. Reg. 153/04 are summarized below:

Number	Location	Potentially Contaminating Activity	Details
<b><i>Phase One Property</i></b>			
PCA-1	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Aussie Auto Inc.)
PCA-2	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	(2) diesel storage tanks are located in a storage yard, east of the building (65 Tannery Street).
PCA-3	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (J. Saleman & Sons Auto Service Ltd.)
PCA-4	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in a landscaping shop (Turf Lawn Care & Maintenance Inc.)
PCA-5	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located against the northeast wall of the building (95 Joymar Drive)
PCA-6	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in a landscaping shop (Cedar Grounds Maintenance Inc.)
PCA-7	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Richard's Auto Repair).
PCA-8	South section of the	#28: Gasoline and Associated	One (1) waste oil tank is

Number	Location	Potentially Contaminating Activity	Details
	Property (66 Thomas Street)	Products Storage in Fixed Tanks	located in an auto shop (Meadowvale Collision Centre Atlantic).
PCA-9	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	Meadowvale Collision Centre Atlantic is registered as a commercial autobody shop.
PCA-10	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (L.A. Auto Repairs).
PCA-11	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	Fix Auto Collision is registered as a commercial autobody shop.
PCA-12	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Jorge's Auto Repair).
PCA-13	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Correct Automotive)
PCA-14	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) waste oil tank is located in an auto shop (Streetsville Auto & Tire)
PCA-15	Northeast section of the Phase One Property (95 Joymar Drive)	#40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications	Clitar Groundskeeping and Cedar Grounds Maintenance (95 Joymar Drive) were registered as pesticide operators. The northeast section of the Property was used as the storage area for



Number	Location	Potentially Contaminating Activity	Details
			the landscaping companies.
PCA-16	Northeast section of the Phase One Property (95 Joymar Drive)	# 55: Transformer Manufacturing, Processing and Use	Power line supplies and commercial electrical boxes were observed on the associated parking area of AL Power Lines Ltd located at 95 Joymar Drive.
PCA-17	South section of the Phase One Property	# 33: Metal Treatment, Coating, Plating and Finishing	Metal industrial shops including aluminum shops were located at 66 Thomas Street in the 1980s.
PCA-18	Northwest section of the Property (95 Joymar Drive)	# 48: Salt Manufacturing, Processing and Bulk Storage	Two (2) dome road salt shelters were observed in the northwest section of the Property.
PCA-19	Phase One Property	Not listed, waste generators records	According to the ERIS report, waste generators records were located at the Phase One Property.
PCA-20	Phase One Property	Not listed, use of de-icing salts	The use of de-icing salts on the parking area, driveways, and Thomas Street, Joymar Drive and Tannery Street may have impacted the subsurface soils of the Property in relation to electrical conductivity (EC) and sodium adsorption ratio (SAR)
<b>Phase One Study Area</b>			

Number	Location	Potentially Contaminating Activity	Details
PCA-21	80 Thomas Street	Not listed, waste generators records	According to the ERIS report and city directory search, waste generators records were located at the industrial property (CTS Canada). CTS of Canada Limited was listed in Ontario Regulation 347 Waste Generators Summary for producing elect. Parts & component, acid waste – heavy metals, other specified inorganics, inorganic laboratory chemicals, aromatic solvents, aliphatic solvents, petroleum distillates, light fuels, waste oils & lubricants, emulsified oils, organic laboratory chemicals, halogenated solvents, and oil skimmings & sludges from 1989 to 2017.
PCA-22	56 Thomas Street	#28: Gasoline and Associated Products Storage in Fixed Tanks	According to the city directory search, the neighbouring property located adjoint to the east boundary of the Phase One Property (56 Thomas Street), was occupied by a gas station in the 1960s and 1970s.
PCA-23	44 Thomas Street	#43: Plastics (including Fibreglass) Manufacturing and Processing	According to the city directory search, the neighbouring property located approximately 55 m northeast

Number	Location	Potentially Contaminating Activity	Details
			of the Phase One Property (44 Thomas Street), was occupied by a plastic manufacture.
PCA-24	100 Emby Drive	Not listed, waste generators records	According to ERIS report, Mississauga Engines Inc. was listed in Ontario Regulation 347 Waste Generators Summary for producing petroleum distillates, alkaline wastes – other metals, and aromatic solvents from 1992 to 1998 and from 1999 to 2001.

### 7.2.1.2 Areas of Potential Environmental Concern

The Phase One ESA identified Areas of Potential Environmental Concern (APECs) at the Property that may have been resulted from the PCAs listed above. The identified APECs include:

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-1	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#1)	PHCs/VOCs	Soil and Groundwater
APEC-2	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA #2)	PHCs/VOCs	Soil and Groundwater

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
	Tannery Street)	Tanks			
APEC-3	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#3)	PHCs/VOCs	Soil and Groundwater
APEC4	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#4)	PHCs/VOCs	Soil and Groundwater
APEC-5	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#5)	PHCs/VOCs	Soil and Groundwater
APEC-6	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#6)	PHCs/VOCs	Soil and Groundwater
APEC-7	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#7)	PHCs/VOCs	Soil and Groundwater
APEC-8	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#8)	PHCs, VOCs	Soil and Groundwater

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
APEC-9	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#9)	PHCs, VOCs	Soil and Groundwater
APEC-10	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#10)	PHCs, VOCs	Soil and Groundwater
APEC-11	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#11)	PHCs, VOCs	Soil and Groundwater
APEC-12	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#12)	PHCs, VOCs	Soil and Groundwater
APEC-13	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater
APEC-14	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
	Thomas Street)				
APEC-15	Northeast section of the Phase One Property (95 Joymar Drive)	#40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site (PCA#15)	OCPs	Soil
APEC-16	Northeast section of the Phase One Property (95 Joymar Drive)	# 55: Transformer Manufacturing, Processing and Use	On-Site (PCA#16)	PHCs, VOCs, M&I, PCBs	Soil
APEC-17	South section of the Phase One Property	# 33: Metal Treatment, Coating, Plating and Finishing	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater
APEC-18	Northwest section of the Property (95 Joymar Drive)	# 48: Salt Manufacturing, Processing and Bulk Storage	On-Site (PCA#18)	M&I	Soil and Groundwater
APEC-19	Phase One Property	#58: Not listed, Waste generators records	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater
APEC-20	Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#20)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater
APEC-21	South portion of Phase One	Not listed, Use of de-icing salts	On-Site (PCA#21)	M&I	Soil

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
	Property				
APEC-22	East section of the Phase One Property	#28: Gasoline and Associated Products Storage in Fixed Tanks	Off-Site (PCA#22)	PHCs	Soil and Groundwater
APEC-23	East section of the Phase One Property	#43: Plastics (including Fibreglass) Manufacturing and Processing	Off-Site (PCA#23)	PHCs, VOCs	Soil and Groundwater
APEC-24	East section of the Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#24)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater

### 7.2.1.3 Subsurface Structures and Utilities

Prior to the commencement of the investigation, various utility agencies were contacted to identify buried services on public land in the vicinity of the Property. A private locator was retained to survey the proposed borehole locations for buried services. No conflicts between the proposed borehole locations and underground utilities were encountered.

## 7.2.2 Physical Setting

### 7.2.2.1 Stratigraphy

According to the geological map entitled “Quaternary Geology of Ontario-Southern Sheet” Map 2556, published by the Ministry of Northern Development and Mines, dated 1991, the overburden in the region of the Property consists of Halton Till. This material is generally characterized as silt to silty clay matrix, high in matrix carbonates content and clast poor. The bedrock in the area consists of Upper Ordovician facies. Beneath the overburden it lays the bedrock of the Queenston Formation, which consists of shale,

limestone, dolostone, siltstone. It should be noted that the subsurface soil, rock and groundwater conditions described above represent generalized conditions only and should not be considered site specific.

The field work for this investigation was consisted of drilling twenty-two (22) boreholes (denoted BH/MW2, BH3, BH5, BH/MW6, BH/MW7, BH/MW E1, BH/MW E2, BH/MW E4, BH/MW E5, BH/MW E6, and BH/MW E8 to BH/MW E15 ) and installation of monitoring wells in seventeen (17) boreholes (denoted BH/MW2, BH/MW6, BH/MW7, and BH/MW E1 to BH/MW E13), conducted on April 30, May1, May7, May8, 2018 and for BH/MW E3 and BH/MW E7 on June 5, 2018, to depths ranging from 2.4 to 6.3 mbgs.

The subsurface conditions in the boreholes are summarized in the following paragraphs:

**Ground Cover:**

A layer of asphalt pavement was encountered in BH3, BH4, BH6, BH7, BH-E1, BH-E2, BH-E4, BH-E5 and BH-E8 to BH-E11. The thickness of asphalt was observed to vary between 75 mm to 150 mm. The layer was observed to be underlain by 75 mm to 180 mm of granular material.

Borehole 2, E3 and E7 were advanced through 100 mm to 180 mm-thick concrete slabs. The slab was found underlain by 100 mm of granular material at BH-2.

**Topsoil/Fill Material:**

A layer of fill material was encountered in all boreholes, extending between 0.2 m to 4.6 m depth. The fill material was comprised of sand & gravel, clayey silt, construction debris and sandy silt with trace to some topsoil. Buried layers of topsoil were encountered locally in BH-E5 from 0.8 mbgs to 1.5mbgs, and BH-E15 from 2.3 mbgs to 3.0 mbgs.

**Glacial Till Deposit:**

Except BH1, BH-E9 and BH-E10, a layer of glacial till deposit, comprising sandy silt to clayey silt, was encountered in all boreholes underlying the fill material.

**Shale bedrock (Georgian Bay Formation):**

The presence of bedrock was inferred from auger/sampler refusal or confirmed by split spoon sampling in all boreholes at depths, generally varying between 4.0 m and 6.1 m. No bedrock was encountered in BH-E3, BH-E14 and BH-E15. An auger refusal was observed in BH-E7 at a depth of 2.4 m, which is much shallower than the other locations. This could be due to boulder obstruction and not necessarily a bedrock depth.

Detailed descriptions of the encountered subsurface conditions are presented on the borehole logs provided in Appendix B.



### **7.2.2.2 Hydrogeological Characterization**

Based on the topographic information from the 1982 Ontario Base Map, the ground surface is at approximately 155 metres above sea level (mASL), approximately 81 m above the level of Lake Ontario.

According to the topographic map, which covers the Phase Two Property, the shallow groundwater flow is influenced by the topography profile, and as such it is expected to be in a eastly direction towards the Mullet Creek, which is flowing along the northeast section of the Property to the northeast. A watershed map provided by the Toronto Regional Conservation Authority (TRCA) shows the Property is situated in the Mary Fix Creek-Credit River Watershed.

Locally, near surface groundwater flow may be influenced by underground structures (e.g. service trenches, catch basins, and building foundations). Groundwater flow direction could be confirmed only with the direct observation of the groundwater elevations as measured in the monitoring wells installed at the Property. The shallow groundwater contour lines and interpreted groundwater flow direction are shown on Figure 7.

### **7.2.2.3 Additional Groundwater Sampling**

As a part of delineation investigation, nine (9) additional monitoring wells (MW 201 to MW 210) were installed on the Site as a groundwater delineation program to determine the extents of contaminants identified during the first round of investigations.

As described in section 6.7, an additional eleven (11) groundwater samples [including one (1) duplicate sample and one (1) trip blank sample] were collected from the Site during the delineation program and submitted to ALS for chemical analysis.

### **7.2.2.4 Approximate Depth to Bedrock**

The presence of bedrock was inferred from auger/sampler refusal or confirmed by split spoon sampling in all boreholes at depths, generally varying between 4.0 m and 6.1 m. No bedrock was encountered in BH-E3, BH-E14 and BH-E15. An auger refusal was observed in BH-E7 at a depth of 2.4 m, which is much shallower than the other locations. This could be due to boulder obstruction and not necessarily a bedrock depth.

Detailed descriptions of the encountered subsurface conditions are presented on the borehole logs provided in Appendix B.

### **7.2.2.5 Approximate Depth to Water Table**

Based on the groundwater records for this investigation, depth to the groundwater table at the Property ranges from 1.29 to 3.09 mbgs (153.52 to 152.142 mASL).

### **7.2.2.6 Section 41 or 43.1 of the Regulation**

The Property is not within or adjacent to an area of natural significance and the analytical testing indicated the pH of the tested soil samples is between 5 and 9, and 5 to 11 for surface and sub-surface soils, respectively. Therefore, Section 41 of the regulation (Site Condition Standards, Environmental Sensitive Areas) does not apply to the Property. The property is not a shallow soil property, as the bedrock was not encountered within 2.0 mbgs during the investigation.

### **7.2.2.7 Soils Placed On, In or Under the Phase Two Property**

The findings of our Phase One ESA indicated no fill material of unknown quality were used at the Property; however, the drilling investigation of the Phase Two ESA indicated fill material at all borehole locations. The quality of the fill material is unknown.

### **7.2.2.8 Proposed Building and Other Structures**

At the time of this report preparation, no redevelopment plan was provided to Sirati for review.

### **7.2.2.9 Contamination In or Under the Phase Two Property**

Based on the findings of the Phase One ESA, contaminants of potential concern in the soil and groundwater with respect to the identified Areas of Potential Environmental Concern (APECs) existed at the Property and were assessed during the Phase Two ESA. Based on the information obtained from the Phase One and Phase Two ESA, MECP Table 8: Generic Site Condition Standards for Use within 30m of a Water Body in a Potable Ground Water Condition as published in the “Soil, Ground Water and Sediment Standards for use under part XV.1 of the Environmental Protection Act” (EPA), April 15, 2011 (Table 8 Standards) was selected for assessing the soil and groundwater condition at the Property.

### **7.2.2.10 Area Where Contaminants are Present**

Soil and groundwater samples were collected during the Phase Two ESA and submitted for chemical analysis of the following parameters: M&I, PHCs (F1-F4), OCPs, PCBs and VOCs .

Section 6.6 and 6.7 present the samples identified at the Property at concentration in excess of applicable site condition standards.

#### **7.2.2.11 Distribution of Contaminants**

The contaminants, at concentrations in excess of the MECP Table 8 Standards, consisted of M&I, VOC, PHC constituents as presented in section 6.6 and 6.7.

#### **7.2.2.12 Contaminants Medium**

Contaminants are identified in soil and groundwater at the Property at concentration in excess of applicable site condition standards.

#### **7.2.2.13 Reason for Discharge**

The identified exceedances in the soil and groundwater samples can be attributed to the historical potentially contaminated activities such as storage tanks, auto body shops, metal plating within the Site. Elevated EC and SAR in soil and sodium and chloride and sodium in groundwater samples are likely attributed to the application of de-icing compounds on site during the ice and snow condition on-site.

#### **7.2.2.14 Migration of Contaminants**

The identified contaminants are expected to migrate in a similar direction as the groundwater flow in the area. Based on the groundwater elevation data obtained from the latest monitoring event, the inferred groundwater flow direction is determined to be to the east.

#### **7.2.2.15 Climatic or Meteorological Conditions Influencing Contaminant Distribution of Migration**

The distribution of the contaminants can be influenced by climatic or meteorological conditions.

#### **7.2.2.16 Soil Vapour Intrusion into Buildings**

At the time of this report preparation no details of proposed redevelopment was provided for review; as such it cannot be determined whether vapours could enter into the buildings.

### **7.2.3 Potential Exposure Pathways and Receptors**

The contaminants identified are not expected to migrate into the atmosphere (air) as the impacted layers are below asphalt paved surfaces or compacted soil which prevent any migration onto the surface (air). Other contaminants present in soil and groundwater may be migrated by groundwater flow. In addition to the Mullet Creek adjacent to the north of the Site, which is flowing along the northeast section of the Property to the northeast, the catch basin manholes are present within the Site which could affect migration.



## 8.0 SUMMARY OF FINDINGS AND CONCLUSIONS

The purpose of the Phase Two ESA was to determine the soil and groundwater quality at the Property, as related to the following Areas of Potential Environmental Concerns (APECs) identified in the Phase One ESA:

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
APEC-1	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#1)	PHCs/VOCs	Soil and Groundwater
APEC-2	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA #2)	PHCs/VOCs	Soil and Groundwater
APEC-3	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#3)	PHCs/VOCs	Soil and Groundwater
APEC4	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#4)	PHCs/VOCs	Soil and Groundwater
APEC-5	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#5)	PHCs/VOCs	Soil and Groundwater
APEC-6	Central section	#28: Gasoline and	On-Site	PHCs/VOCs	Soil and

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
	of the Property (95 Joymar Drive)	Associated Products Storage in Fixed Tanks	(PCA#6)		Groundwater
APEC-7	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#7)	PHCs/VOCs	Soil and Groundwater
APEC-8	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#8)	PHCs, VOCs	Soil and Groundwater
APEC-9	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#9)	PHCs, VOCs	Soil and Groundwater
APEC-10	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#10)	PHCs, VOCs	Soil and Groundwater
APEC-11	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#11)	PHCs, VOCs	Soil and Groundwater
APEC-12	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products	On-Site (PCA#12)	PHCs, VOCs	Soil and Groundwater

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
	Thomas Street)	Storage in Fixed Tanks			
APEC-13	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater
APEC-14	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater
APEC-15	Northeast section of the Phase One Property (95 Joymar Drive)	#40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site (PCA#15)	OCPs	Soil
APEC-16	Northeast section of the Phase One Property (95 Joymar Drive)	# 55: Transformer Manufacturing, Processing and Use	On-Site (PCA#16)	PHCs, VOCs, M&I, PCBs	Soil
APEC-17	South section of the Phase One Property	# 33: Metal Treatment, Coating, Plating and Finishing	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater
APEC-	Northwest	# 48: Salt	On-Site	M&I	Soil and

<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
18	section of the Property (95 Joymar Drive)	Manufacturing, Processing and Bulk Storage	(PCA#18)		Groundwater
APEC-19	Phase One Property	#58: Not listed, Waste generators records	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater
APEC-20	Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#20)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater
APEC-21	South portion of Phase One Property	Not listed, Use of de-icing salts	On-Site (PCA#21)	M&I	Soil
APEC-22	East section of the Phase One Property	#28: Gasoline and Associated Products Storage in Fixed Tanks	Off-Site (PCA#22)	PHCs	Soil and Groundwater
APEC-23	East section of the Phase One Property	#43: Plastics (including Fibreglass) Manufacturing and Processing	Off-Site (PCA#23)	PHCs, VOCs	Soil and Groundwater
APEC-24	East section of the Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#24)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater

The findings of the field investigation and analytical results of the Phase Two ESA are summarized below:



- The field investigation for this Phase Two ESA consisted of drilling a total of twenty-two (22) boreholes to the maximum depths ranging from 7.9 to 11.6 mbgs. Seventeen (17) of the boreholes were completed as monitoring wells for groundwater observation, sampling and testing.
- The subsoil condition at the borehole/monitoring wells indicates a layer of asphalt followed by fill material of sand, gravel, clayey silt to sandy silt, overlying native glacial till deposit of sandy silt to clayey silt, followed underneath by residual soil and/or weathered shale deposit consists of clayey silt with till-like texture and contains varying amounts of siltstone/limestone and shale fragments. Residual soil is derived from weathering of the underlying shale bedrock. An auger refusal was observed in BH-E7 at a depth of 2.4 m to 6.1 m
- The soil samples retrieved from the boreholes were examined for visual and olfactory evidence of potential contamination. No evidence of potential contamination was observed in any of the retrieved soil samples.
- Head space vapour screening was conducted for all retrieved soil samples using a combustible gas detector (RKI Eagle) in methane elimination mode. Soil vapour measurements ranged from non-detect to 5 ppm.
- Based on the soil vapour measurements and visual and olfactory observations, representative “worst case” soil samples were selected from each borehole for chemical analyses of the following parameters: M&I, PHCs (F1-F4), PCBs, OCPs and VOCs.
- Based on the field observation and groundwater monitoring records, shallow groundwater is present in the sandy silt till to clayey silt till layers. Water levels were recorded at depths ranging from 1.29 to 3.09 mbgs in the monitoring wells. Based on the groundwater monitoring records, the groundwater flow direction appears to be to the east.
- Based on the available groundwater table elevations, the horizontal hydraulic gradient of the groundwater flow for the site is between 0.01287 and 0.02980 (average 0.021335) in an easterly direction.
- No free product, sheen or odours were observed in the groundwater from monitoring wells installed at the subject Property. Groundwater samples collected from the monitoring wells were submitted for analysis of the following parameters: M&I, PHCs (F1-F4), PCBs and VOCs.
- As part of the QA/QC program for the investigation, QC samples in the form of field duplicate samples were analysed. Field duplicate samples were collected in the field for M&I, PHCs (F1-F4), PCBs and VOCs in soil and in groundwater.
- The analytical test results were evaluated against the MECP Table 8: Generic Site Condition Standards for Use within 30m of a Water Body in a Potable Ground Water Condition as published

in the “Soil, Ground Water and Sediment Standards for use under part XV.1 of the Environmental Protection Act” (EPA), April 15, 2011 (MECP Table 8 Standards).

- Based on the lab results, some tested parameters in the soil and groundwater samples had concentration in excess of the applicable standards.
- To determine the lateral and vertical extent contaminants identified during the first round of investigations, delineation program consisted of supplementary soil and groundwater sampling from additional drilled boreholes and monitoring wells were conducted at the Site.

Soil samples with parameters in excess of the applicable site condition standards are summarized in the table below:

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
BH2-SS3	1.5-2.1	F2 (C10-C16)	235	ug/g	10
		F3 (C16-C34)	2750	ug/g	240
		F4 (C34-C50)	802	ug/g	120
		F4G-SG (GHH-Silica)	2230	ug/g	120
BH5-SS1	0.0-0.6	SAR	31.4		5
		EC	10.2	mS/m	0.7
BHE5-SS3	1.5-2.1	SAR	8.62		5
		EC	0.853	mS/m	0.7
		Chromium, Hexavalent	0.78	ug/g	0.66
BHE4-SS4	2.3-2.9	SAR	5.41		5
		EC	0.709	mS/m	0.7
BHE15-SS2	0.8-1.4	Chromium, Hexavalent	0.94	ug/g	0.66
BHE15-SS5	3.1-3.7	n-Hexane	1.06	ug/g	0.05

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		Xylenes (Total)	0.676	ug/g	0.05
		F1 (C6-C10)	35	ug/g	25
		F1-BTEX	34.3	ug/g	25
		F2 (C10-C16)	321	ug/g	10
BHE6-SS4	2.3-2.9	Xylenes (Total)	0.102	ug/g	0.05
BHE11-SS2	0.8-1.4	F2 (C10-C16)	26	ug/g	10
		F3 (C16-C34)	648	ug/g	50
		F4 (C34-C50)	528	ug/g	50
		F4G-SG (GHH-Silica)	1670	ug/g	250
BHE10-SS5	3.1-3.7	F2 (C10-C16)	69	ug/g	10
BHE9-SS4	2.3-2.9	F2 (C10-C16)	108	ug/g	10
BHE2-SS2	0.8-1.4	Chromium, Hexavalent	0.77	ug/g	0.66

The following soil samples contained elevated parameters after completion of the delineation investigation:

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
BH214-SS2	0.8-1.4	SAR	5.13	-	5
BH211-SS3	1.5-2.1	SAR	25.5	-	5
		EC	1.72	mS/m	0.7
BH212-SS3	1.5-2.1	SAR	13	-	5

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		EC	1.59	mS/m	0.7
BH213-SS3	1.5-2.1	SAR	5.16	-	5
DUP-S201	-	SAR	5.11	-	5
BH204-SS4	2.3-2.9	Benzene	2.26	ug/g	0.02
		Ethylbenzene	1.77	ug/g	0.05
		n-Hexane	1.49	ug/g	0.05
		Toluene	1	ug/g	0.2
		Xylenes (Total)	10	ug/g	0.05
		F1 (C6-C10)	48	ug/g	25
		F1-BTEX	33	ug/g	25
		F2 (C10-C16)	37	ug/g	10
BH205-SS3	1.5-2.1	Benzene	0.04	ug/g	0.02
		Ethylbenzene	0.943	ug/g	0.05
		n-Hexane	0.054	ug/g	0.05
		Xylenes (Total)	2.29	ug/g	0.05
		F1 (C6-C10)	71	ug/g	25
		F1-BTEX	68	ug/g	25
		F2 (C10-C16)	331	ug/g	10
BH207-SS4	2.3-2.9	Benzene	0.0786	ug/g	0.02

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		n-Hexane	0.072	ug/g	0.05
BH208-SS5	3.1-3.7	Benzene	0.0708	ug/g	0.02
		Bromodichloromethane	<0.15	ug/g	0.05
		Ethylbenzene	0.06	ug/g	0.05
		n-Hexane	0.21	ug/g	0.05
		Xylenes (Total)	0.075	ug/g	0.05
		F1 (C6-C10)	47.8	ug/g	25
		F1-BTEX	47.6	ug/g	25
		F2 (C10-C16)	15	ug/g	10
DUP-S202	-	Benzene	0.0714	ug/g	0.02
		n-Hexane	0.076	ug/g	0.05
		F2 (C10-C16)	13	ug/g	10
DUP-S203	-	F2 (C10-C16)	12	ug/g	10
BH209-SS7	4.6-5.2	Benzene	0.0886	ug/g	0.02
		Bromodichloromethane	0.608	ug/g	0.05
		Chloroform	0.626	ug/g	0.05
		1,2-Dibromoethane	<0.24	ug/g	0.05
		1,2-Dichloroethane	<0.070	ug/g	0.05
		Ethylbenzene	0.086	ug/g	0.05

Sample ID	Depth (mbgs)	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
		n-Hexane	8.18	ug/g	0.05
		F1 (C6-C10)	208	ug/g	25
		F1-BTEX	208	ug/g	25
		F2 (C10-C16)	81	ug/g	10
BH210-SS5	3.1-3.7	Benzene	0.0326	ug/g	0.02
		Bromodichloromethane	0.137	ug/g	0.05
		Chloroform	0.065	ug/g	0.05
		n-Hexane	0.207	ug/g	0.05
		Xylenes (Total)	0.094	ug/g	0.05
		F2 (C10-C16)	24	ug/g	10
		F3 (C16-C34)	340	ug/g	240
		F4 (C34-C50)	890	ug/g	120
	F4G-SG (GHH-Silica)	2430	ug/g	120	
BH201-SS4	2.3-2.9	F2 (C10-C16)	29	ug/g	10
BH202-SS5	3.1-3.7	n-Hexane	0.208	ug/g	0.05
		F2 (C10-C16)	44	ug/g	10

Groundwater samples exceedances are as follows:

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
MW E4	Chloride (Cl)	1500	mg/L	790

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
	Sodium (Na)-Dissolved	768000	ug/L	490000
MW E10	Benzene	18.6	ug/L	5
	F2 (C10-C16)	280	ug/L	150
DUP-W2	Benzene	18.7	ug/L	5
	F2 (C10-C16)	280	ug/L	150
MW-E7	Chloride (Cl)	1280	mg/L	790
MW-E11	F1 (C6-C10)	606	ug/L	420
	F2 (C10-C16)	1650	ug/L	150

Groundwater samples exceedances from delineation investigation:

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
MW 202	F1 (C6-C10)	486	ug/L	420
	F1-BTEX	483	ug/L	420
	F2 (C10-C16)	400	ug/L	150
MW 204	Benzene	3760	ug/L	5
	1,2-Dichloroethane	3.22	ug/L	1.6
	Xylenes (Total)	2930	ug/L	300
	Ethylbenzene	696	ug/L	2.4
	n-Hexane	71.6	ug/L	51

Sample ID	Exceeding Parameters	Concentration	Unit	MECP Table 8 Standards
	Toluene	518	ug/L	22
	F1 (C6-C10)	10800	ug/L	420
	F1-BTEX	2900	ug/L	420
	F2 (C10-C16)	1610	ug/L	150
MW 207	Benzene	299	ug/L	5
	Ethylbenzene	90.5	ug/L	2.4
	F1 (C6-C10)	4190	ug/L	420
	F1-BTEX	3770	ug/L	420
	F2 (C10-C16)	1400	ug/L	150
MW 210	Benzene	32	ug/L	5
	Ethylbenzene	5.97	ug/L	2.4
	F1 (C6-C10)	1680	ug/L	420
	F1-BTEX	1630	ug/L	420
	F2 (C10-C16)	1810	ug/L	150

Based on the information of the Phase Two ESA and delineation investigation, further subsurface investigation is required to delineate the vertical and horizontal extent of contamination in both soil and groundwater



## 8.1 Signatures

This Phase Two ESA was completed under supervision of a Qualified Person (QP) who is no longer at Sirati at the time of this report preparation.

Should you have any questions regarding the information presented or limitation set in this report, please do not hesitate to contact our office.

Yours truly,

**Sirati and Partners Consultants Ltd.**



**Moji Salimbahrami, EIT**  
Environmental Technician



**Alireza Maleki, P. Geo., QP<sub>ESA</sub>**  
Manager, Environmental Services

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This report was prepared based on a Phase Two ESA investigation undertaken at the property located located at 64 and 66 Thomas Street, 95 Joymar Drive, and 65 Tannery Street, in Mississauga, Ontario and is exclusively intended to provide an Environmental Site Assessment and conditions at the above noted Property.

This report was prepared by Sirati & Partners Consultants Ltd. for the sole purpose of identifying potential environmental constraints pertinent to the subject Property, including likelihood of environmental impacts on the soil and groundwater as a result of current and past uses of the Property. This report shall not be relied upon or transferred to any other party without the express written authorisation of SIRATI. It may contain material subject to copyright or obtained subject to license; unauthorised copying of this report will be in breach of copyright/license.

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This information given herein should be read in conjunction with the contract documents. Any contradiction in sampling regime should be addressed by the project leader or contract manager.

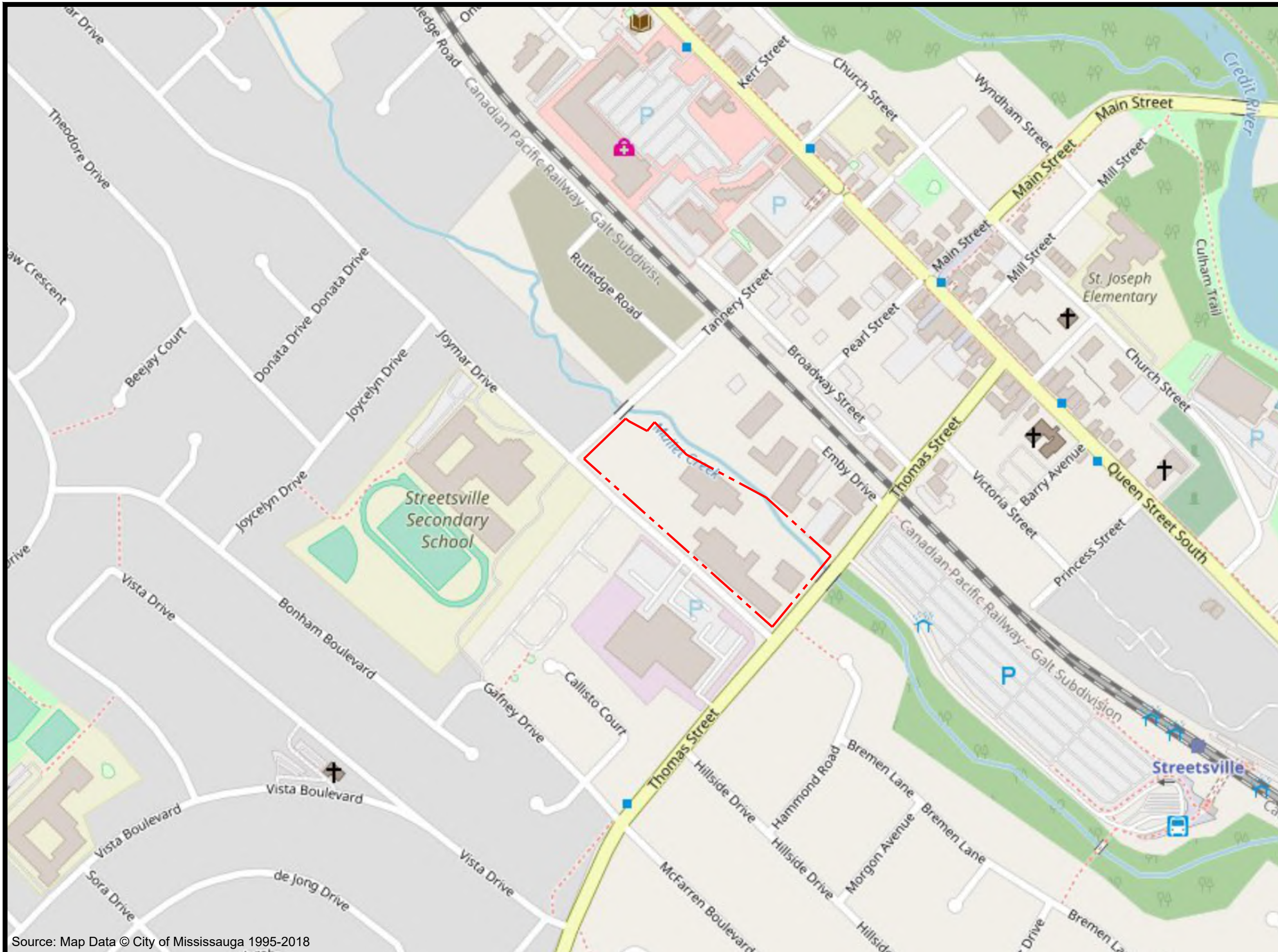
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## 10.0 REFERENCES

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- MOE. “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”, May 1996, revised December 1996, as amended by O. Reg. 511/09
- MOE. “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”, dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11.
- “Phase One Environmental Site Assessment, Proposed New Development, 7771 Highway 50 & 6800 Highway 7, Vaughan, Ontario”, dated September 27, 2017, prepared for Sherjang Singh Rana of: 2334504 Ontario Inc., by SIRATI.
- “Draft Phase I Environmental Site Assessment 7771 Highway 50 & 6800 Highway 7, Vaughan, Ontario”, dated July 11, 2012, Prepared by Pinchin Environmental Ltd.
- “Phase II Environmental Site Assessment 7771 Highway 50 & 6800 Highway 7, Vaughan, Ontario”, dated August 21, 2012, prepared by Pinchin Environmental Ltd.


# FIGURES



North:



Legend:

 Approximate Property Boundary

**Project Title:**

Phase One Environmental Site Assessment

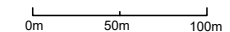
**Site Location:**

64, 66 Thomas Street, 95 Joycelyn Drive, 65 Tannery Street, Mississauga, ON.

**Figure Title:**

Site Location Plan

Scale:



Project Number:

SP18-306-20-01

Date:

July 2018

Figure Number:

1



North:



**Legend:**

- - - Approximate Property Boundary
- - - Approximate Boundary of the Phase One Study Area
- Inferred Shallow Groundwater Flow Direction

PCA on Phase One Property:

- ① ② ③ ④ ⑤ ⑥ ⑦ #28: Gasoline and Associated Products Storage in Fixed Tanks
- ⑧ ⑩ ⑫ ⑬ ⑭ ⑰
- ⑨ ⑪ #10: Commercial Autobody Shops
- ⑮ #40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications
- ⑯ # 55: Transformer Manufacturing, Processing and Use
- ⑰ # 33: Metal Treatment, Coating, Plating and Finishing
- ⑱ # 48: Salt Manufacturing, Processing and Bulk Storage
- ⑲ Not listed, Waste generators records
- ⑳ Not Listed, Use of de-icing salts

PCA on Phase One Study Area:

- ㉑ Not listed, Waste generators records
- ㉒ #28: Gasoline and Associated Products Storage in Fixed Tanks
- ㉓ #43: Plastics (including Fibreglass) Manufacturing and Processing
- ㉔ Not listed, Waste generators records

**Project Title:**

Phase One Environmental Site Assessment

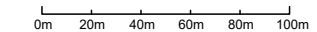
**Site Location:**

64, 66 Thomas Street, 95 Joymar Drive, 65 Tannery Street, Mississauga, ON.

**Figure Title:**

Potentially Contaminating Activities (PCAs)

**Scale:**



**Project Number:**

SP18-306-20-01

**Date:**

July 2018

**Figure Number:**

2

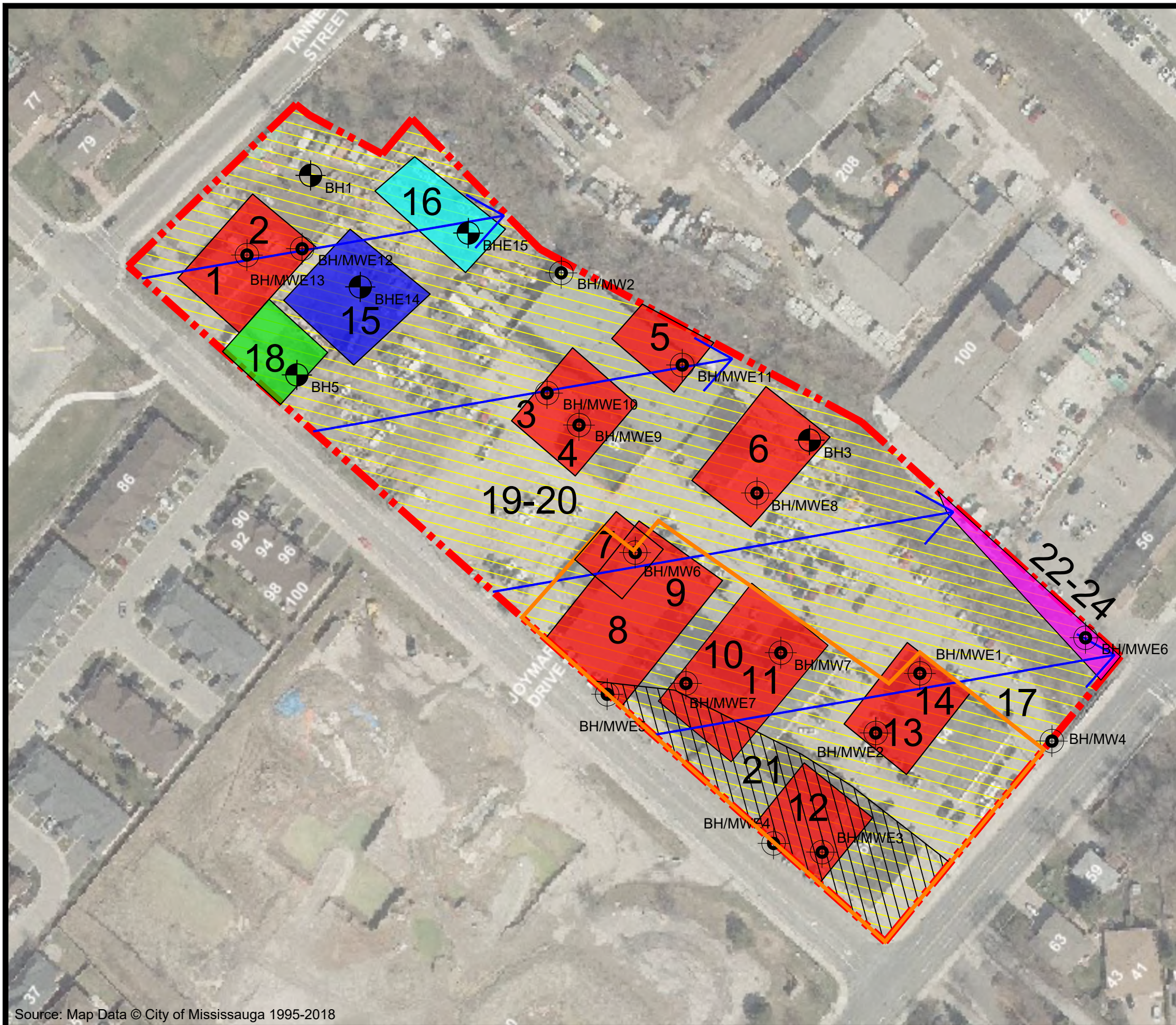
North:



**Legend:**

- - - Approximate Property Boundary
- Inferred Shallow Groundwater Flow Direction
- APEC-1 to 14      #28: Gasoline and Associated Products Storage in Fixed Tanks
- APEC-8 to 11      #10: Commercial Autobody Shops
- APEC-15            #40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications
- APEC-16            #55: Transformer Manufacturing, Processing and Use
- APEC-17            #33: Metal Treatment, Coating, Plating and Finishing
- APEC-18            #48: Salt Manufacturing, Processing and Bulk Storage
- APEC-19            Not listed, Waste generators records
- APEC-20            Use of de-icing salts
- APEC-21            Not listed, Waste generators records
- APEC-22            #28: Gasoline and Associated Products Storage in Fixed Tanks
- APEC-23            #43: Plastics (including Fibreglass) Manufacturing and Processing
- APEC-24            Not listed, Waste generators records

APEC	
APEC-1 to 14	
APEC-15	
APEC-16	
APEC-17	
APEC-18	
APEC-19 & 20	Entire Site
APEC-21	
APEC-22 to 24	



**Project Title:**

Phase One Environmental Site Assessment

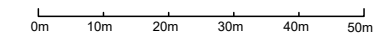
**Site Location:**

64, 66 Thomas Street, 95 Joymar Drive, 65 Tannery Street, Mississauga, ON.

**Figure Title:**

Area of Potential Environmental Concerns (APECs)

**Scale:**



**Project Number:**

SP18-306-20-01

**Date:**

July 2018

**Figure Number:**






3



North:



**Legend:**

-  Property Boundary
-  Monitoring Well
-  Borehole
-  Borehole/Monitoring Well with Exceedence
-  Borehole/Monitoring Well for Delineation

**Project Title:**

Phase Two Environmental Site Assessment

**Site Location:**

64, 66 Thomas Street, 95 Joymar Drive,  
 65 Tannery Street, Mississauga, ON

**Figure Title:**

Soil Exceedances Plan

**Scale:**

0m 10m 20m

**Project Number:**

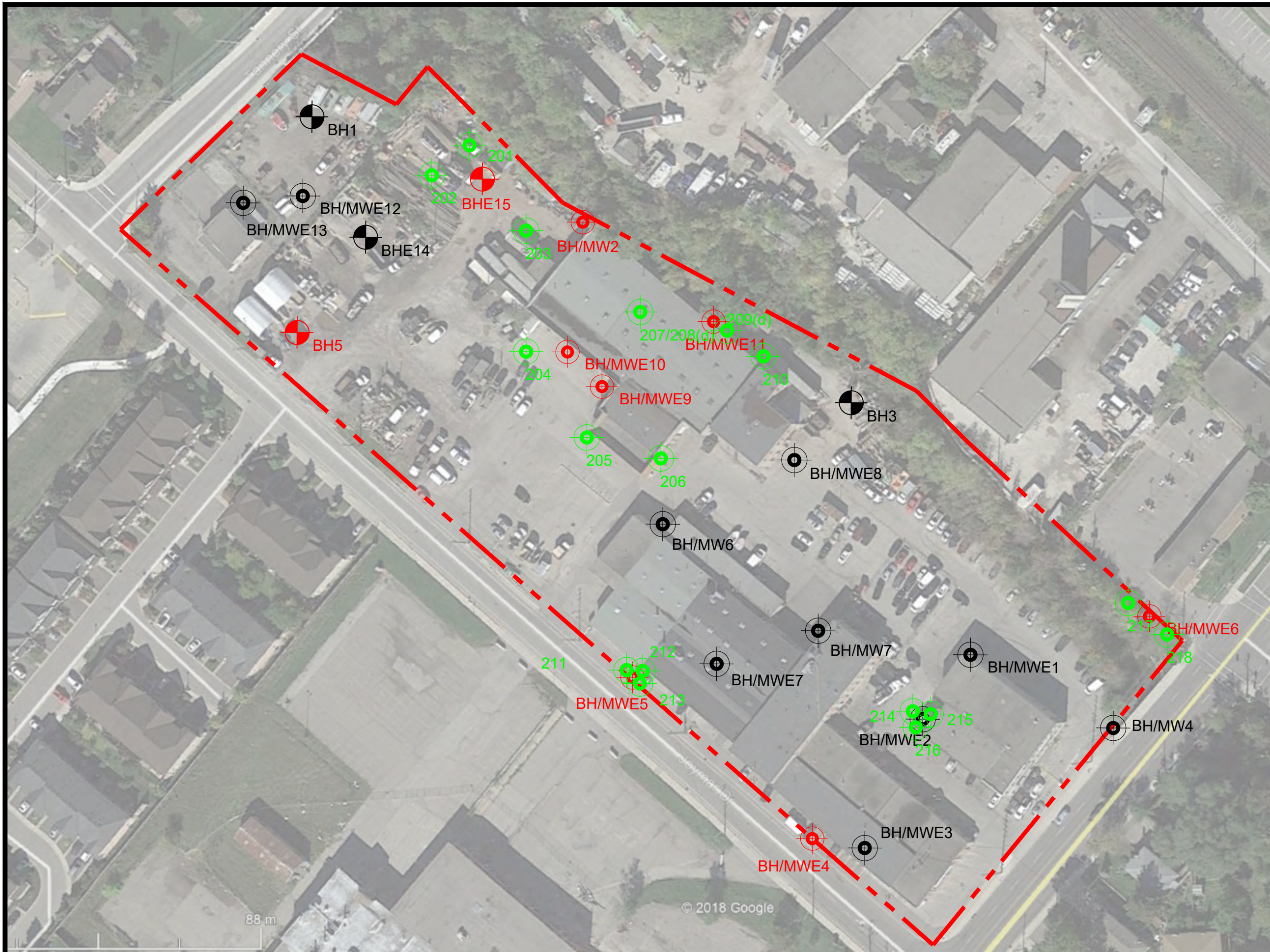
SP18-306-20

**Date:**

June 2018

**Figure Number:**

4

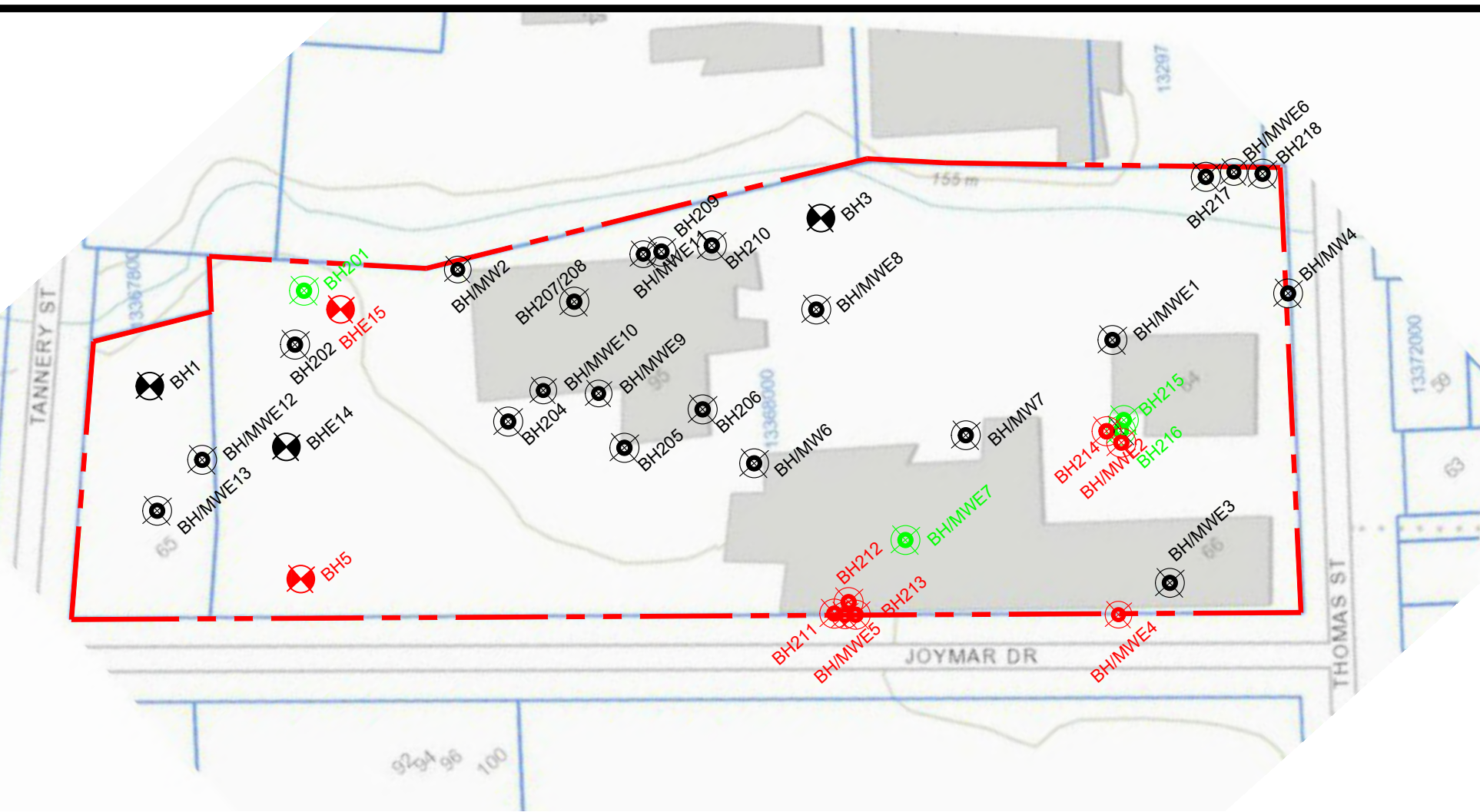


North:



Legend:

- Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceedance
- Borehole/Monitoring Well Meet Table 8



ALS				Conductivity	Cyanide, Weak Acid Diss	SAR	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Boron (B)	Boron (B), Hot Water Ext. Available	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Thallium (Tl)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Chromium, Hexavalent
Sample ID	Date Sampled	Depth (mbs)	Units	mS/cm	ug/g	SAR	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g
			LOR	0.004	0.05	0.1	1	1	1	0.5	5	0.1	0.5	1	1	1	1	0.005	1	1	0.2	0.5	1	1	1	5	0.2
			Table 8 RPI/ICC	<b>0.7</b>	<b>0.051</b>	<b>5</b>	<b>1.3</b>	<b>18</b>	<b>220</b>	<b>2.5</b>	<b>36</b>	<b>1.5</b>	<b>1.2</b>	<b>70</b>	<b>22</b>	<b>92</b>	<b>120</b>	<b>0.27</b>	<b>2</b>	<b>82</b>	<b>1.53</b>	<b>0.5</b>	<b>1</b>	<b>2.54</b>	<b>86</b>	<b>290</b>	<b>0.66</b>
BH5-SS1	4/18/2018	3.0-3.4	Soil	10.2	<0.050	31.4	<1.0	4.4	104	0.66	10.9	0.2	<0.50	18.5	10.2	21.1	8.1	0.0162	<1.0	21.9	<1.0	<0.20	<0.50	<1.0	27.6	56.3	0.2
BHE14-SS3	5/8/2018	1.5-1.9	Soil	0.391	<0.050	0.2	<1.0	6.2	88.6	0.74	11.7	<0.10	<0.50	22.2	14	34.4	9	0.0145	<1.0	28.4	<1.0	<0.20	<0.50	<1.0	30.5	64.1	0.22
BHE5-SS3	5/8/2018	1.5-1.9	Soil	0.853	<0.050	8.62	<1.0	4.4	74.9	0.57	7.9	0.32	<0.50	21	9.1	21.1	9.2	0.0269	<1.0	19	<1.0	<0.20	<0.50	<1.0	33.5	48	0.78
BHE4-SS4	5/8/2018	2.3-2.7	Soil	0.709	<0.050	5.41	<1.0	7	99	0.86	12.3	0.3	<0.50	22.8	16.7	45.8	9	0.0172	<1.0	31.7	<1.0	<0.20	<0.50	<1.0	30.7	65.8	0.25
BHE15-SS2	5/8/2018	0.8-1.2	Soil	0.598	<0.050	2.46	<1.0	4.6	87	0.73	11.9	0.21	<0.50	22.2	10.7	25.3	8.8	0.0165	<1.0	24	<1.0	<0.20	<0.50	<1.0	32.2	58.1	0.94
DUP-S1	5/8/2018	1.5-1.9	Soil	0.394	<0.050	0.21	<1.0	5.8	76.9	0.72	11.1	<0.10	<0.50	20.9	12.4	32.6	7.9	0.0145	<1.0	25.4	<1.0	<0.20	<0.50	<1.0	28.4	60.2	<0.20
BHE2-SS2	5/16/2018	0.8-1.2	Soil	0.367	<0.050	3.14	<1.0	8.6	141	0.95	11.9	1.14	<0.50	24.2	11.8	45	20.4	0.0554	<1.0	25.4	<1.0	<0.20	<0.50	1.1	38.6	290	0.77
BHE7-SS1	6/5/2018	0.0-0.6	Soil	0.192	<0.050	3.34	<1.0	1.3	10.2	<0.50	<0.50	<0.10	<0.50	5.5	2.2	4.7	2.4	<0.0050	<1.0	4.3	<1.0	<0.20	<0.50	<1.0	13.1	11.9	<0.20
BH201-SS2	8/23/2018	0.8-1.5	Soil	0.439	<0.050	0.63	<1.0	5.4	112	0.8	10.7	0.41	<0.50	24.9	12.1	28.2	10.8	0.024	<1.0	26.3	<1.0	<0.20	<0.50	<1.0	36	64.3	<0.20
BH214-SS2	8/23/2018	0.8-1.5	Soil	0.31	<0.050	5.13 *	<1.0	5.7	73.2	0.6	10	0.24	<0.50	20.1	9.2	24.8	20.9	0.0573	<1.0	20.4	<1.0	<0.20	<0.50	<1.0	30.8	59.3	<0.20
BH215-SS2	8/23/2018	0.8-1.5	Soil	0.363	<0.050	1.99	<1.0	8.5	118	0.66	9.6	0.29	<0.50	23.6	10.5	30.1	20.7	0.0447	<1.0	22.2	<1.0	<0.20	<0.50	<1.0	34	75	0.64
BH216-SS2	8/23/2018	0.8-1.5	Soil	0.35	<0.050	2.29	<1.0	5.7	79.3	0.6	7	0.56	<0.50	17	7.7	25.6	15.1	0.0346	<1.0	16.1	<1.0	<0.20	<0.50	<1.0	27.6	98.6	<0.20
BH211-SS3	8/23/2018	1.5-2.3	Soil	1.72	<0.050	25.5	<1.0	6.2	95.6	0.83	7.5	0.89	0.52	27.3	12.9	39.2	20.3	0.039	<1.0	29.2	<1.0	<0.20	<0.50	<1.0	39.9	80.7	<0.20
BH212-SS3	8/23/2018	1.5-2.3	Soil	1.59	<0.050	13	<1.0	4.9	61.4	0.59	5.2	0.3	<0.50	21.2	10	22.4	8.8	0.0239	<1.0	21.3	<1.0	<0.20	<0.50	<1.0	30.6	49.3	0.5
BH213-SS3	8/23/2018	1.5-2.3	Soil	0.672	<0.050	5.16	<1.0	4.3	51.6	0.52	5.1	0.35	<0.50	17.7	8.6	25.3	9	0.0255	<1.0	19.8	<1.0	<0.20	<0.50	<1.0	29.2	41.7	<0.20
DUP-S201	8/23/2018	0.8-1.5	Soil	0.684	<0.050	5.11	<1.0	5.2	60.8	0.58	5.9	0.27	<0.50	21	10.2	27.4	9.1	0.0244	<1.0	22.7	<1.0	<0.20	<0.50	<1.0	33.1	49.1	<0.20

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
64, 66 Thomas Street, 95 Joymar Drive,  
65 Tannery Street, Mississauga, ON

**Figure Title:**  
Soil Exceedances Plan(M&I)

**Scale:**  
0m 10m 20m

**Project Number:**  
SP18-306-20

**Date:**  
October 2018

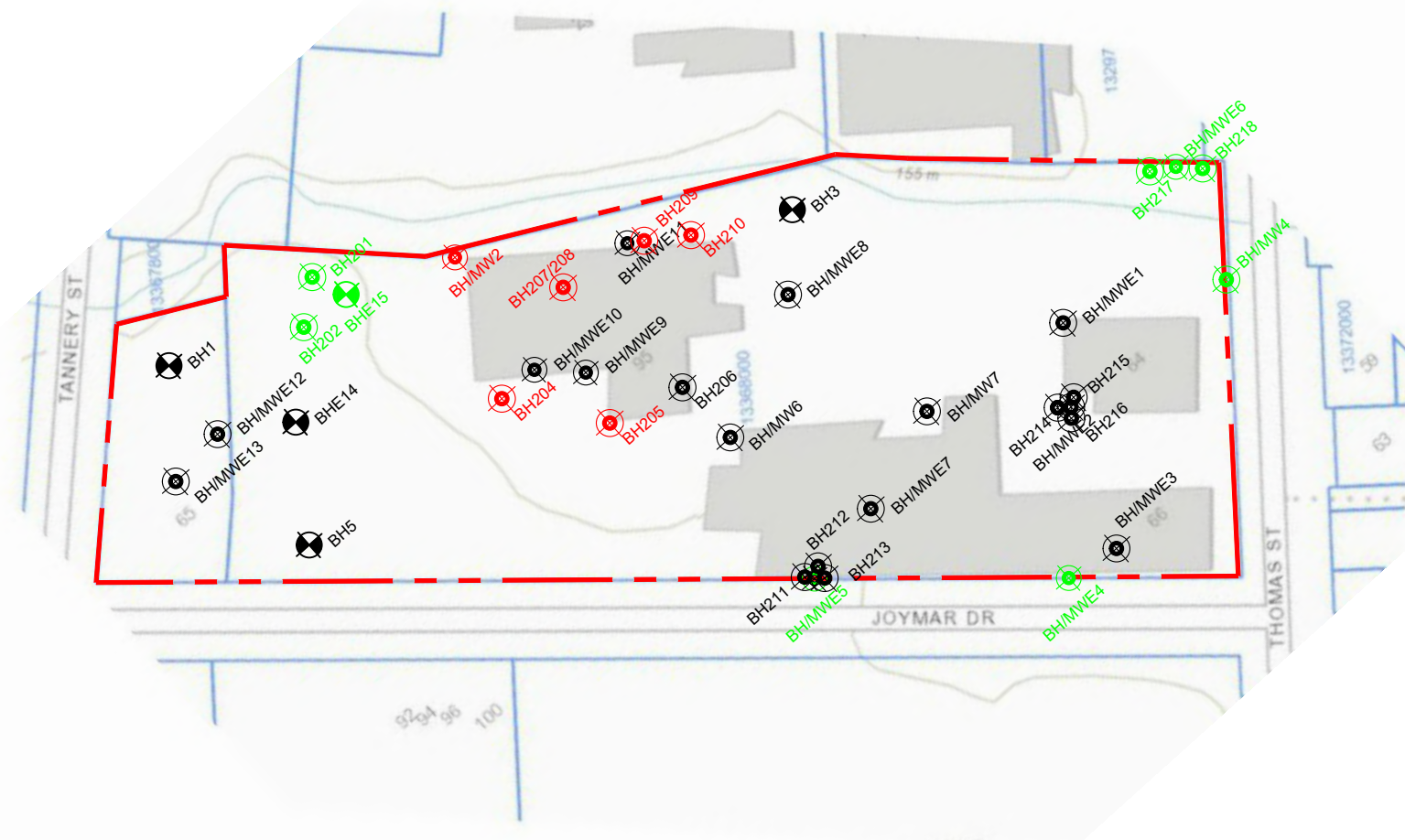
**Figure Number:**  
5-a

North:



Legend:

- Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceedance
- Borehole/Monitoring Well Meet Table 8



ALS				Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Dibromochloromethane	Chloroform	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethylene	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene
Sample ID	Depth (mbgs)	Date Sampled	Table 8 RPI/ICC	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g
			<b>LOR</b>	0.5	0.0068	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
			<b>Table 8 RPI/ICC</b>	<b>0.5</b>	<b>0.02</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>
BHE15-SS5	3.0-3.4	5/8/2018	Soil	<0.50	<0.014 *	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BHE6-SS4	2.3-2.7	5/7/2018	Soil	<0.50	0.0093	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BHE4-SS2	0.8-1.2	5/8/2018	Soil	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BHE5-SS4	2.3-2.7	5/8/2018	Soil	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH202-SS5	3-3.8	8/24/2018	Soil	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH201-SS4	2.3-3	8/23/2018	Soil	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH204-SS4	2.3-3	8/23/2018	Soil	<0.50	2.26	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH205-SS3	1.5-2.3	8/23/2018	Soil	<0.50	0.04	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH207-SS4	2.3-3	8/23/2018	Soil	<0.50	0.0786	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH208-SS5	3-3.8	8/23/2018	Soil	<0.50	0.0708	<0.15 *	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DUP-S202	2.3-3	8/23/2018	Soil	<0.50	0.0714	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DUP-S203	2.3-3	8/23/2018	Soil	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH217-SS4	2.3-3	8/21/2018	Soil	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH218-SS4	2.3-3	8/21/2018	Soil	<0.50	0.0104	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH206-SS5	3-3.8	8/21/2018	Soil	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH209-SS7	4.6-5.3	8/21/2018	Soil	<0.50	0.0886	0.608	<0.050	<0.050	<0.050	<0.050	<0.050	0.626	<0.24 *	<0.050	<0.050	<0.050	<0.050	<0.050	<0.070 *	<0.050	<0.050	<0.050
BH210-SS5	3-3.8	8/21/2018	Soil	<0.50	0.0326	0.137	<0.050	<0.050	<0.050	<0.050	<0.050	<0.065 *	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Project Title:

Phase Two Environmental Site Assessment

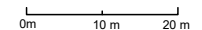
Site Location:

64, 66 Thomas Street, 95 Joymar Drive,  
 65 Tannery Street, Mississauga, ON

Figure Title:

Soil Exceedances Plan(VOCs1)

Scale:



Project Number:

SP18-306-20

Date:

October 2018

Figure Number:

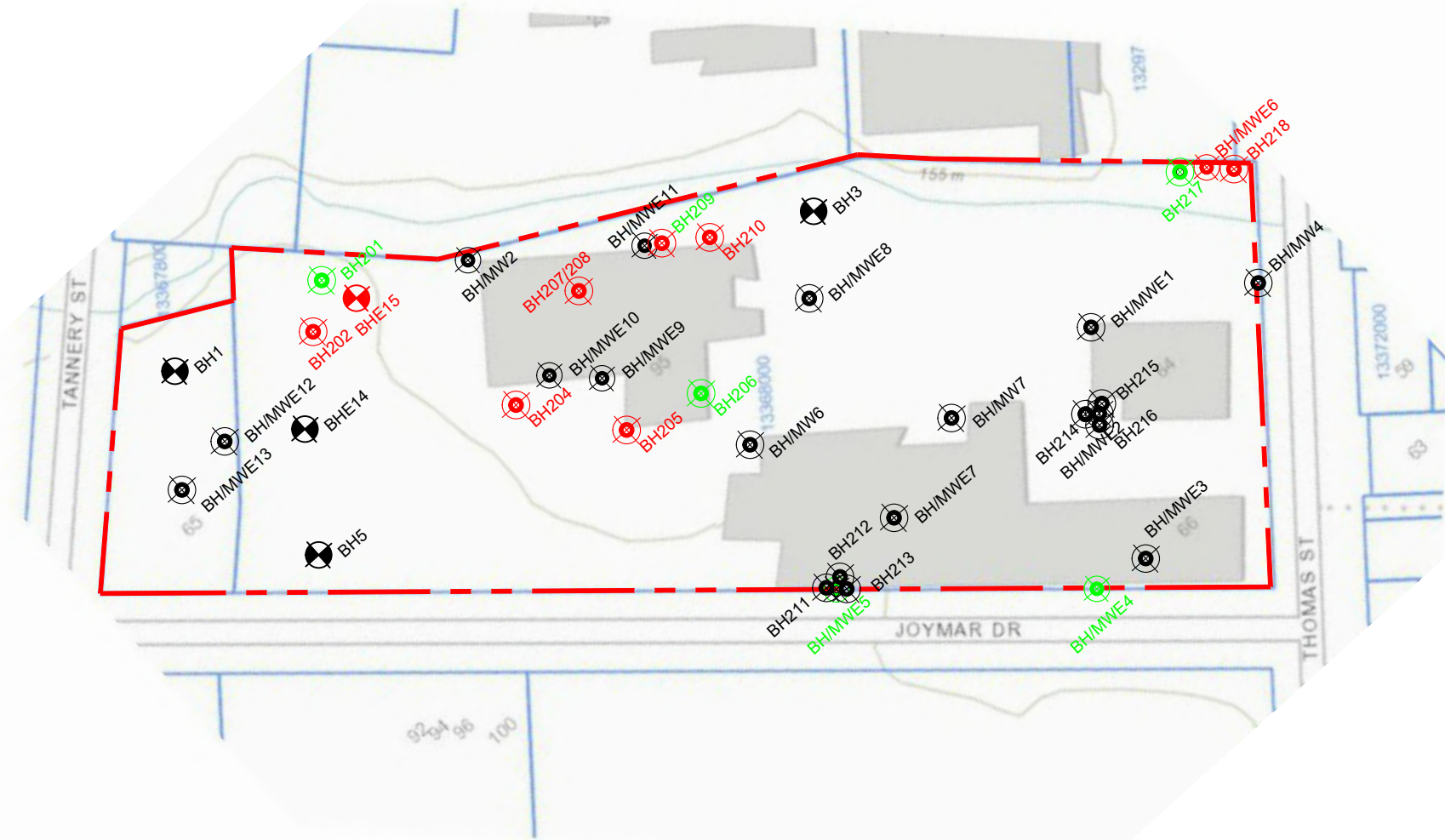
5-b

North:



Legend:

- Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceednce
- Borehole/Monitoring Well Meet Table 8



ALS				Methylene Chloride	1,2-Dichloropropane	1,3-Dichloropropene (cis & trans)	Ethylbenzene	n-Hexane	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	MTBE	Styrene	1,1,1,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane	Tetrachloroethylene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	Vinyl chloride	Xylenes (Total)
Sample ID	Depth (mbgs)	Date Sampled	Table 8 RPI/IC	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g
			<b>LOR</b>	0.05	0.05	0.042	0.018	0.05	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.08	0.05	0.05	0.01	0.05	0.02	0.05
				0.05	0.05	0.05	0.05	0.05	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05	0.05	0.25	0.02	0.05
BHE15-SS5	3.0-3.4	5/8/2018	Soil	<0.050	<0.050	<0.042	0.04	1.06	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	0.676
BHE6-SS4	2.3-2.7	5/7/2018	Soil	<0.050	<0.050	<0.042	<0.018	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	0.102
BHE4-SS2	0.8-1.2	5/8/2018	Soil	<0.050	<0.050	<0.042	<0.018	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050
BHE5-SS4	2.3-2.7	5/8/2018	Soil	<0.050	<0.050	<0.042	<0.018	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050
BH202-SS5	3-3.8	8/24/2018	Soil	<0.050	<0.050	<0.042	<0.018	0.208	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050
BH201-SS4	2.3-3	8/23/2018	Soil	<0.050	<0.050	<0.042	<0.018	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050
BH204-SS4	2.3-3	8/23/2018	Soil	<0.35 *	<0.050	<0.042	1.77	1.49	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	1	<0.050	<0.050	<0.010	<0.050	<0.020	10
BH205-SS3	1.5-2.3	8/23/2018	Soil	<0.050	<0.050	<0.042	0.943	0.054	<0.50	<0.50	<0.050	<0.050	<0.050	<0.20 *	<0.050	<0.080	<0.050	<0.20 *	<0.010	<0.050	<0.020	2.29
BH207-SS4	2.3-3	8/23/2018	Soil	<0.050	<0.050	<0.042	<0.018	0.072	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050
BH208-SS5	3-3.8	8/23/2018	Soil	<0.050	<0.050	<0.042	0.06	0.21	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.25 *	<0.010	<0.050	<0.020	0.075
DUP-S202	2.3-3	8/23/2018	Soil	<0.050	<0.050	<0.042	<0.018	0.076	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050
DUP-S203	2.3-3	8/23/2018	Soil	<0.050	<0.050	<0.042	<0.018	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050
BH217-SS4	2.3-3	8/21/2018	Soil	<0.050	<0.050	<0.042	<0.018	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	0.027	<0.050	<0.020	<0.050
BH218-SS4	2.3-3	8/21/2018	Soil	<0.050	<0.050	<0.042	0.034	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	0.014	<0.050	<0.020	0.136
BH206-SS5	3-3.8	8/21/2018	Soil	<0.050	<0.050	<0.042	<0.018	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050
BH209-SS7	4.6-5.3	8/21/2018	Soil	<0.050	<0.050	<0.042	0.086	8.18	<0.50	<0.50	<0.050	<0.050	<0.050	<0.25 *	<0.050	<0.080	<0.050	<0.32 *	<0.010	<0.050	<0.020	<0.050
BH210-SS5	3-3.8	8/21/2018	Soil	<0.050	<0.050	<0.042	<0.018	0.207	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	0.094

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
64, 66 Thomas Street, 95 Joymar Drive,  
65 Tannery Street, Mississauga, ON

**Figure Title:**  
Soil Exceedances Plan(VOCs2)

**Scale:** 0m 10m 20m  
**Project Number:** SP18-306-20

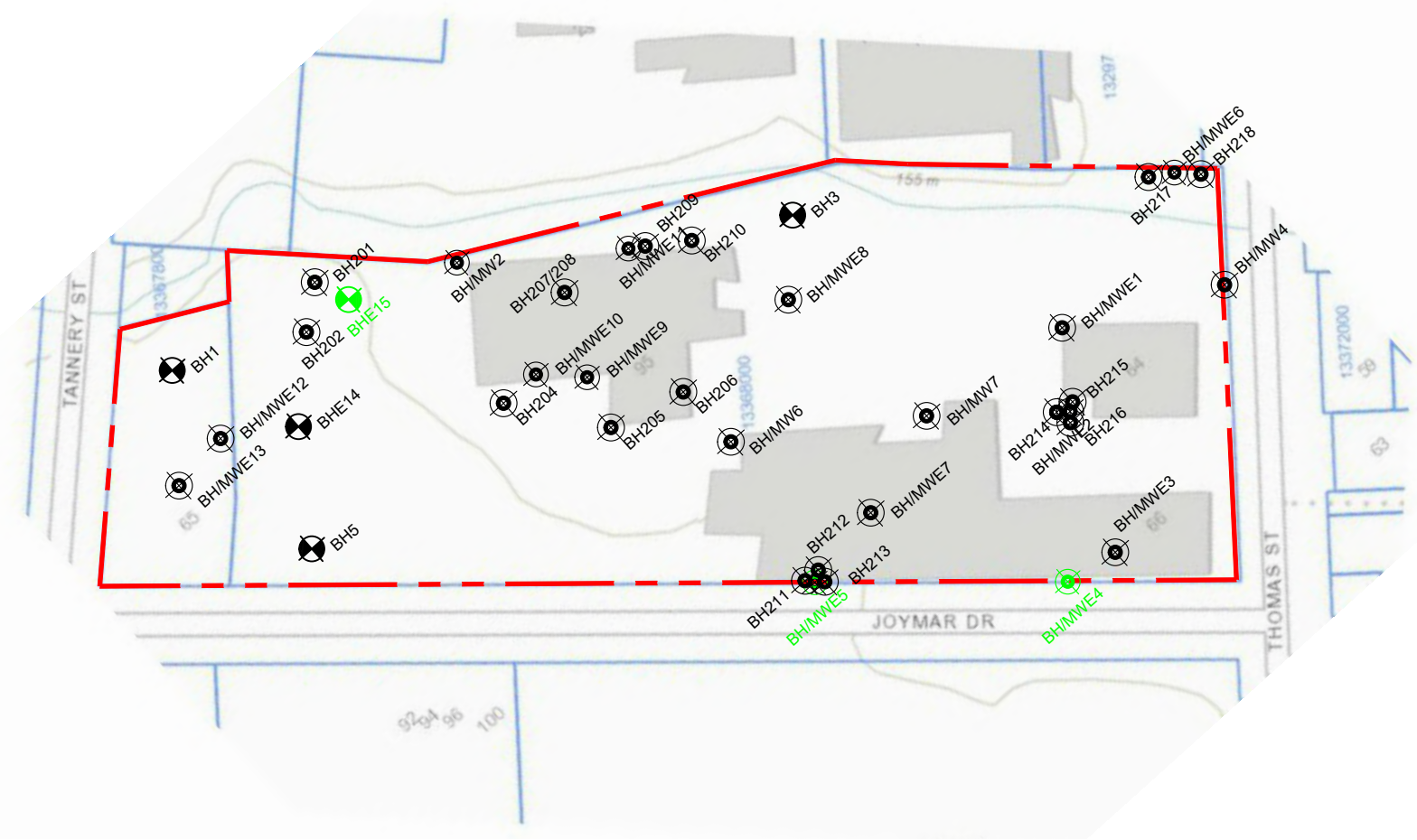
**Date:** October 2018  
**Figure Number:** 5-c

North:



**Legend:**

- Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceedance
- Borehole/Monitoring Well Meet Table 8



ALS			Analyte	Total PCBs
			Units	ug/g
			LOR	0.02
Sample ID	Depth (mbgs)	Date Sampled	Table 8 RPI/ICC	0.3
BHE5-SS2	0.8-1.2	5/8/2018	Soil	<0.020
BHE15-SS3	1.5-1.9	5/8/2018	Soil	<0.020
BHE4-SS2	0.8-1.2	5/8/2018	Soil	<0.020
DUP-S2	0.8-1.2	5/8/2018	Soil	<0.020

**Project Title:**

Phase Two Environmental Site Assessment

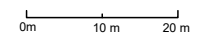
**Site Location:**

64, 66 Thomas Street, 95 Joymar Drive,  
 65 Tannery Street, Mississauga, ON

**Figure Title:**

Soil Exceedances Plan(PCBs)

Scale:



Project Number:

SP18-306-20

Date:

October 2018

Figure Number:

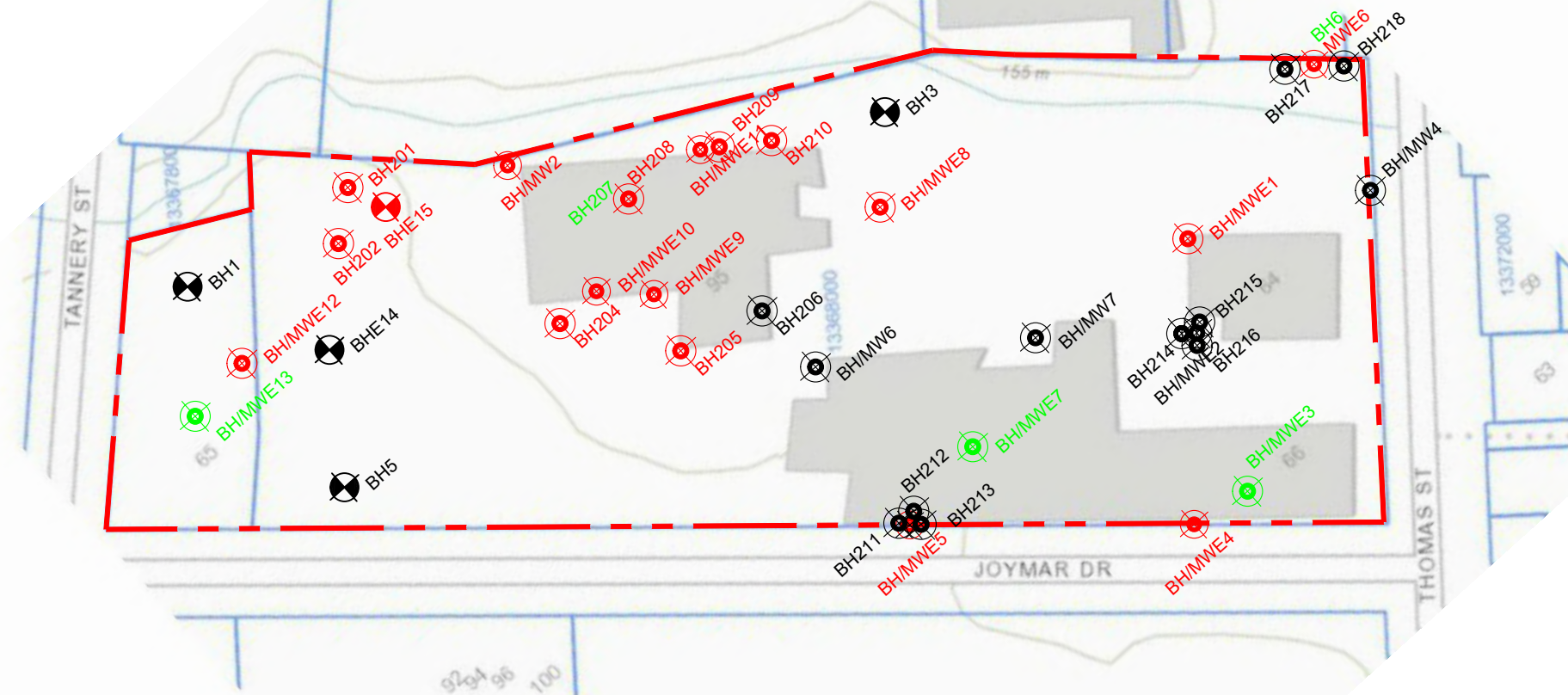
5-d

North:



Legend:

- Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceedance
- Borehole/Monitoring Well Meet Table 8



ALS			Analyte	F1 (C6-C10)	F1-BTEX	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)	F4G-SG (GHH-Silica)	ALS			Analyte	F1 (C6-C10)	F1-BTEX	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)	F4G-SG (GHH-Silica)
Sample ID	Depth (mbgs)	Date Sampled	Table 8 RPI/ICC	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	Sample ID	Depth (mbgs)	Date Sampled	Table 8 RPI/ICC	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g
BH2-SS3	1.5-1.9	4/18/2018	Soil	19.1	-	235	2750	802	2230	BHE5-SS4	2.3-2.7	5/8/2018	Soil	<5.0	<5.0	<10	<50	<50	-
BH6-SS5	3.0-3.4	4/18/2018	Soil	<5.0	-	<10	<50	<50	-	BHE3-SS5	2.4-3.0	6/5/2018	Soil	<5.0	-	<10	<50	<50	-
BH7-SS4	2.3-2.7	4/18/2018	Soil	<5.0	-	<10	<50	<50	-	BHE7-SS3	1.2-1.8	6/5/2018	Soil	<5.0	-	<10	64	<50	-
BHE15-SS5	3.0-3.4	5/8/2018	Soil	35	34.3	321	74	<50	-	DUP-S3	2.4-3.0	6/5/2018	Soil	<5.0	-	<10	<50	<50	-
BHE6-SS4	2.3-2.7	5/7/2018	Soil	<5.0	<5.0	<10	<50	<50	-	BH202-SS5	3-3.8	8/24/2018	Soil	18.5	18.5	44	<50	54	-
BHE11-SS2	0.8-1.4	5/7/2018	Soil	13	-	26	648	528	1670	BH201-SS4	2.3-3	8/23/2018	Soil	<5.0	<5.0	29	116	64	-
BHE1-SS4	2.3-2.7	5/7/2018	Soil	<5.0	-	<10	<50	<50	-	BH204-SS4	2.3-3	8/23/2018	Soil	48	33	37	<50	<50	-
BHE8-SS5	3.0-3.4	5/7/2018	Soil	<5.0	-	<10	<50	<50	-	BH205-SS3	1.5-2.3	8/23/2018	Soil	71 *	68	331	218	<50	-
BHE2-SS4	2.3-2.7	5/7/2018	Soil	<5.0	-	<10	<50	<50	-	BH207-SS4	2.3-3	8/23/2018	Soil	13.2	13.1	<10	<50	<50	-
BHE10-SS5	3.0-3.4	5/7/2018	Soil	<5.0	-	69	55	<50	-	BH208-SS5	3-3.8	8/23/2018	Soil	47.8	47.6	15	<50	<50	-
BHE4-SS2	0.8-1.4	5/8/2018	Soil	<5.0	<5.0	<10	<50	50	-	DUP-S202	2.3-3	8/23/2018	Soil	16.4	16.3	13	<50	<50	-
BHE9-SS4	2.3-2.7	5/7/2018	Soil	<5.0	-	108	75	<50	-	DUP-S203	2.3-3	8/23/2018	Soil	<5.0	<5.0	12	64	<50	-
BHE13-SS1	0-0.6	5/8/2018	Soil	<5.0	-	<10	<50	<50	-	BH206-SS5	3-3.8	8/21/2018	Soil	<5.0	<5.0	<10	<50	<50	-
BHE12-SS2	0.8-1.4	5/8/2018	Soil	<5.0	-	<10	<50	<50	-	BH209-SS7	4.6-5.3	8/21/2018	Soil	208	208	81	<50	<50	-
BHE5-SS4	2.3-2.7	5/8/2018	Soil	<5.0	<5.0	<10	<50	<50	-	BH210-SS5	3-3.8	8/21/2018	Soil	12.1	12	24 *	340 *	890 *	2430

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
64, 66 Thomas Street, 95 Joymar Drive,  
65 Tannery Street, Mississauga, ON

**Figure Title:**  
Soil Exceedances Plan(PHCs)

**Scale:** 0m 10m 20m  
**Project Number:** SP18-306-20

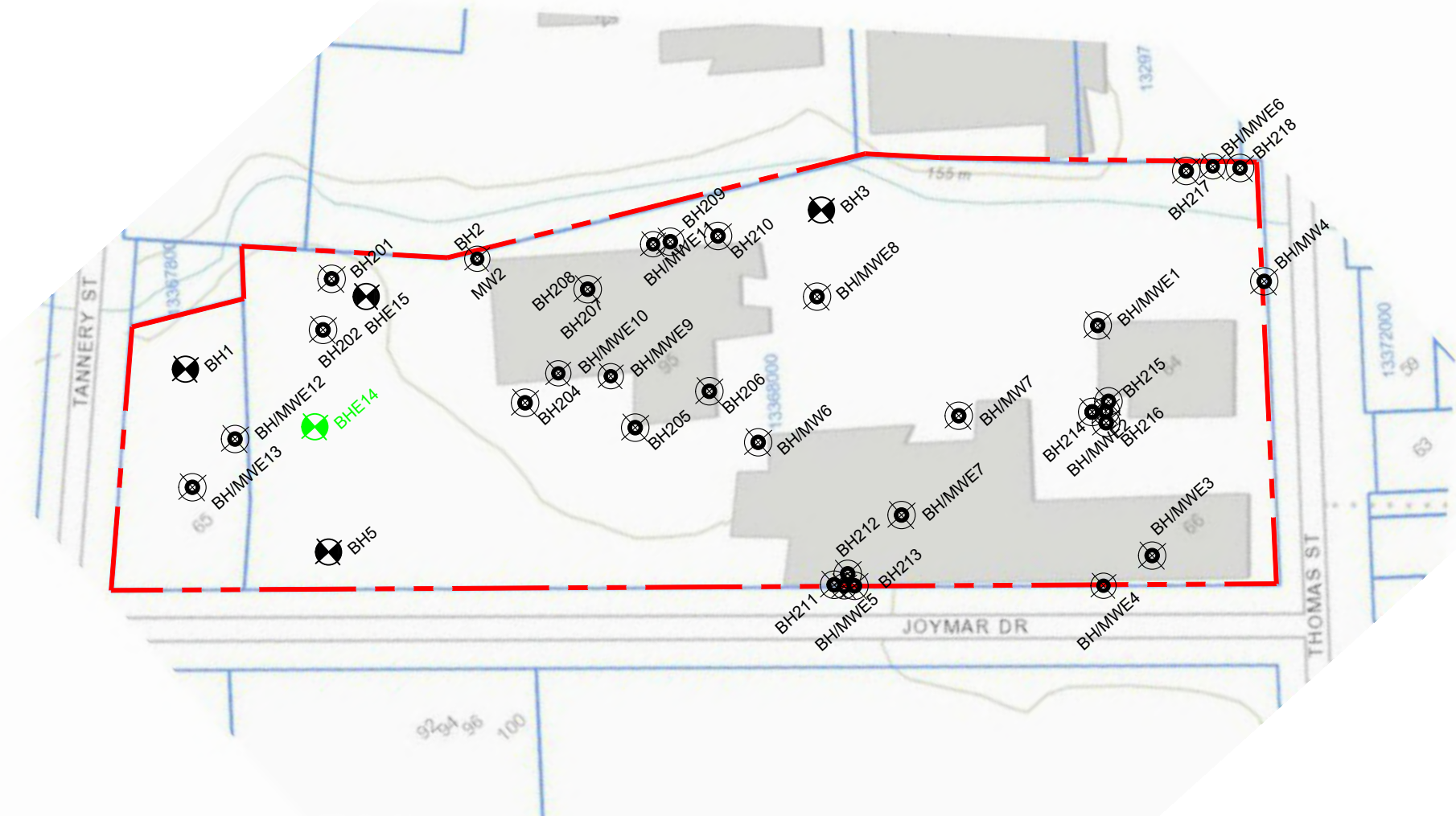
**Date:** October 2018  
**Figure Number:** 5-e

North:



Legend:

- Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceedance
- Borehole/Monitoring Well Meet Table 8



ALS				Analyte	Aldrin	gamma-hexachlorocyclohexane	a-chlordane	Chlordane (Total)	g-chlordane	op-DDD	pp-DDD	Total DDD	o,p-DDE	pp-DDE	Total DDE	op-DDT	pp-DDT
				Units	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g
				LOR	0.02	0.01	0.02	0.028	0.02	0.02	0.02	0.028	0.02	0.02	0.028	0.02	0.02
<b>Sample ID</b>	<b>Depth (mbgs)</b>	<b>ALS ID</b>	<b>Date Sampled</b>	<b>Table 8 RPI/ICC</b>	0.05	0.01	-	0.05	-	-	-	0.05	-	-	0.05	-	-
BHE14-SS1	0-0.6	L2092836-11	5/8/2018	Soil	<0.020	<0.010	<0.020	<0.028	<0.020	<0.020	<0.020	<0.028	<0.020	<0.020	<0.028	<0.020	<0.020
ALS				Analyte	Total DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan (Total)	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Hexachlorobutadiene	Hexachloroethane	Methoxychlor	
				Units	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g	
				LOR	0.028	0.02	0.02	0.02	0.028	0.02	0.02	0.02	0.01	0.01	0.01	0.02	
<b>Sample ID</b>	<b>Depth (mbgs)</b>	<b>ALS ID</b>	<b>Date Sampled</b>	<b>Table 8 RPI/ICC</b>	1.4	0.05	-	-	0.04	0.04	0.05	0.05	0.02	0.01	0.01	0.05	
BHE14-SS1	0-0.6	L2092836-11	5/8/2018	Soil	<0.028	<0.020	<0.020	<0.020	<0.028	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.020	

**Project Title:**

Phase Two Environmental Site Assessment

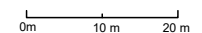
**Site Location:**

64, 66 Thomas Street, 95 Joymar Drive,  
 65 Tannery Street, Mississauga, ON

**Figure Title:**

Soil Exceedances Plan(OCPs)

**Scale:**



**Project Number:**

SP18-306-20

**Date:**

October 2018

**Figure Number:**

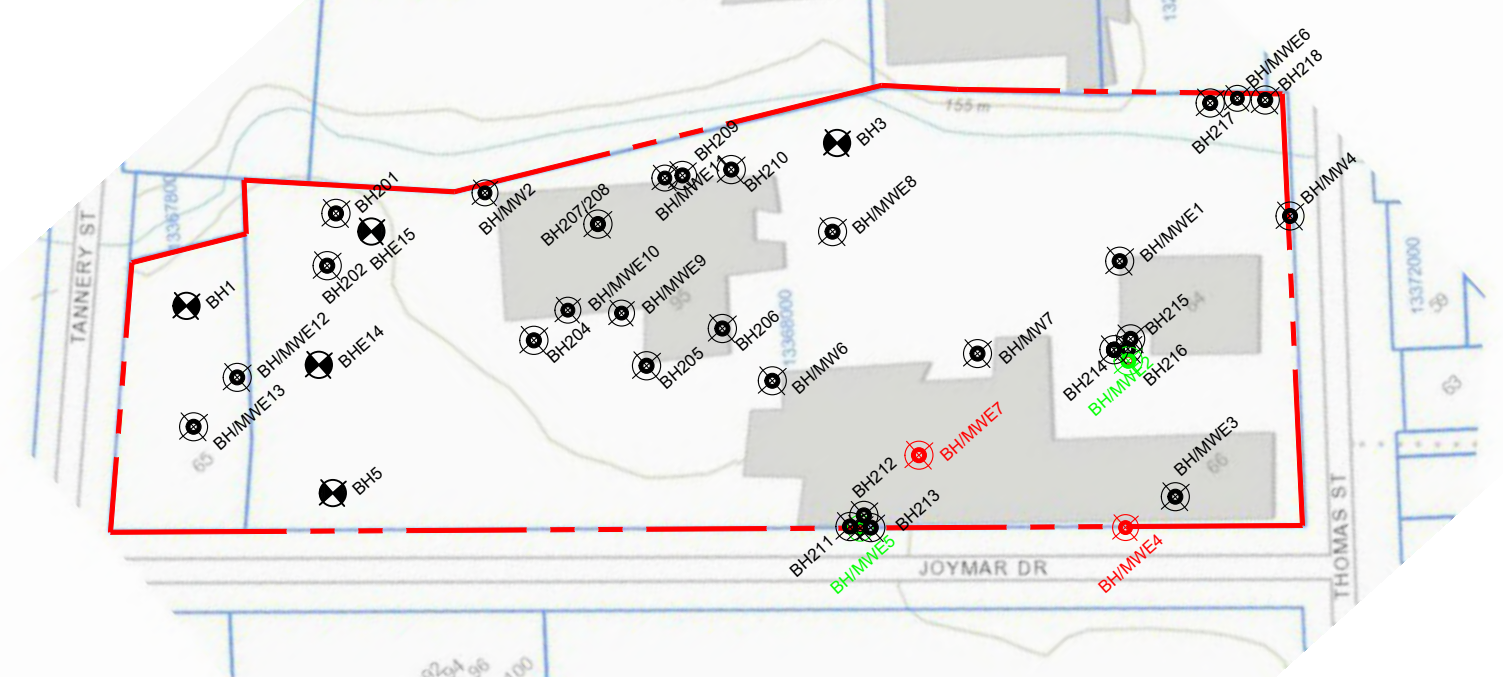
5-f

North:



Legend:

- Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceedance
- Borehole/Monitoring Well Meet Table 8



ALS	Analyte	Chloride (Cl)	Cyanide, Weak Acid Diss	Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved	Beryllium (Be)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Chromium (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Lead (Pb)-Dissolved	Mercury (Hg)-Dissolved	Molybdenum (Mo)-Dissolved	Nickel (Ni)-Dissolved	Selenium (Se)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Thallium (Tl)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolve	Chromium, Hexavalent																						
																									Units	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
																									LOR	2.5	2	0.1	0.1	0.1	0.1	10	0.01	0.5	0.1	0.2	0.05	0.01	0.05	0.5	0.05	0.05	500	0.01	0.01	0.5
Sample ID	Screen (m)	Date Sampled	Table 8	790	52	6	25	1000	4	5000	2.1	50	3.8	69	10	0.29	70	100	10	1.2	490000	2	20	6.2	890	25																				
MW E4	1.6-4.6	6/12/2018	Water	1500 *	<2.0	<1.0 *	<1.0 *	157 *	<1.0 *	210 *	<0.050 *	<5.0 *	1.8 *	3.2 *	<0.50 *	<0.010	0.99 *	<5.0 *	<0.50 *	768000 *	<0.10 *	1.27 *	<5.0 *	11 *	<0.50																					
MW E5	1.6-4.6	6/12/2018	Water	473 *	<2.0	0.42	1.23	70.4	<0.10	608	0.01	<0.50	0.68	0.36	<0.050	<0.010	3.98	1	0.125	<0.050	185000 *	0.019	1.92	0.8	1.2	<0.50																				
MW-E2	1.6-4.6	6/13/2018	Water	342 *	<2.0	<1.0 *	3.8 *	52.7 *	<1.0 *	570 *	<0.050 *	<5.0 *	<1.0 *	<2.0 *	<0.50 *	<0.010	1.08 *	11.9 *	<0.50 *	<0.50 *	110000 *	<0.10 *	0.61 *	<5.0 *	<10 *	<0.50																				
MW-E7	0.9-2.4	6/13/2018	Water	1280 *	<2.0	<1.0 *	2.2 *	246 *	<1.0 *	430 *	0.064 *	<5.0 *	1.2 *	<2.0 *	0.70 *	<0.010	3.22 *	<5.0 *	<0.50 *	<0.50 *	411000 *	<0.10 *	1.18 *	<5.0 *	<10 *	<0.50 *																				
DUP-W1	1.6-4.6	6/13/2018	Water	320 *	<2.0	<1.0 *	3.8 *	51.2 *	<1.0 *	570 *	<0.050 *	<5.0 *	<1.0 *	<2.0 *	<0.50 *	<0.010	1.03 *	11.3 *	<0.50 *	<0.50 *	106000 *	<0.10 *	0.63 *	<5.0 *	<10 *	<0.50																				

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
64, 66 Thomas Street, 95 Joymar Drive,  
65 Tannery Street, Mississauga, ON

**Figure Title:**  
Groundwater Exceedances Plan(M&I)

**Scale:**  
0m 10m 20m

**Project Number:**  
SP18-306-20

**Date:**  
October 2018

**Figure Number:**  
6-a



North:



Legend:

- Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceedance
- Borehole/Monitoring Well Meet Table 8



ALS			Analyte	Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Dibromochloromethane	Chloroform	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethylene	cis-1,2-Dichloroethylene	Xylenes (Total)
Sample ID	Screen (m)	Date Sampled	Table 8	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW E3	0.7-3.7	6/12/2018	Water	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
MW E4	1.6-4.6	6/12/2018	Water	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
MW E5	1.6-4.6	6/12/2018	Water	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
MW E9	1.2-4.2	6/12/2018	Water	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50
MW E10	1.6-4.6	6/12/2018	Water	-	18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50
MW E6	1.6-4.6	6/12/2018	Water	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50
MW E7	0.9-2.4	6/12/2018	Water	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50
DUP-W2	1.6-4.6	6/12/2018	Water	-	18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50
MW-E6	1.6-4.6	6/13/2018	Water	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
TRIP BLANK 1	-	6/13/2018	Water	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
MW201	1.6-4.6	9/14/2018	Water	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
MW202	1.6-4.6	9/14/2018	Water	<30	<0.50	<3.0 *	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	1.66
MW204	1.6-4.6	9/14/2018	Water	<30	3760 *	<3.2 *	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	3.22	<0.50	<0.50	2930
MW206	1.6-4.6	9/14/2018	Water	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
MW207	1.6-4.6	9/14/2018	Water	<30	299	<6.0 *	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.70 *	<0.50	<0.50	19.9
MW208	4.6-7.6	9/14/2018	Water	<30	1.82	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
MW209	4.6-7.6	9/14/2018	Water	<30	0.6	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
MW210	1.6-4.6	9/14/2018	Water	<30	32	<3.6 *	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	5.44
DUP-W201	1.6-4.6	9/14/2018	Water	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50
TRIP BLANK	-	9/14/2018	Water	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
64, 66 Thomas Street, 95 Joymar Drive,  
65 Tannery Street, Mississauga, ON

**Figure Title:**  
Groundwater Exceedances Plan(VOCs1)

**Scale:**  
0m 10m 20m

**Project Number:**  
SP18-306-20

**Date:**  
October 2018

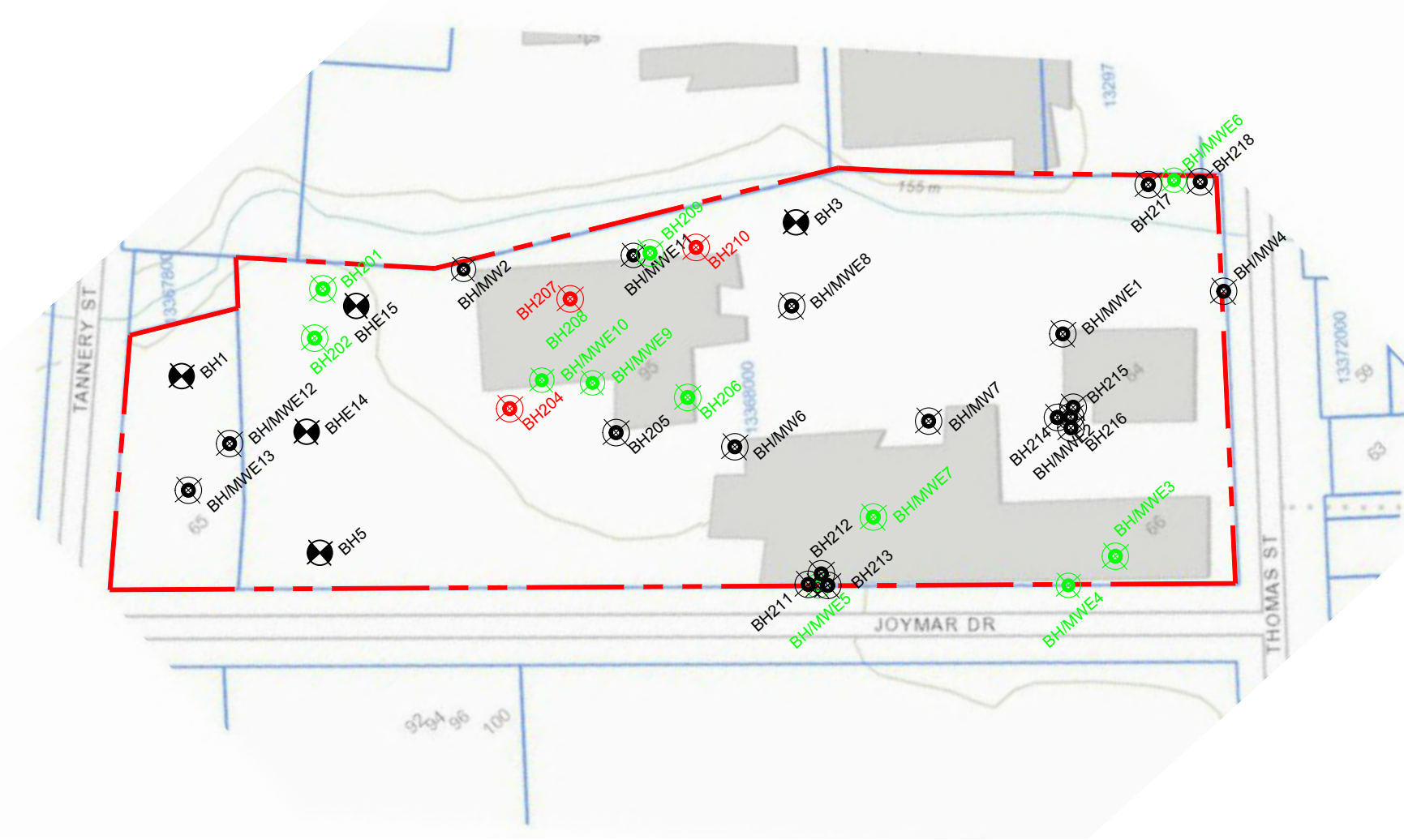
**Figure Number:**  
6-b

North:



Legend:

- - - - - Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceedance
- Borehole/Monitoring Well Meet Table 8



ALS			Analyte	trans-1,2-Dichloroethylene	Methylene Chloride	1,2-Dichloropropane	1,3-Dichloropropene (cis & trans)	Ethylbenzene	n-Hexane	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	MTBE	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	Vinyl chloride
Sample ID	Screen (m)	Date Sampled	Table 8	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW E3	0.7-3.7	6/12/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50
MW E4	1.6-4.6	6/12/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50
MW E5	1.6-4.6	6/12/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50
MW E9	1.2-4.2	6/12/2018	Water	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-
MW E10	1.6-4.6	6/12/2018	Water	-	-	-	-	1.64	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-
MW E6	1.6-4.6	6/12/2018	Water	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-
MW E7	0.9-2.4	6/12/2018	Water	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-
DUP-W2	1.6-4.6	6/12/2018	Water	-	-	-	-	1.71	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-
MW-E6	1.6-4.6	6/13/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50
TRIP BLANK 1	-	6/13/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50
MW201	1.6-4.6	9/14/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50
MW202	1.6-4.6	9/14/2018	Water	<0.50	<5.0	<0.50	<0.50	1.39	8.38	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50
MW204	1.6-4.6	9/14/2018	Water	<0.50	<9.0 *	<0.50	<0.50	696 *	71.6	<30 *	<20	<2.0	1.13	<0.50	<0.50	<0.50	518 *	<0.50	<0.50	<0.50	<5.0	<0.50
MW206	1.6-4.6	9/14/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50
MW207	1.6-4.6	9/14/2018	Water	<0.50	<5.0	<0.50	<0.50	90.5	18.8	<20	<20	<2.0	<0.50	<0.50	<0.80 *	<0.50	6.69	<0.50	<2.3 *	<0.50	<5.0	<0.50
MW208	4.6-7.6	9/14/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.69	<5.0	<0.50
MW209	4.6-7.6	9/14/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.87	<5.0	<0.50
MW210	1.6-4.6	9/14/2018	Water	<0.50	<5.0	<0.50	<0.50	5.97	4.94	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	2.17	<0.50	<0.50	<0.50	<5.0	<0.50
DUP-W201	1.6-4.6	9/14/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50
TRIP BLANK	-	9/14/2018	Water	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50

**Project Title:**  
Phase Two Environmental Site Assessment

**Site Location:**  
64, 66 Thomas Street, 95 Joymar Drive,  
65 Tannery Street, Mississauga, ON

**Figure Title:**  
Groundwater Exceedances Plan(VOCs2)

**Scale:** 0m 10m 20m  
**Project Number:** SP18-306-20

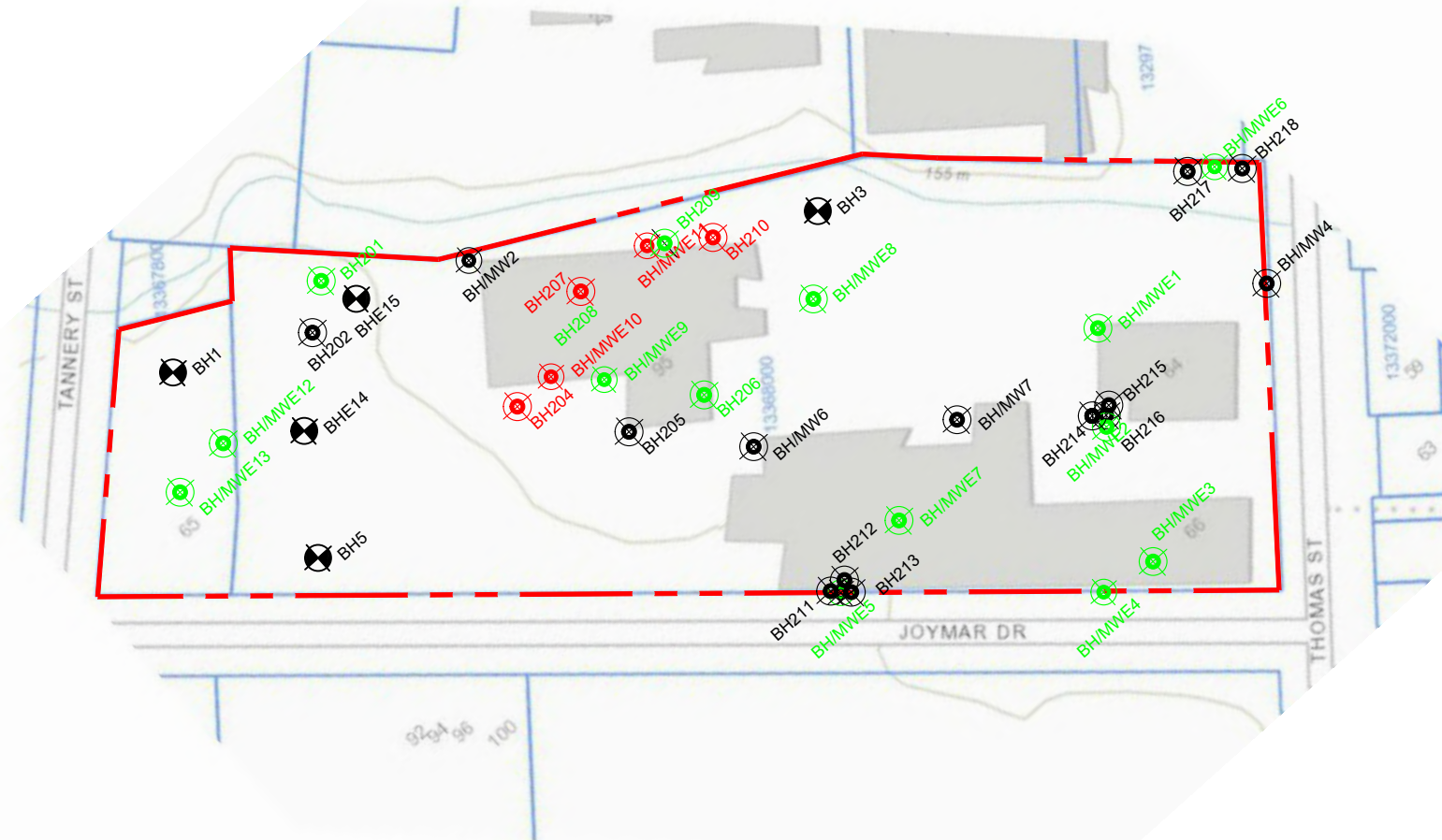
**Date:** October 2018  
**Figure Number:** 6-c

North:



Legend:

- Property Boundary
- Monitoring Well
- Borehole
- Borehole/Monitoring Well with Exceedance
- Borehole/Monitoring Well Meet Table 8



ALS			Analyte	F1 (C6-C10)	F1-BTEX	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
			Units	ug/L	ug/L	ug/L	ug/L	ug/L
			LOR	25	25	100	250	250
Sample ID	Screen (m)	Date Sampled	ONS11-T8-GW-All	420	4202	150	500	5003
MW E3	0.7-3.7	6/12/2018	Water	<25	<25	<100	<250	<250
MW E4	1.6-4.6	6/12/2018	Water	<25	<25	<100	<250	<250
MW E5	1.6-4.6	6/12/2018	Water	<25	<25	<100	<250	<250
MW E9	1.2-4.2	6/12/2018	Water	<25	<25	<100	<250	<250
MW E10	1.6-4.6	6/12/2018	Water	62	41	280	280	<250
MW E6	1.6-4.6	6/12/2018	Water	<25	<25	<100	<250	<250
MW E7	0.9-2.4	6/12/2018	Water	<25	<25	<100	<250	<250
DUP-W2	1.6-4.6	6/12/2018	Water	67	47	280	<250	<250
MW-E1	2.6-5.6	6/13/2018	Water	<25	-	<100	<250	<250
MW-E2	1.6-4.6	6/13/2018	Water	<25	-	<100	<250	<250
MW-E6	1.6-4.6	6/13/2018	Water	<25	<25	<100	<250	<250
MW-E7	0.9-2.4	6/13/2018	Water	<25	-	<100	<250	<250
MW-E8	1.9-4.9	6/13/2018	Water	<25	-	<100	<250	<250

ALS			Analyte	F1 (C6-C10)	F1-BTEX	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
			Units	ug/L	ug/L	ug/L	ug/L	ug/L
			LOR	25	25	100	250	250
Sample ID	Screen (m)	Date Sampled	ONS11-T8-GW-All	420	4202	150	500	5003
MW-E11	1.6-4.6	6/13/2018	Water	606	-	1650	<250	<250
MW-E12	2.3-5.3	6/13/2018	Water	<25	-	<100	<250	<250
MW-E13	2.0-5.0	6/13/2018	Water	<25	-	<100	<250	<250
MW201	1.6-4.6	9/14/2018	Water	<25	<25	<100	<250	<250
MW202	1.6-4.6	9/14/2018	Water	486	483	400	<250	<250
MW204	1.6-4.6	9/14/2018	Water	10800 *	2900	1610	<250	<250
MW206	1.6-4.6	9/14/2018	Water	<25	<25	<100	<250	<250
MW207	1.6-4.6	9/14/2018	Water	4190	3770	1400 *	<250 *	<250 *
MW208	4.6-7.6	9/14/2018	Water	34	33	<100	<250	<250
MW209	4.6-7.6	9/14/2018	Water	<25	<25	<100	<250	<250
MW210	1.6-4.6	9/14/2018	Water	1680	1630	1810 *	<250 *	<250 *
DUP-W201	1.6-4.6	9/14/2018	Water	<25	<25	<100	<250	<250

Project Title:

Phase Two Environmental Site Assessment

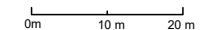
Site Location:

64, 66 Thomas Street, 95 Joymar Drive,  
65 Tannery Street, Mississauga, ON

Figure Title:

Groundwater Exceedances Plan(PHCs)

Scale:



Project Number:

SP18-306-20

Date:

October 2018






Figure Number:

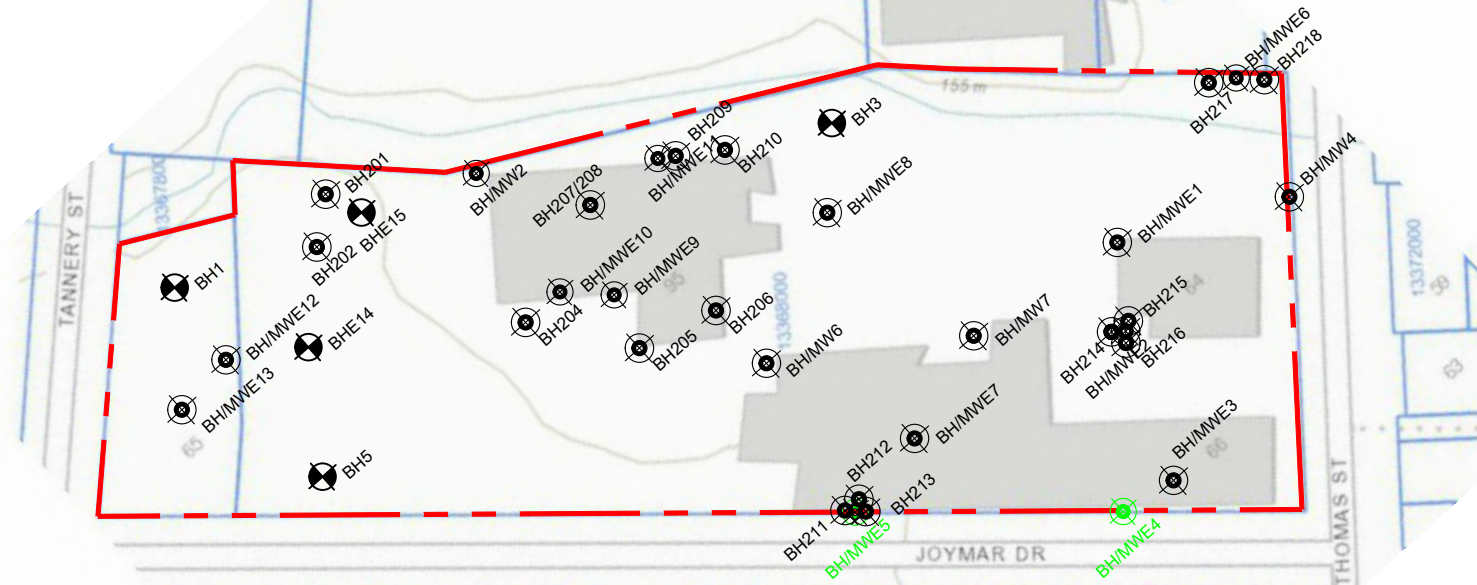
6-d

North:



Legend:

-  Property Boundary
-  Monitoring Well
-  Borehole
-  Borehole/Monitoring Well with Exceedance
-  Borehole/Monitoring Well Meet Table 8



ALS			Analyte	Total PCBs
			Units	ug/L
			LOR	0.04
Sample ID	Screen (m)	Date Sampled	ON511-T8-GW-All	0.2
MW E4	1.6-4.6	6/12/2018	Water	<0.040
MW E5	1.6-4.6	6/12/2018	Water	<0.040

**Project Title:**

Phase Two Environmental Site Assessment

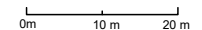
**Site Location:**

64, 66 Thomas Street, 95 Joymar Drive,  
 65 Tannery Street, Mississauga, ON

**Figure Title:**

Groundwater Exceedances Plan(PCBs)

Scale:



Project Number:

SP18-306-20

Date:

October 2018

Figure Number:

6-e



# APPENDICES

**SIRATI** & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

# APPENDIX A

**SIRATI** & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

## SAMPLING AND ANALYSIS PLAN

This Sampling and Analysis Plan is prepared for a Phase Two Environmental Site Assessment (Phase Two ESA) of the property located on the northwest side of Thomas Street, northeast side of Joymar Drive, and southeast side of Tannery Street in the City of Mississauga, Ontario as defined by Ontario Regulation (O. Reg.) 153/04, as amended. The Property has an area of approximately 2.74 ha (6.77 acres) and historically has been used for commercial purposes. It is understood that the Client is considering the future redevelopment of the Property. The site features and the location of the Phase Two Property are shown in Figure 1.

The Sampling and Analysis Plan is prepared based on the findings of our Phase One Environmental Site Assessment Update report:

*“Phase One Environmental Site Assessment Proposed Redevelopment 64 And 66 Thomas Street, 9 Joymar Drive, And 65 Tannery Street, Mississauga, Ontario”, Dated July 27, 2018, Prepared for Dezen Realty Company Ltd. By SIRATI and Partners.*

### **1) OBJECTIVE**

The purpose of the Phase Two ESA was to determine the soil and groundwater quality at the Property, as related to the following Areas of Potential Environmental Concerns (APECs) identified in the Phase One ESA:

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-1	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#1)	PHCs/VOCs	Soil and Groundwater
APEC-2	Northwest section of the Property (65 Tannery Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA #2)	PHCs/VOCs	Soil and Groundwater
APEC-3	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#3)	PHCs/VOCs	Soil and Groundwater



<b>APEC</b>	<b>Location of Potential Environmental Concern on Phase One Property</b>	<b>Potentially Contaminating Activity</b>	<b>Location of PCA (#)</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted (Groundwater, soil and/or sediment)</b>
APEC4	Central section of the Property (95 Joymar Drive))	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#4)	PHCs/VOCs	Soil and Groundwater
APEC-5	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#5)	PHCs/VOCs	Soil and Groundwater
APEC-6	Central section of the Property (95 Joymar Drive)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#6)	PHCs/VOCs	Soil and Groundwater
APEC-7	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#7)	PHCs/VOCs	Soil and Groundwater
APEC-8	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#8)	PHCs, VOCs	Soil and Groundwater
APEC-9	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#9)	PHCs, VOCs	Soil and Groundwater
APEC-10	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#10)	PHCs, VOCs	Soil and Groundwater
APEC-11	South section of the Property (66 Thomas Street)	#10: Commercial Autobody Shops	On-Site (PCA#11)	PHCs, VOCs	Soil and Groundwater

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-12	South section of the Property (66 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#12)	PHCs, VOCs	Soil and Groundwater
APEC-13	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater
APEC-14	Southeast section of the Phase One Property (64 Thomas Street)	#28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site (PCA#13)	PHCs, VOCs	Soil and Groundwater
APEC-15	Northeast section of the Phase One Property (95 Joymar Drive)	#40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site (PCA#15)	OCPs	Soil
APEC-16	Northeast section of the Phase One Property (95 Joymar Drive)	# 55: Transformer Manufacturing, Processing and Use	On-Site (PCA#16)	PHCs, VOCs, M&I, PCBs	Soil
APEC-17	South section of the Phase One Property	# 33: Metal Treatment, Coating, Plating and Finishing	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater
APEC-18	Northwest section of the Property (95 Joymar Drive)	# 48: Salt Manufacturing, Processing and Bulk Storage	On-Site (PCA#18)	M&I	Soil and Groundwater
APEC-19	Phase One Property	#58: Not listed, Waste generators records	On-Site (PCA#17)	PHCs, VOCs, M&I	Soil and Groundwater

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (#)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-20	South section of the Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#20)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater
APEC-21	Phase One Property	Not listed, Use of de-icing salts	On-Site (PCA#21)	M&I	Soil
APEC-22	East section of the Phase One Property	#28: Gasoline and Associated Products Storage in Fixed Tanks	Off-Site (PCA#22)	PHCs	Soil and Groundwater
APEC-23	East section of the Phase One Property	#43: Plastics (including Fibreglass) Manufacturing and Processing	Off-Site (PCA#23)	PHCs, VOCs	Soil and Groundwater
APEC-24	East section of the Phase One Property	#58: Not listed, Waste generators records	Off-Site (PCA#24)	PHCs, VOCs, M&I, PCBs	Soil and Groundwater

## **2) SCOPE OF WORK**

The scope of work for this Phase Two ESA included, but was not limited to the following tasks:

- Utility Locates: Prior to the advancement of the boreholes, arranged for the location of underground and overhead utilities including electrical (hydro), natural gas, water supply, sanitary and storm sewer, telephone, cable and communication. Underground utilities were marked by local utility locates company representatives, and a private locator was retained to clear the borehole locations prior to drilling of the boreholes;
- Drilled twenty-two (22) boreholes (denoted BH/MW2, BH3, BH5, BH/MW6, BH/MW7, BH/MW E1, BH/MW E2, BH/MW E4, BH/MW E5, BH/MW E6, and BH/MW E8 to BH/MW E15. Seventeen (17) of the boreholes [BH/MW2, BH/MW6, BH/MW7, and BH/MW E1 to BH/MW E13] were instrumented with monitoring wells. logged and field screened the soil samples through visual inspection and field measurement of total

organic vapours (TOV) of the soil samples, and the selection of soil samples for laboratory analysis;

- Collected 29 soil samples and 18 groundwater samples including duplicate and trip blank samples from boreholes/monitoring wells and submit the samples for chemical analysis.
- Three (3) duplicate samples from soil samples submitted for M&I, PCBs and PHCs analysis and from groundwater two (2) duplicate and one (1) trip blank sample, were submitted to the laboratory for PHCs, M7I and VOCs analysis.
- Submitted soil and groundwater samples under the Chain of Custody protocol to the accredited laboratories to carry out chemical analyses for contaminants of potential concern (COCs) in accordance with the O. Reg. 153/04 - “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act” published by the MOE and dated March 9, 2004, as amended by the O. Reg. 511/09, s. 22 (“Analytical Protocol”);
- Reviewed and interpreted laboratory results of chemical analysis data and observations made during the site investigations;
- Completed an evaluation of the information from the above and prepared a Phase Two Conceptual Site Model (CSM) to identify locations and concentrations of contaminants (if any) above the applicable Site Condition Standards at the Site; and
- Prepared a Phase Two ESA report of the investigation findings, conclusions and recommendations.

### **3) RATIONALE OF BOREHOLE, TEST PIT AND MONITORING WELL LOCATIONS**

The rationale for the selection of the borehole, and monitoring well locations is presented in the Table below:

Area of Potential Environmental Concern		Location on Site	Borehole/MW ID
APEC-1	#28: Gasoline and Associated Products Storage in Fixed Tanks	Northwest section of the Property (65 Tannery Street)	BH1, BH/MWE12, BH/MWE13
APEC-2	#28: Gasoline and Associated Products Storage in Fixed Tanks	Northwest section of the Property (65 Tannery Street)	BH1, BH/MWE12, BH/MWE13
APEC-3	#28: Gasoline and Associated Products Storage in Fixed Tanks	Central section of the Property (95 Joymar Drive))	BH/MWE9, BH/MWE10
APEC4	#28: Gasoline and Associated Products Storage in Fixed Tanks	Central section of the Property (95 Joymar Drive))	BH/MWE9, BH/MWE10

Area of Potential Environmental Concern	Location on Site	Borehole/MW ID	
APEC-5	#28: Gasoline and Associated Products Storage in Fixed Tanks	Central section of the Property (95 Joymar Drive)	BH/MWE11
APEC-6	#28: Gasoline and Associated Products Storage in Fixed Tanks	Central section of the Property (95 Joymar Drive)	BH/MW E8, BH3
APEC-7	#28: Gasoline and Associated Products Storage in Fixed Tanks	South section of the Property (66 Thomas Street)	BH/MW 6
APEC-8	#28: Gasoline and Associated Products Storage in Fixed Tanks	South section of the Property (66 Thomas Street)	BH/MW 6
APEC-9	#10: Commercial Autobody Shops	South section of the Property (66 Thomas Street)	BH/MW 6
APEC-10	#28: Gasoline and Associated Products Storage in Fixed Tanks	South section of the Property (66 Thomas Street)	BH/MW E7, BH/MW7
APEC-11	#10: Commercial Autobody Shops	South section of the Property (66 Thomas Street)	BH/MW E7, BH/MW7
APEC-12	#28: Gasoline and Associated Products Storage in Fixed Tanks	South section of the Property (66 Thomas Street)	BH/MW E3, BH/MW E4
APEC-13	#28: Gasoline and Associated Products Storage in Fixed Tanks	Southeast section of the Phase One Property (64 Thomas Street)	BH/MWE1, BH/MWE2
APEC-14	#28: Gasoline and Associated Products Storage in Fixed Tanks	Southeast section of the Phase One Property (64 Thomas Street)	BH/MWE1, BH/MWE2
APEC-15	#40: Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications	Northeast section of the Phase One Property (95 Joymar Drive)	BH/MWE12, BH/MWE13, BH/MWE14
APEC-16	# 55: Transformer Manufacturing, Processing and Use	Northeast section of the Phase One Property (95 Joymar Drive)	BH/MWE15
APEC-17	# 33: Metal Treatment, Coating, Plating and Finishing	South section of the Phase One Property	BH/MWE1 to BH/MWE7
APEC-18	# 48: Salt Manufacturing, Processing and Bulk Storage	Northwest section of the Property (95 Joymar Drive)	BH/MW5
APEC-19	#58: Not listed, Waste generators records	Phase One Property	All the BH/MWs
APEC-20	#58: Not listed, Waste generators records	Phase One Property	All the BH/MWs
APEC-21	Not listed, Use of de-icing salts	South portion of Phase One Property	BH/MWE3, BH/MWE4, BH/MWE5
APEC-22	#28: Gasoline and Associated Products Storage in Fixed Tanks	East section of the Phase One Property	BH/MWE6

Area of Potential Environmental Concern		Location on Site	Borehole/MW ID
APEC-23	#43: Plastics (including Fibreglass) Manufacturing and Processing	East section of the Phase One Property	BH/MWE6
APEC-24	#58: Not listed, Waste generators records	East section of the Phase One Property	BH/MWE6

#### 4) SAMPLES (INCLUDING QA/QC SAMPLES) ANALYTICAL SCHEDULE

A summary of soil and groundwater samples (including QA/QC samples) submitted for chemical analysis is presented in the Table below:

##### Soil Samples and Chemical Analysis Performed

Sample ID	Date	Sample Depth (mbgs)	Parameter Analysed (O. Reg. 153/04 as amended)
BH2-SS3	April 30, 2018	1.5-2.1	PHCs
BH6-SS5	May 1, 2018	3.1-3.7	PHCs
BH5-SS1		0-0.6	M&I
BHE5-SS2	May 10, 2018	0.8-1.4	PCBs
BHE15-SS3		1.5-2.1	PCBs
BHE4-SS2		0.8-1.4	PCBs
BHE14-SS3		1.5-2.1	M&I
BHE5-SS3		1.5-2.1	M&I
BHE4-SS4		2.3-2.9	M&I
BHE15-SS2		0.8-1.4	M&I
BHE15-SS5		3.1-3.7	PHCs, VOCs
BHE14-SS1		0-0.6	OCPs
DUP-S1		-	Metals
DUP-S2		-	PCBs
BHE6-SS4		2.3-2.9	PHCs, VOCs
BHE11-SS2		0.8-1.4	PHCs
BHE1-SS4		2.3-2.9	PHCs
BHE8-SS5		3.1-3.7	PHCs
BHE2-SS4		2.3-2.9	PHCs
BHE10-SS5	3.1-3.7	PHCs	
BHE4-SS2	0.8-1.4	PHCs, VOCs	
BHE9-SS2	0.8-1.4	PHCs	
BH13-SS1	0-0.6	PHCs	
BHE12-SS2	0.8-1.4	PHCs	
BHE5-SS4	0-0.6	PHCs, VOCs	
BH3-SS5	June 5, 2018	3.1-3.7	PHCs
BH7-SS1		0-0.6	M&I
BH7-SS3		1.5-2.1	PHCs
DUP-S3		-	PHCs

##### Groundwater Samples and Chemical Analysis Performed

Sample ID	Parameter Analysed ( O.Reg.153/04 as amended)
MWE3	PHCs & BTEX
MWE4	M&I, PHCs (F1-F4), VOCs, and PCBs
MWE5	M&I, PHCs (F1-F4), VOCs, and PCBs
MWE9	PHCs & BTEX
MWE10	PHCs & BTEX
MW6	PHCs & BTEX
MW7	PHCs & BTEX
Dup-W2	PHCs & BTEX
MWE1	PHCs
MWE2	M&I, PHCs (F1-F4)
MWE6	PHCs & VOCs
MWE7	M&I, PHCs (F1-F4)
MWE8	PHCs
MWE11	PHCs
MWE12	PHCs
MWE13	PHCs
DUP-W1	M&I
Trip Blank	VOCs

## **5) SOIL SAMPLING PROCEDURES**

SIRATI's Standard Operation Procedures (SOPs) will be followed throughout the field investigation (sampling, decontamination of equipment, observation and documentation) including field QA/QC program. SPCL's Standard Operating Procedure is presented in section 7 of this sampling and analysis plan.

## **6) DATA QUALITY OBJECTIVES**

Sampling and decontamination procedures including QA/QC program should be carried out in accordance with:

- SIRATI's Standard Operating Procedures, as presented in the section 7 below Sampling and Analysis Plan.
- The "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", May 1996, revised December 1996, as amended by O. Reg. 511/09.

Laboratory analytical methods, protocols and procedures should be carried out in accordance with the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended as of July 1, 2011, in accordance with O.Reg. 1531/04 and O. Reg. 269/11.

### **Standard Operating Procedure**

This Sampling and Analysis Plan is prepared for a Phase Two Environmental Site Assessment (Phase Two) as defined by Ontario Regulation (O. Reg.) 153/04, as amended.

## **STANDARD OPERATING PROCEDURES (SOPs)**

### **1. Drilling and Test Pit Excavation**

#### **1.1 Underground Utilities**

Prior to drilling or test pit excavation, the public utility service (One Call) and private utility services are contacted. The underground utility services are located and marked out in the field.

#### **1.2 Test Pit and Trenches**

Test pits and trenches are the simplest methods of observing subsurface soils. They consist of excavations performed by hand, backhoe, or dozer. Hand excavations are often performed with posthole diggers or shovels. They offer the advantages of speed and ready access for sampling. They are severely hampered by limitations of depth; and they cannot be used in soft or loose soils, boulders or below the water table.

Upon completion, the excavated test pit should be backfilled with the excavated material or other suitable soil material. The backfilled material should be compacted to avoid excessive future settlements. Tampers or rolling equipment may be used to facilitate compaction of the backfill. Excavations within existing roadways should be backfilled with granular material and compacted in lifts to restore subgrade support and the pavement should be properly patched.

Any test pit or excavated area located near planned structure footings or pavement must be surveyed to determine the precise location of the excavation. This information must be presented in Construction Plans and Special Provisions to ensure the area will be re-excavated and properly compacted to the extent required. In the case of test pits excavated through existing pavements, the pavement should be properly patched. The backfilled material should be compacted to avoid excessive future settlements. Tampers or rolling equipment may be used to facilitate compaction of the backfill. Excavations within existing roadways should be backfilled with granular material and compacted in lifts to restore subgrade support.

Where pits are located in agricultural areas or other areas used to support plant growth, the backhoe operator should be instructed to keep the topsoil (or at least the finer upper-layer of the profile) and overburden separate from any gravel encountered in the pit. Upon completion of the pit, the operator should backfill in a sequence (generally with the coarsest material in the bottom of the pit) such that the backfilled pit area is re-established to support vegetation.

#### **1.3 Drilling Methods**

##### ***Solid Flight Auger Borings***

Auger borings are advanced into the ground by rotating the auger while simultaneously applying a downward force using either hydraulic or mechanical pressure. The auger is advanced to the desired depth and then withdrawn. Samples of cuttings can be removed from the auger; however, the depth of the sample can only be approximated. These samples are disturbed and should be used only for material identification.



This method is generally used to establish shallow soil strata and water table elevations, or to advance to the desired stratum before Standard Penetration Testing (SPT) or undisturbed sampling is performed. However, it cannot be used effectively in soft or loose soils below the water table. In addition, this method has limited capabilities in dense, rocky material where it may encounter refusal. See ASTM D 1452 (AASHTO T 203).

A solid stem auger consists of a pipe with spiral flanges welded to the pipe. Each section of auger is referred to as a flight. Flights are typically 1.5 m long, but may be longer depending on the manufacturer. A pin is placed at the junction of each auger flight connecting one to the next.

Solid stem augers capable of drilling a hole as large as 1m in diameter are available; however, these larger sizes are not common.

The first auger flight is equipped with a bit with cutters or teeth for cutting through hard, usually consolidated formations. The cutter head is usually slightly larger than the flights.

The auger flights are turned by means of a rotary drive head mounted on a hydraulic feed system that pushes down or pulls back on the flight. The cuttings are brought to the surface by the flights which act as a screw conveyor. As the hole is advanced, more auger flights are added until the hole reaches the desired depth.

To obtain split-spoon samples from solid stem auger borings. The augers must be completely withdrawn at each sampling depth.

Solid stem augers are usually used to advance a hole in stable formations. This method is not effective in unconsolidated material or below the water table because the borehole will collapse when the flights are removed. Solid stem augers are generally not used for installation of monitoring wells and the PM must be consulted if solid stem auger must be used for well installation.

### ***Hollow- Stem Auger Borings***

A hollow-stem auger consists of a continuous flight auger surrounding a hollow drill stem. A central “plug”, or “butterfly” bit, at the end of a drill rod is used to prevent soil from entering the hollow stem as the hole is advanced between samples. The hollow-stem auger is advanced in a manner similar to Solid Flight Auger; however, removal of the hollow-stem auger is not necessary for sampling. The “plug”, or “butterfly” bit, is removed and samples are obtained through the hollow drill stem, which acts like a casing to hold the hole open. This increases usage of hollow- stem augers in soft and loose soil. Usually no drilling mud is required, which could otherwise interfere with accurate groundwater level readings. In addition, this method of drilling is extremely fast, cost effective, and requires little to no water.

Below the water table, removal of the center “plug”, or “butterfly” bit, can disturb sand and affect the validity of the SPT. When this condition develops in leading to questionable SPT results, you may add water or drill mud to the inside of the stem to create a reverse head of water and prevent heaving. Water should also be added to the borehole while auguring clayey soils to help prevent “baking” of the material due to the heat generated during rapid advancement of the augers. This “baking” of clay soils can adversely affect the permeability of the subsurface material. Another disadvantage of this method is that refusal may prematurely be encountered in boulders or dense rocky soils. See ASTM D 6151 (AASHTO T 251).

The flights of a hollow stem auger are welded onto a larger diameter pipe which allows drill rods to pass through the centre of the flight. The flights are typically 1.5 m long. A centre plug, or pilot assembly, is inserted in the hollow centre to prevent soil from coming up into the auger during drilling. The centre plug can have a bit attached that helps to advance the auger.

The first auger flight is equipped with a bit with cutters or teeth for cutting through hard formations. The cutter teeth are usually significantly larger than the flights. The centre plug and drill rods can connect through the auger flights to the top-head drive in order to assure that the drill rods and plug rotate with the flights. If using a split-spoon sampler as a centre plug, the sampler must be removed and cleaned prior to sampling. Hollow stem auger flights are advanced in the same manner as are solid stem augers. Hollow stem augers are available with O.D. diameters ranging approximately 15 cm to 55cm.

Hollow stem augers are more versatile than solid stem augers because: they can act as temporary casing to prevent caving and sloughing of the borehole wall; they allow soil samples to be obtained more easily and accurately; small diameter monitoring wells can be installed and sand/gravel packed without the use of casing or drilling fluids; they can be used to drill through unconsolidated formations and below the water table.

### ***Wash Borings***

In this method, the boring is advanced by a combination of the chopping action of a light “Fishtail” bit and the jetting action of water flowing through the bit. This method is used only when precise soil information is not required between sample intervals in loose, fine granular material. Generally, casing is required to stabilize the walls of the borehole. Large quantities of water are required for this method of drilling. Generally, there are better, more efficient methods available to drill a borehole.

### ***Mud Rotary Drilling***

This method consists of using a rotary drill with rotating thick-walled, hollow, drill rods usually attached to a tri-cone bit. Drilling-mud is circulated from a mud tub, and then through the drilling rods as the drill rod is advanced. The drilling mud lifts the drilling cuttings out of the borehole while maintaining hole stability. The drill cuttings are screened and separated from the drilling mud, which is then recirculated. To collect a sample, the drill rods and bit are pulled out of the hole and are replaced with drill rods and the required sampling device. This method is fast, and provides excellent sampling and in situ testing data due to minimal disturbance to the soils at the bottom of the borehole prior to sampling. It is effective in all soil types except for very gravelly material with cobbles and boulders. No information can be reliably obtained about groundwater levels during the drilling operation, and the soil material between sampling intervals is difficult to observe from the drilling mud return.

### ***Air Drilling***

This type of drilling uses compressed air to remove cuttings from the borehole as the drill bit is advanced. Both rotary or percussion techniques can be utilized and either open hole (rotary reverse circulation) or under-reamed casing advancement (ODEX) can be used in the drilling process. SPT samples can be obtained; however, the materials between samples are highly disturbed. This type of drilling is generally

fast, but expensive, and is most useful when drilling deep holes in dense gravels and boulders where traditional Hollow Stem Auger and Mud Rotary techniques cannot drill or sample.

### ***Direct Push***

Direct push is a drilling and sampling technique where the tools are driven into the ground. No rotation is involved so all the samples are uncontaminated and there is no drilling debris on the surface. The main application for this method is for drilling various soils, clays and sands both consolidated and unconsolidated. It allows the driller to take a core sample sealed inside a plastic tube so that no handling of the sample takes place. Clean disposal samples tubes must be used for every sample and never reused. Installation of monitoring wells in direct push drilling boreholes where casing is used is acceptable. This method does have limitation when drilling at depth and in hard/stiff formations. Generally, SPT is not completed using a direct push drilling rig and as such is generally not used for geotechnical investigations.

### ***Drilling Techniques for Heaving /Flowing Sand***

The drilling techniques used to advance the auger column within heaving sands may vary greatly from those techniques used when drilling in unsaturated materials. Problems may occur when a borehole is advanced to a desired depth without the use of drilling fluids for the purpose of either sampling the formation or installing a monitoring well. As the pilot assembly, or centre plug, is retracted, the hydrostatic pressure within the saturated sand forces water and loose sediments to rise inside the hollow centre of the auger column. These sediments can rise several metres inside the lower auger sections. The resulting “plug” of sediment inside the hollow auger column can interfere with the collection of formation samples, the installation of the monitoring well or even additional drilling.

The difficulties with heaving sands may be overcome by maintaining a positive pressure head within the auger column. A positive pressure head can be created by adding a sufficient amount of clean water or other drilling fluid inside the hollow stem. Clean ‘potable’ water (e.g., water that does not contain analytes of concern to a monitoring program) is usually preferred as the drilling fluid in order to minimize potential interference with samples collected from the completed well.

The head of clean water inside the auger column must exceed the hydrostatic pressure within the sand formation to limit the rise of loose sediments inside the hollow-stem. Where the saturated sand formation is unconfined, the water level inside the auger column is maintained above the elevation of the water table. Where the saturated sand formation is confined, the water level inside the auger column is maintained above the potentiometric surface of the formation. If the potentiometric surface of the formation rises above the ground elevation, however, the heaving sand problem may be very difficult to counteract and may represent a limitation to the use of the drilling method.

## **1.4 Occupational Health and Safety**

Prior to drilling, the site is inspected to ensure that no potentially hazardous material is present near/around the drilling area. Safety procedures are reviewed and a safety check of the equipment is conducted including locating the emergency stop button on the drill rig, checking personal protective equipment (hard hats,

safety shoes, eye/ear protection), locating the first aid kit and confirming the location of the nearest hospital, and verifying the standard procedure in case of injury.

### 1.5 Drilling Spoils

Excess soil generated during sampling and drilling procedure is stored at the site in metal barrels. If the analytical results indicate the soil is contaminated, a licensed disposal company is notified to collect the barrels of soil for proper disposal

### 1.6 Borehole Abandonment

After drilling, logging and/or sampling, boreholes will be backfilled by the method described below:

- Bentonite is thoroughly mixed into the grout within the specified percentage range. The tremie grout is usually placed into the hole; however, for selected boreholes (e.g., shallow borings well above the water table) at certain sites, the grout may be allowed to free fall, taking care to ensure the grout does not bridge and form gaps or voids in the grout column.
- The volume of the borehole is calculated and compared to the grout volume used during grouting to aid in verifying that bridging did not occur.
- When using a tremie to place grout in the borehole, the bottom of the tremie is submerged into the grout column and withdrawn slowly as the hole fills with grout. If allowing the grout to free fall (and not using a tremie), the grout is poured slowly into the boring. The rise of the grout column is visually monitored or sounded with a weighted tape.
- If the method used to drill the boring utilized a drive casing, the casing is slowly extracted during grouting such that the bottom of the casing does not come above the top of the grout column.
- During the grouting process, no contaminating material (oil, grease, or fuels from gloves, pumps, hoses, et. al) is permitted to enter the grout mix and personnel wear personal protective equipment as specified in the Project Health and Safety Plan.
- Following grouting, barriers are placed over grouted boreholes as the grout is likely to settle in time, creating a physical hazard. Grouted boreholes typically require at least a second visit to ‘top off’ the hole.
- The surface hole condition should match the pre-drilling condition (asphalt, concrete, or smoothed flush with native surface), unless otherwise specified in the project work plans.

### 1.7 Subsurface Obstruction

Where refusal to drilling occurs due to rock, foundation or underground services, and the borehole is relocated within 2.0 m downstream from the original borehole location.

## **2. Soil Sampling**

### 2.1 Introduction

Soil sampling is conducted in accordance with the “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, May 1996” as revised December 1996 (MOE Guidance Manual) and as amended by O. Reg. 366/05, 66/08, 511/09, 245/10, 179/11, 269/11 and 333/13. The sampling procedures are described herein.

## 2.2 Drilling Rig Decontamination

### ➤ Geoprobe

One-time use Shelby tube (thin-walled) samples are recovered from the boreholes in clear disposable PVC liners to prevent cross-contamination.

### ➤ CME 55

Drilling equipment such as drill rigs, augers, drill pipes, drilling rods and split-spoons are decontaminated prior to initial use, between borehole locations and at the completion of drilling activities. The drilling equipment is manually scrubbed with a brush using a phosphate-free solution and thoroughly steam cleaned and/or power washed to remove any foreign material and potential contaminants. In addition, the spilt-spoon sampler and any sub-sampling equipment are decontaminated prior to each usage. Various solutions are used for sampling equipment decontamination as described below:

- Phosphate-free soap solution (i.e., Alconox), tap water and distilled water are used for suspected petroleum hydrocarbon soil sampling.
- A reagent-grade methanol solution and distilled water are used for suspected VOCs soil sampling. The reinstated waste is collected.
- Reagent-grade 10% nitric acid solution and distilled water are used for suspected metals soil sampling. The reinstated waste will be collected.

## 2.3 Sample Logging and Field Screening

Samples are typically collected at 1.5 m intervals in the overburden. Tactile examination of the samples is made to classify the soil, and a log is recorded for each borehole detailing the physical characteristics of the soil including colour, soil type, structure, and any observed staining or odour. The organic vapour readings, the moisture content of the samples as determined in the laboratory, the groundwater and cave-in levels measured at the time of investigation, and the groundwater monitoring well construction details are given on the borehole logs.

## 2.4 Field Screening and Calibration Procedures

The soil samples are classified based on physical characteristics including colour, soil type, moisture, and visible observation of staining and/or odour. In addition, the organic vapour reading for each soil sample is determined using a gas detector. Based on the overall soil physical characteristics, representative soil samples are selected for chemical analysis.

The organic vapour readings are measured using a portable RKI Eagle gas detector, TYPE 101 set to include all gases, and having a minimum detection of 2 ppm. Prior to Sampling and Analysis Plan measurement, the detector is calibrated using a Hexane 40% LEL gas. The allowable range of calibration is 38% to 42%.

## 2.5 Soil Sampling

The soil from the disposable sampler liner is handled using new disposable gloves in order to avoid the risk of cross-contamination between the samples. Sufficient amounts of the soil samples are placed into clean glass jars with Teflon lined lids for analyses of polychlorinated biphenyls, polyaromatic hydrocarbons, moisture content, medium to heavy PHCs, and metals and inorganics.

Small amounts of the soil samples are collected using a disposable 'T'-shaped Terracore sampler and stored in methanol or sodium bisulfate vials for light PHCs (CCME F1) and VOCs analysis, respectively; the remainder of the samples is placed into a sealable bag for vapour measurement and soil classification. The samples are stored in an insulated container with ice after sampling and during shipment to the laboratory.

The minimum requirements for the number, type and frequency of field quality control are given below:

- Field Blanks: Field blank samples for VOCs analysis are prepared to confirm that no contamination takes place during the soil sampling procedure.
- Field Duplicates: At least 1 field duplicate sample is collected and submitted for laboratory analysis for every 10 soil samples that are collected to ensure the soil sampling technique is accurate.

## **3. Well Installation and Groundwater Sampling**

### 3.1 Introduction

Well installations will be conducted by a licensed well driller, in accordance to O.Reg. 903. The well installation procedures are described herein.

### 3.2 Screen and Riser Pipe

Monitoring wells are constructed from individually wrapped 38 or 50 mm inside diameter (ID) schedule 40 polyvinyl chloride (PVC) flush threaded casing equipped with O-rings. The screen consists of casing material which is factory slotted (slot width = 0.25 mm) to permit the entry of water into the well. The bottom of the screens is equipped with threaded end caps. The appropriate number of risers is coupled with the screen section(s) via threaded joints to construct the well. The top of the wells are tightly capped using a locking well cap, which prevents the infiltration of surface water and foreign material into the well and also provides security. A watertight, traffic-rated protective casing is installed over each monitoring well within a concrete pad extending approximately 0.5 mbgs. No PVC cements or other solvent based cements are used in the construction of the monitoring wells.

### 3.3 Well Materials Decontamination

Dedicated sampling equipment, such as submersible pumps, are decontaminated prior to installation inside monitoring wells. Where factory-cleaned, hermetically sealed materials are used, no decontamination is conducted.

### Setting Screen, Riser Casings and Filter Materials

At total depth, the soil cuttings are removed through circulation or rapidly spinning the augers prior to constructing the well. The drill pipe and bit or centre bit boring is removed. The well construction materials are then installed inside the open borehole or through the centre of the drive casing or augers.

After the monitoring well assembly is lowered to the bottom of the borehole, the filter pack is added until its height is approximately two feet above the top of the screen, and placement is verified. The filter pack is then surged using a surge block or swab in order to settle the pack material and reduce the possibility of bridging.

### Setting Seals and Grouting

Once the top of the filter pack is verified to be in the correct position, a bentonite seal is placed above the filter pack. The seal is allowed to hydrate for at least one hour before proceeding with the grouting operation.

After hydration of the bentonite seal, grout is then pumped through a tremie pipe and filled from the top of the bentonite seal upward. The bottom of the tremie pipe should be maintained below the top of the grout to prevent free fall and bridging. When using drive casing or hollow-stem auger techniques, the drive casing/augers should be raised in incremental intervals, keeping the bottom of the drive casing/augers below the top of the grout. Grouting will cease when the grout level has risen to within approximately one to two feet of the ground surface, depending on the surface completion type (flush-mount versus above-ground). Grout levels are monitored to assure that grout taken into the formation is replaced by additional grout.

### Capping the Wells

For above-ground completions, the protective steel casing will be centered on the well casing and inserted into the grouted annulus. Prior to installation, a 2-inch deep temporary spacer may be placed between the PVC well cap and the bottom of the protective casing cover to keep the protective casing from settling onto the well cap. A minimum of 24 hours after grouting should elapse before installation of the concrete pad and steel guard posts for aboveground completions, or street boxes or vaults for flush mount completions. For above-ground completions, a concrete pad, usually 3-foot by 3-foot by 4-inch thick, is constructed at ground surface around the protective steel casing. The concrete is sloped away from the protective casing to promote surface drainage from the well.

For flush-mount (or subgrade) completions, a street box or vault is set and cemented in position. The top of the street box or vault will be raised slightly above grade and the cement sloped to grade to promote surface drainage away from the well.

### Documentation of Monitoring Well Configuration

The following information is recorded:

- Length of well screen
- Total depth of well boring

- Depth from ground surface to top of grout or bentonite plug in bottom of borehole (if present)
- Depth to base of well string
- Depth to top and bottom of well screen



# APPENDIX B



Sirati & Partners Consultants Ltd.  
Geotechnical & Environmental Services  
Engineering Solutions

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION: See Drawing 1

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: Apr/30/2018  
 Drilling Contractor:  
 REF. NO.: SP18-306-10  
 ENCL NO.: 2

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20	40							60
156.7																
0.0	<b>FILL:</b> sand and gravel to clayey silt, trace construction debris and topsoil, dark brown, moist		1	SS	22											
	becoming clayey silt, some sand, trace gravel, trace topsoil, dark brown		2	SS	12											
			3	SS	5											
			4	SS	4											
			5	SS	5											
	at 3.8 m, grinding noise															
152.1	<b>RESIDUAL SOIL/WEATHERED SHALE BEDROCK:</b> grey, moist		6	SS	96/ 228 mm											
4.6																
150.6	<b>INFERRED BEDROCK</b> Shale, Georgian Bay Formation, grey <b>END OF BOREHOLE:</b>		7	SS	50/ 25 mm											
156.0	Notes: 1. Borehole open upon completion of drilling. 2. Auger refusal at 6.13 m Depth. 3. Water encountered at 5.84 m upon completion of drilling.															

SPCL SOIL LOG SP18-306-10 - COPY.GPJ SPCL.GDT 6/15/18

W. L. 150.9 m  
Apr 30, 2018

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ = 3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION: See Drawing 1

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: Apr/30/2018  
 Drilling Contractor:  
 REF. NO.: SP18-306-10  
 ENCL NO.: 3

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20						
155.0	<b>CONCRETE SLAB:</b> 100 mm													
154.8	<b>GRANULAR:</b> 80 mm													
0.2	<b>FILL:</b> gravel mixed with sandy silt till, brown, moist		1	SS	17									
1	becoming sandy silt, brown, moist		2	SS	6									
1	ashpalt debris		3	SS	4									
2														
153	becoming clayey silt, some sand, trace gravel, greyish brown, moist		4	SS	19									
2.5	<b>SANDY SILT TILL:</b> trace shale fragments, trace cobbles, trace gravel, grey, moist, very dense		5	SS	54									7 21 45 27
3														
4														
150.4	<b>RESIDUAL SOIL/WEATHERED SHALE BEDROCK:</b> grey, moist		6	SS	50/50 mm									
4.6														
150														
6														
148.9	<b>INFERRED BEDROCK</b> Shale, Georgian Bay Formation, grey		7	SS	50/25 mm									
6.1	<b>END OF BOREHOLE:</b>													

Notes:  
 1. Borehole open upon completion of drilling.  
 2. Auger refusal at 6.1 m depth.  
 3. Water encountered at 5.79 m upon completion of drilling.  
 4. Monitoring well was installed in the borehole upon completion of drilling.  
 5. Groundwater level was observed at 1.98 m on June 01, 2018.

W. L. 153.0 m  
 Jun 01, 2018

W. L. 149.2 m  
 Apr 30, 2018

SPCL SOIL LOG SP18-306-10 - COPY.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**

Measurement

**GRAPH NOTES**

+ 3, × 3: Numbers refer to Sensitivity  
 ○ = 3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: DE SEN REALTY COMPANY LTD. PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION: See Drawing 1	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: Apr/30/2018 Drilling Contractor:
	REF. NO.: SP18-306-10 ENCL NO.: 4

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20						
155.0														
154.6	<b>ASPHALT:</b> 130 mm													
154.7	<b>GRANULAR:</b> 130 mm													
0.3	<b>FILL:</b> topsoil mixed with sand and gravel to sandy silt, moist	○	1	SS	7									
154.2	<b>FILL:</b> clayey silt, trace topsoil, brown, moist	○	2	SS	9									
1	seam of sandy silt wet	○	3	SS	11									
2	becoming very moist	○	4	SS	5									
3	trace shale fragments, trace gravel, grey, wet	○	5	SS	4									
150.4	<b>SANDY SILT TILL:</b> trace shale, greyish brown, wet, very dense	○	6	SS	44-50 125 mm									
148.9	<b>END OF BOREHOLE:</b>	○	7	NR	50/ 25 mm									
6.1	Notes: 1. Borehole open upon completion of drilling. 2. Auger refusal at 6.1 m depth. 3. Water Encountered at 2.74 mbgs upon completion of drilling.													

SPCL SOIL LOG SP18-306-10 - COPY.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement: 1st, 2nd, 3rd, 4th

**GRAPH NOTES**  
 + 3, × 3: Numbers refer to Sensitivity  
 ○ = 3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION: See Drawing 1

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: Apr/30/2018  
 Drilling Contractor:  
 REF. NO.: SP18-306-10  
 ENCL NO.: 5

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20 40 60 80 100	20 40 60 80 100	W <sub>p</sub>	w	W <sub>L</sub>			
154.2	<b>ASPHALT:</b> 150 mm														GR SA SI CL
154.0	<b>GRANULAR:</b> 125 mm														
150.0	<b>FILL:</b> clayey silt mixed with topsoil, trace gravel, reddish brown, moist		1	SS	12		154								
0.3															
1			2	SS	10		153								
	trace sand, trace topsoil, trace rootlets														
2			3	SS	9		152								
3			4	SS	6		151								
3			5	SS	6		151								
4															
5															
5			6	SS	96/228 mm		149								
	<b>SANDY SILT TILL:</b> trace shale fragments, trace gravel, grey, moist, very dense														
6															
6															
6															
6.2	<b>INFERRED BEDROCK:</b> Shale, Georgian Bay Formation, grey		7	SS	50/100 mm		148								
	<b>END OF BOREHOLE:</b>														
	Notes: 1. Borehole open and dry upon completion of drilling. 2. Auger Refusal at 6.2 m depth. 3. Monitoring Well was Installed in teh borehole upon completion of drilling. 4. Groundwater level was observed at 3.13 m in the well on May 28, 2018.														

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**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity ○ = 3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: DE SEN REALTY COMPANY LTD. PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION: See Drawing 1	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/01/2018 Drilling Contractor:
	REF. NO.: SP18-306-10 ENCL NO.: 6

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20 40 60 80 100	20 40 60 80 100	W <sub>p</sub>	w			
157.0														
0.0	<b>FILL:</b> clayey silt, trace sand and gravel, brown, moist													
156.7			1	SS	15									
0.3	<b>CLAYEY SILT TILL:</b> some sand, trace cobbles, trace gravel, brown, moist, firm to hard													
			2	SS	26									
			3	SS	36									
			4	SS	39									
	at 2.6 m, becoming grey													
154.0			5	SS	69									
3.0	<b>SANDY SILT TILL:</b> some sand, trace cobbles, trace gravel, brown, moist, compact to very dense													
			6	SS	82									
	trace shale fragments													
150.9														
6.1			7	SS	24-50									
150.7	<b>INFERRED BEDROCK</b> Shale, Georgian Bay Formation, grey				25									
6.3	<b>END OF BOREHOLE:</b>				mm									
	Notes: 1. Borehole open and dry upon completion of drilling.													

SPCL SOIL LOG SP18-306-10 - COPY.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: DE SEN REALTY COMPANY LTD. PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION: See Drawing 1	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/01/2018 Drilling Contractor:
	REF. NO.: SP18-306-10 ENCL NO.: 7

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20						
154.6	<b>ASPHALT:</b> 100 mm		1	SS	15-50									
154.3	<b>GRANULAR:</b> 180 mm				125									
0.3	<b>SAND AND GRAVEL:</b> brown, moist													
153.8	<b>CLAYEY SILT TILL:</b> trace gravel, light brown, moist, stiff to hard		2	SS	16									
0.8														
	trace cobbles		3	SS	35									7 26 44 23
			4	SS	60									
151.6	<b>SANDY SILT TILL:</b> trace gravel, trace clay, trace cobbles, grey, moist, very dense		5	SS	53									
3.0														
150.6														

**4.0 END OF BOREHOLE:**

Notes:  
 1. Borehole open and dry upon completion of drilling.  
 2. Auger Refusal at 3.96 m depth.  
 3. Groundwater level was observed at 0.93 m in the well on May 28, 2018.

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION: See Drawing 1

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: May/01/2018  
 REF. NO.: SP18-306-10  
 ENCL NO.: 8  
 Drilling Contractor:

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20						
154.7	ASPHALT: 150 mm													
154.9	GRANULAR: 125 mm													
154.2	FILL: silty sand mixed with construction debris, brown, moist		1	SS	8									
0.3	becoming clayey silt, trace gravel, trace sand, reddish brown													
1			2	SS	31									
	becoming sandy silt, trace topsoil, greyish brown, moist													
2			3	SS	36									
152.4														
2.3	CLAYEY SILT TILL: trace sand, trace cobbles, brown, moist		4	SS	53									
151.7														
3.0	SANDY SILT TILL trace gravel, trace clay, grey, very moist, dense to very dense		5	SS	38									
4														
150.1														
4.6	RESIDUAL SOIL/WEATHERED SHALE BEDROCK: grey, moist		6	SS	50/150 mm									
5														
148.6														
148.3														
6.1	INFERRED BEDROCK Shale, Georgian Bay Formation, Grey END OF BOREHOLE:		7	SS	50/25 mm									

SPCL SOIL LOG SP18-306-10 - COPY.GPJ SPCL.GDT 6/15/18

Notes:  
 1. Borehole open upon completion of drilling.  
 2. Water encountered at 2.29 mbgs upon completion of drilling.  
 3. Monitoring well was installed in the Borehole upon Completion of Drilling.  
 4. Groundwater level was observed at 1.67 m in the well on May 28, 2018.

**GROUNDWATER ELEVATIONS**

Measurement 1st 2nd 3rd 4th

**GRAPH NOTES**

+ 3, × 3: Numbers refer to Sensitivity  
 ○ = 3% Strain at Failure







PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: DE SEN REALTY COMPANY LTD. PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Pionjar Diameter: Date: Jun/05/2018 Drilling Contractor:
	REF. NO.: SP18-306-20 ENCL NO.: 4

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC NATURAL LIQUID MOISTURE CONTENT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV. DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20	40	60	80				100
154.7	<b>CONCRETE:</b> 180 mm														
154.9	<b>FILL:</b> silty sand to clayey silt, trace cobbles, trace gravel, brown, moist		1	DO											
0.2	trace construction debris		2	DO											
	trace topsoil, brown to grey		3	DO											
	becoming brown		4	DO											
152.6	<b>SANDY SILT TILL:</b> brown, wet, very moist		5	DO											
2.1	<b>CLAYEY SILT TILL:</b> clayey silt till to native sandy silt till, brown, wet to very moist		6	DO											
152.3	at 3.04 m, layers of wet sand														
2.4															
151.0	<b>END OF BOREHOLE:</b>														
3.7	Notes:  1. Monitoring Well was Installed in the Borehole upon Completion of Drilling. 2. Groundwater Level was Observed at 2.16 m in the Well on June 7, 2018.														

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement: 1st, 2nd, 3rd, 4th

**GRAPH NOTES**  
 + 3, × 3: Numbers refer to Sensitivity  
 ○ ●=3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION:

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: May/08/2018  
 REF. NO.: SP18-306-20  
 ENCL NO.: 5  
 Drilling Contractor:

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20 40 60 80 100	20 40 60 80 100	W <sub>p</sub>	w				W <sub>L</sub>
154.3	ASPHALT: 90 mm														
154.0	GRANULAR: 125 mm														
154.1	FILL: sand to clayey silt, reddish brown, moist		1	SS	10										
0.2	mixed with topsoil		2	SS	5										
1	clayey silt, some sand, trace gravel, reddish brown, very moist to wet		3	SS	9										
2															
2.3	CLAYEY SILT TILL: trace gravel, light brown, moist, hard		4	SS	30										
3.0	SANDY SILT TILL: trace shale fragments, trace gravel, grey, very moist, dense		5	SS	48										
4															
4.7	RESIDUAL SOIL/WEATHERED SHALE BEDROCK: grey, moist		6	SS	50/100 mm										
149.7															
149.6															
149															
<p><b>END OF BOREHOLE:</b></p> <p>Notes:            1. Borehole Open upon Completion of Drilling.            2. Water Encountered at 1.83 m upon Completion of Drilling.            3. Auger Refusal at 5.49 m.            4. Monitoring Well was Installed in the Borehole upon completion of Drilling.            5. Groundwater Level was Observed at 1.67 m in the Well on May 28, 2018.</p>															

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity ○ ●=3% Strain at Failure



PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION:

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: May/07/2018  
 REF. NO.: SP18-306-20  
 ENCL NO.: 7  
 Drilling Contractor:

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20	40						
154.5 0.0	FILL: CONSTRUCTION DEBRIS MIXED WITH TOPSOIL	[Cross-hatched]	1	SS	13										
154.0 0.5	FILL: Sandy silt mixed with topsoil, moist	[Cross-hatched]													
153.6 1.0	FILL: clayey silt, reddish brown, moist	[Cross-hatched]	2	SS	14										
	mixed with topsoil		3	SS	12										
			4	SS	6										
151.5 3.0	CLAYEY SILT TILL: some sand, trace shale fragments, trace cobbles, trace gravel, grey, moist, very stiff to hard	[Diagonal lines]	5	SS	22										
149.8 4.7	trace shale	[Diagonal lines]	6	SS	50/ 125										
<p><b>END OF BOREHOLE:</b></p> <p>Notes:                      1. Borehole Open and Dry upon Completion of Drilling.                      2. Auger Refusal at 4.9 m Depth.                      3. Monitoring Well was installed in the Borehole upon completion of Drilling.                      4. Groundwater Level was Observed at 2.79 m in the well on June 7, 2018.</p>															

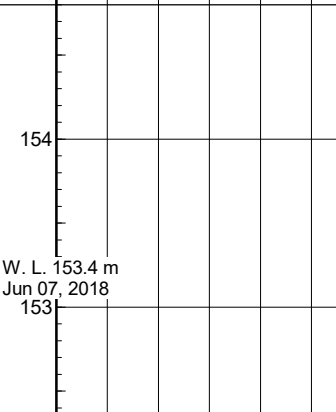
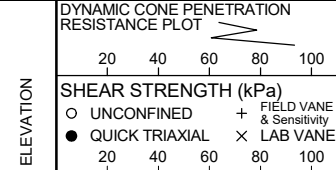
SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ = 3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: DE SEN REALTY COMPANY LTD. PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Pionjar Diameter: Date: Jun/05/2018 Drilling Contractor:
	REF. NO.: SP18-306-20 ENCL NO.: 8

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20						
154.8	<b>CONCRETE:</b> 130 mm	[Pattern]												
154.0	<b>FILL:</b> silty sand to clayey silt, trace gravel, brown, very moist	[Pattern]	1	DO										
153.6	<b>CLAYEY SILT TILL:</b> brown, moist	[Pattern]	2	DO										
153.0	<b>CLAYEY SILT TILL:</b> brown, moist	[Pattern]	3	DO										
153.0	<b>SANDY SILT TILL:</b> trace shale, brown, moist	[Pattern]	4	DO										
152.4	<b>END OF BOREHOLE:</b>													



Notes:

1. Auger refusal at 2.44 m depth.
2. Monitoring Well was installed in the Borehole upon Completion of Drilling.
3. Groundwater Level was Observed at 1.38 m in the Well on June 7, 2018.

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ = 3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION:

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: May/07/2018  
 REF. NO.: SP18-306-20  
 ENCL NO.: 9  
 Drilling Contractor:

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20						
155.2														
155.0	<b>ASPHALT: 115 mm</b>													
155.0	<b>GRANULAR: 75 mm</b>													
0.2	<b>FILL: topsoil mixed with clayey silt, moist</b>		1	SS	6									IBL in ppm
	clayey silt, some sand, trace gravel, construction debris		2	SS	21									6
1	construction debris, wet topsoil		3	SS	14									129
2	mixed with topsoil		4	SS	7									55
3			5	SS	13									126
4														119
4.6	<b>SANDY SILT TILL: trace shale fragments, grey, very moist, very dense</b>		6	SS	15-50 125 mm									22
150.6														
150.3														
4.9														
<p><b>END OF BOREHOLE:</b></p> <p>Notes:                      1. Borehole Open upon Completion of Drilling.                      2. Water was Encountered at 4.42 m upon Completion of Drilling.                      3. Auger Refusal at 5.18 m Depth.                      4. Monitoring Well was Installed in the Borehole upon completion of Drilling.                      5. Groundwater Level was Observed at 3.09 m in the well on June 7, 2018.</p>														

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity ○ ●=3% Strain at Failure



PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION:

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: May/07/2018  
 REF. NO.: SP18-306-20  
 ENCL NO.: 10  
 Drilling Contractor:

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20	40						
155.7	ASPHALT: 75 mm														
155.0	GRANULAR: 125 mm														
154.9	FILL: sandy silt mixed with construction debris, trace topsoil, brown, moist		1	SS	10										
154.9	FILL: clayey silt mixed with topsoil, trace gravel, trace sand, greyish brown, very moist		2	SS	6										
154.9	trace gravel		3	SS	5										
154.9			4	SS	8										
152.7	POSSIBLE FILL silty sand, grey, wet		5	SS	22										
152.2															

W. L. 152.8 m  
Jun 07, 2018

**END OF BOREHOLE:**  
 Notes:  
 1. Borehole Open and Dry upon Completion of Drilling.  
 2. Auger Refusal at 4.27 m Depth.  
 3. Monitoring Well was Installed in the Borehole upon completion of Drilling.  
 4. Groundwater Level was Observed at 2.91 m on June 7, 2018.

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity ○ = 3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION:

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: May/07/2018  
 REF. NO.: SP18-306-20  
 ENCL NO.: 11  
 Drilling Contractor:

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20	40							60	80
155.7																	
155.0	<b>ASPHALT:</b> 100 mm																
154.8	<b>GRANULAR:</b> 115 mm																
0.2	<b>FILL:</b> sandy silt, trace cobbles, moist		1	SS	8												
154.9																	
0.8	<b>FILL:</b> clayey silt, some sand, trace gravel, trace topsoil, brown, moist		2	SS	10												
1																	
2																	
3			3	SS	3												
4			4	SS	6												
152.7																	
3.0	<b>POSSIBLE FILL:</b> sandy silt, brown, moist		5	SS	8									5	26	49	20
4																	
151.1																	
4.6			6	NR	50/												
<p><b>END OF BOREHOLE:</b></p> <p>Notes:                      1. Borehole Open upon Completion of Drilling.                      2. Water Encountered at 3.66 m upon Completion of Drilling.                      2. Auger Refusal at 4.72 m Depth.                      3. Monitoring Well was Installed in the Borehole upon completion of Drilling.                      5. Groundwater Level was Observed at 2.9 m on June 7, 2018.</p>																	

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity ○ ●=3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION:

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: May/07/2018  
 REF. NO.: SP18-306-20  
 ENCL NO.: 12  
 Drilling Contractor:

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	20 40 60 80 100						
155.3	ASPHALT: 90 mm													
155.1	GRANULAR: 100 mm													
154.5	FILL: sandy silt mixed with topsoil, some sand, trace gravel, trace construction debris, brown, very moist		1	SS	9									
154.0	FILL: clayey silt mixed with topsoil, brown, very moist		2	SS	2									
153.0			3	SS	3									
153.0	FILL: sandy silt, trace topsoil, brown, moist		4	SS	7									
152.6			5	SS	25									
150.7														
150.6	SANDY SILT TILL: trace shale fragments, grey, very moist, very dense		6	SS	50/100 mm									

W. L. 152.6 m  
 May 07, 2018  
 W. L. 152.5 m  
 Jun 07, 2018

**END OF BOREHOLE:**

- Notes:
- Borehole Open upon Completion of Drilling.
  - Water Encountered at 2.7 mbgs upon Completion of Drilling.
  - Auger Refusal at 5.79 m Depth.
  - Monitoring Well was Installed in the Borehole upon completion of drilling.
  - Groundwater Level was Observed at 2.85 m on June 7, 2018.

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**

Measurement 1st 2nd 3rd 4th

**GRAPH NOTES**

+ 3, × 3: Numbers refer to Sensitivity  
 ○ = 3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION:

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: May/08/2018  
 Drilling Contractor:  
 REF. NO.: SP18-306-20  
 ENCL NO.: 13

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20	40							60	80
157.6 0.0	<b>SAND AND GRAVEL MIXED WITH CONSTRUCTION DEBRIS:</b>		1	SS	6												
156.8 0.8	<b>CLAYEY SILT TILL:</b> some sand, trace gravel, brown, moist, very stiff to hard		2	SS	21												
	trace shale fragments		3	SS	40									7	20	43	30
	becoming grey		4	SS	43												
154.6 3.0	<b>SANDY SILT TILL:</b> trace shale fragments, trace gravel, grey, moist, compact to very dense		5	SS	28												
	becoming very moist		6	SS	76												
152.5 5.1	<b>END OF BOREHOLE:</b>																
	Notes: 1. Borehole Open and Dry upon Completion of Drilling. 2. Auger Refusal at 5.33 m Depth. 3. Monitoring Well was Installed in the Borehole Upon Completion of Drilling.																

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study  
 CLIENT: DE SEN REALTY COMPANY LTD.  
 PROJECT LOCATION: 66 Thomas Street, Mississauga, ON  
 DATUM: Geodetic  
 BH LOCATION:

**DRILLING DATA**  
 Method: Solid Stem Augers  
 Diameter: 150 mm  
 Date: May/08/2018  
 REF. NO.: SP18-306-20  
 ENCL NO.: 14  
 Drilling Contractor:

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		SHEAR STRENGTH (kPa)			PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20 40 60 80 100	20 40 60 80 100	W <sub>p</sub> W W <sub>L</sub>	W <sub>p</sub> W W <sub>L</sub>	GR SA SI CL						
157.0	<b>SAND AND GRAVEL MIXED WITH CONSTRUCTION DEBRIS:</b> 200 mm <b>CLAYEY SILT TILL:</b> some sand, trace gravel, light brown, moist, very stiff  becoming hard  trace cobbles, becoming grey and very stiff  becoming hard		1	SS	19													
156.8			2	SS	19													
156.2			3	SS	42													
154.8			4	SS	28													
154.2			5	SS	35													
152.4	<b>RESIDUAL SOIL/WEATHERED SHALE BEDROCK:</b> grey, moist		6	SS	46-50 125mm													
152.1																		
152.0	<b>END OF BOREHOLE:</b>  Notes: 1. Borehole Open and Dry upon Completion of Drilling. 2. Auger Refusal at 5.03 m Depth. 3. Monitoring Well was Installed in the Borehole Upon Completion of Drilling. 4. Groundwater Level was Observed at 2.33 m in the Well on June 7, 2018.																	

W. L. 154.7 m  
Jun 07, 2018

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity ○ ●=3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: DE SEN REALTY COMPANY LTD. PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/08/2018 Drilling Contractor:
	REF. NO.: SP18-306-20 ENCL NO.: 15

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%)		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE			"N" BLOWS 0.3 m	SHEAR STRENGTH (kPa)				W <sub>p</sub>	w				W <sub>L</sub>	GR
157.6	<b>SAND AND GRAVEL MIXED WITH CONSTRUCTION DEBRIS:</b>		1	SS	33													
0.0																		
156.8	<b>CLAYEY SILT TILL:</b> some sand, trace gravel, brown, moist, very stiff to hard		2	SS	22													
0.8																		
155.3	<b>SANDY SILT TILL:</b> trace shale fragments, trace gravel, moist, grey, dense		3	SS	64/253 mm													
2.3																		
154.1	<b>END OF BOREHOLE:</b>  Notes: 1. Borehole Open and Dry upon Completion of Drilling.		4	SS	38													
3.5			5	SS	43													

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

GROUNDWATER ELEVATIONS: 1st, 2nd, 3rd, 4th Measurement

GRAPH NOTES: +, x, x: Numbers refer to Sensitivity; o = 3% Strain at Failure

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: DE SEN REALTY COMPANY LTD. PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/08/2018 Drilling Contractor:
	REF. NO.: SP18-306-20 ENCL NO.: 16

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	CHEMICAL ANALYSIS AND GRAIN SIZE DISTRIBUTION (%)					
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20	40	60	80				100	PLASTIC LIMIT	NATURAL MOISTURE CONTENT	LIQUID LIMIT	GR
155.7	<b>SAND AND GRAVEL MIXED WITH CONSTRUCTION DEBRIS:</b> 700 mm		1	SS	61														
154.9																			
0.8	<b>FILL:</b> clayey silt, some sand, trace gravel, trace topsoil, brown, moist		2	SS	10														
153.4																			
153.4																			
2.3	<b>BURRIED TOPSOIL:</b> 750 mm		4	SS	8														
152.7	<b>POSSIBLE FILL:</b> sand and gravel, wet		5	SS	14														
151.1																			
4.6	<b>SANDY SILT TILL:</b> trace gravel, grey, moist, very dense		6	SS	67/ 278 mm														
150.7																			

**5.0 END OF BOREHOLE:**

Notes:  
 1. Borehole Open and Dry upon Completion of Drilling.

SPCL SOIL LOG SP18-306-20-WITHOUT GAS READINGS.GPJ SPCL.GDT 6/15/18

# LOG OF BOREHOLE 201

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/23/2018	REF. NO.: SP18-306-20 ENCL NO.: 18
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV. DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>CLAYEY SILT TILL:</b> possibly till, brown, moist	[diagonal lines]	1	TO		[x]	200	250	300	350			IBL in ppm	
0.8	<b>CLAYEY SILT TILL:</b> greyish brown, moist trace gravel	[diagonal lines]	2	TO		[x]	200	250	300	350			0	
1.2		[diagonal lines]	3	TO		[x]	200	250	300	350			2	
1.6		[diagonal lines]	4	TO		[x]	200	250	300	350			6	
2.3	<b>CLAYEY SILT:</b> brown to dark grey, moist trace gravel	[diagonal lines]	5	TO		[x]	200	250	300	350			15	
2.9		[diagonal lines]	6	TO		[x]	200	250	300	350			3	
4.3	Augered to 4.6 mbgs		AUGRE											
4.6	<b>END OF BOREHOLE:</b>  Notes: 1. Monitoring well was installed in the borehole upon completion of drilling.													

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement 
 1st 
 2nd 
 3rd 
 4th

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ● = 3% Strain at Failure



# LOG OF BOREHOLE 202

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/24/2018 REF. NO.: SP18-306-20 ENCL NO.: 17
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(m) ELEV DEPTH	SOIL PROFILE DESCRIPTION	STRATA PLOT	SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
			NUMBER	TYPE	"N" BLOWS 0.3 m									
0.0	<b>SANDY SILT:</b> trace gravel mixed with asphalt, grey, moist		1	TO			200						IBL in ppm 0	
0.8	<b>CLAYEY SILT:</b> trace gravel, grey, moist  grey to dark grey		2	TO			250						0	
			3	TO			250						0	
			4	TO			250						0	
3.0	<b>SILT:</b> some gravel, dark grey, very moist		5	TO			350						SS5 - PHCs/VOCs 220	
3.8	<b>CLAYEY SILT:</b> grey, moist		6	TO			250						16	

4.6 **END OF BOREHOLE:**

Notes:  
1. Monitoring well was installed in the borehole upon completion of drilling.

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement      
 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE 204

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/23/2018	REF. NO.: SP18-306-20 ENCL NO.: 19
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
0.0	No Recovery		1	NR		200							IBL in ppm 0
0.8	<b>SILTY SAND:</b> black (possible asphalt), moist		2	TO		250							0
1.5	<b>CLAYEY SILT TILL:</b> grey, moist		3	TO		250							2
2.3	<b>CLAYEY SILT:</b> trace gravel, grey, moist		4	TO		350							SS4 - PHCs/VOCs 357
3.4	Augered to 4.6 mbgs		5	TO		380							240
4.6	<b>END OF BOREHOLE:</b>  Notes: 1. Tube refusal at 3.4 mbgs depth. 2. Monitoring well was installed in the borehole upon completion of drilling.		AUGER										

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement  1st  2nd  3rd  4th

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE 205

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/23/2018 REF. NO.: SP18-306-20 ENCL NO.: 20
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>CLAYEY SILT TILL:</b> trace gravel, brown to grey, moist		1	TO		x							IBL in ppm 0	
1			2	TO		x								SS3 - PHCs/VOCs 102
2			3	TO		x								
2.1	Augered to 2.3 mbgs													
2.3	<b>END OF BOREHOLE:</b>  Notes: 1. Tube refusal at 2.1 mbgs depth. 2. Monitoring well was installed in the borehole upon completion of drilling.			AUGRE										

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE 206

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/22/2018	REF. NO.: SP18-306-20 ENCL NO.: 21
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>SILTY CLAY TILL:</b> trace gravel, brown, moist  grey  trace broken rocks		1	TO		x	200	250	300	350				IBL in ppm
1			2	TO		x								0
2			3	TO		x								0
3			4	TO		x								0
3.0	<b>SILTY CLAY:</b> grey, moist		5	TO		x	200	250	300	350			SS5 - PHCs/VOCs	
4			6	TO		x							0	
4.6	<b>END OF BOREHOLE:</b>  Notes:  1. Monitoring well was installed in the borehole upon completion of drilling.													

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE 207

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/23/2018	REF. NO.: SP18-306-20 ENCL NO.: 22
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>CONCRETE:</b>												IBL in ppm	
0.2	<b>SILTY SAND:</b> grey, moist		1	TO		✕							0	
0.8	<b>SANDY SILT:</b> grey, moist		2	TO		✕							6	
2.3	<b>CLAYEY SILT:</b> trace sand, dark grey, moist		3	TO		✕							13	
3.0	<b>SILTY SAND AND SAND AND GRAVEL:</b> grey, moist		4	TO		✕							SS4 - PHCs/VOCs (DUP - S202) 68	
3.0			5	TO		✕							9	
4.0	<b>END OF BOREHOLE:</b>		6	TO		✕							8	
Notes:  1. Monitoring well was installed in the borehole upon completion of drilling.														

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement  1st  2nd  3rd  4th

**GRAPH NOTES** + 3, ✕ 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE 208

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/23/2018 REF. NO.: SP18-306-20 ENCL NO.: 23
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(m) ELEV DEPTH	SOIL PROFILE DESCRIPTION	STRATA PLOT	SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
			NUMBER	TYPE	"N" BLOWS 0.3 m									
0.0	<b>CONCRETE:</b>													IBL in ppm
0.2	<b>SILTY SAND:</b> trace gravel, grey, moist		1	TO			250							5
0.8	<b>SANDY SILT:</b> trace gravel, grey to dark grey, moist		2	TO			280							9
			3	TO			350							15
2.3	<b>CLAYEY SILT:</b> dark grey, moist		4	TO			450							50
3.0	<b>SANDY SILT:</b> some gravel, dark grey, moist		5	TO			480							SS5 - PHCs/VOCs 148
3.7	Augered to 7.6 mbgs													
					AUGRE									
7.6	<b>END OF BOREHOLE:</b>													
	Notes: 1. Monitoring well was installed in the borehole upon completion of drilling. 2. Tube refusal at 3.7 mbgs depth.													

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ● = 3% Strain at Failure

# LOG OF BOREHOLE 209

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/22/2018 REF. NO.: SP18-306-20 ENCL NO.: 24
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(m) ELEV DEPTH	SOIL PROFILE DESCRIPTION	STRATA PLOT	SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
			NUMBER	TYPE	"N" BLOWS 0.3 m									
0.0	<b>CLAYEY SILT:</b> trace gravel, grey, moist		1	TO			200							IBL in ppm
			2	TO			250							0
			3	TO			300							7
			4	TO			350							31
	becoming dark grey		5	TO			380							40
			6	TO			420							140
	becoming very moist		7	TO			450							45
														177
4.9	Augered to 7.6 mbgs													SS7 - PHCs/VOCs
7.6	<b>END OF BOREHOLE:</b>  Notes:  1. Monitoring well was installed in the borehole upon completion of drilling.													

SPCL SOIL LOG W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

LOG OF BOREHOLE 209

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/22/2018 REF. NO.: SP18-306-20 ENCL NO.: 24
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV. DEPTH	DESCRIPTION	STRATA PLOT NUMBER	TYPE	"N" BLOWS 0.3 m									

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure



# LOG OF BOREHOLE 210

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/22/2018 REF. NO.: SP18-306-20 ENCL NO.: 25
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(m) ELEV DEPTH	SOIL PROFILE DESCRIPTION	STRATA PLOT	SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
			NUMBER	TYPE	"N" BLOWS 0.3 m									
0.0	<b>CLAYEY SILT:</b> trace gravel, red to brown, moist		1	TO			200							IBL in ppm
	becoming grey		2	TO			250							0
	becoming dark grey		3	TO			300							8
			4	TO			350							8
			5	TO			400							SS - PHCs/VOCs 40
	trace sand and gravel		6	TO			450							12

4.6	<b>END OF BOREHOLE:</b>  Notes:  1. Monitoring well was installed in the borehole upon completion of drilling.												
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SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

# LOG OF BOREHOLE 211

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/22/2018 REF. NO.: SP18-306-20 ENCL NO.: 26
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>CLAYEY SILT:</b> trace gravel, grey, moist    trace sand, grey to black		1	TO		x	200	250	300	350			IBL in ppm	
1			2	TO		x	200	250	300	350			0	
2			3	TO		x	200	250	300	350			0	
3			4	TO		x	200	250	300	350			0	
3.0	<b>END OF BOREHOLE:</b>													

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE 212

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/22/2018 REF. NO.: SP18-306-20 ENCL NO.: 27
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>CLAYEY SILT:</b> trace sand and gravel, grey, wet  becoming very dark grey, moist  becoming grey		1	TO		✕	200	250	300	350				IBL in ppm
1			2	TO		✕	200	250	300	350				0
2			3	TO		✕	200	250	300	350				0
3			4	TO		✕	200	250	300	350				0
3.0	<b>END OF BOREHOLE:</b>													

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, ✕ 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

LOG OF BOREHOLE 213

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/22/2018 REF. NO.: SP18-306-20 ENCL NO.: 11
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
0.0	CLAYEY SILT: dark grey, moist  trace sand, very moist		1	TO									SS3 - M&I (DUP - S201)
			2	TO									
			3	TO									
2.3	SILTY CLAY TILL: brown, moist		4	TO									
2.7	END OF BOREHOLE:  Notes: 1. Tube refusal at 2.7 mbgs depth.												


SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

GROUNDWATER ELEVATIONS  
 Measurement





GRAPH NOTES + 3, x 3: Numbers refer to Sensitivity = 3% Strain at Failure

# LOG OF BOREHOLE 214

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/23/2018 REF. NO.: SP18-306-20 ENCL NO.: 12
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
0.0	<b>CLAYEY SILT:</b> brown, moist			TO		x							IBL in ppm 0 SS2 - M&I
0.8	<b>END OF BOREHOLE:</b>  Notes: 1. Tube refusal at 0.8 mbgs depth.			TO									

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement    

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE 215

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/23/2018 REF. NO.: SP18-306-20 ENCL NO.: 13
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV. DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>CLAYEY SILT:</b> brown, moist  trace gravel, becoming grey	[Hatched Pattern]	1	TO		✕							IBL in ppm	
1.0			2	TO		✕	SS2 - M&I							0
1.5	<b>CLAYEY SILT TILL:</b> grey, moist	[Dotted Pattern]	3	TO		✕							0	
2.1	<b>END OF BOREHOLE:</b>  Notes: 1. Tube refusal at 2.1 mbgs depth.													

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement  1st  2nd  3rd  4th

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

LOG OF BOREHOLE 216

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/23/2018 REF. NO.: SP18-306-20 ENCL NO.: 14
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>CLAYEY SILT:</b> some sand, brown, moist  trace gravel, brown to grey		1	TO		✕	250						IBL in ppm 0	
			2	TO		✕	280							SS2 - M&I 0
			3	TO		✕	350							0
2.3	<b>END OF BOREHOLE:</b>													

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

GROUNDWATER ELEVATIONS  
 Measurement

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE 217

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/22/2018	REF. NO.: SP18-306-20 ENCL NO.: 15
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>TOPSOIL MIXED WITH SILT AND SAND:</b>		1	TO		x	200	250	300	350			IBL in ppm	
0.8	<b>CLAYEY SILT: red, moist</b>		2	TO		x							0	
			3	TO		x							0	
			4	TO		x							0	
3.0	<b>END OF BOREHOLE:</b>												SS4 - VOCs	

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES**    + 3, x 3: Numbers refer to Sensitivity    ○ ●=3% Strain at Failure



# LOG OF BOREHOLE 218

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Direct Push Diameter: Date: Aug/22/2018 REF. NO.: SP18-306-20 ENCL NO.: 16
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m
0.0	<b>CLAYEY SILT:</b> red, damp mixed with topsoil  becoming moist  trace sand, red to black		1	TO		✕							IBL in ppm 0	
1			2	TO		✕							0	
2			3	TO		✕								0
3			4	TO		✕								SS4 - VOCs 0
3.0	<b>END OF BOREHOLE:</b>													

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, ✕ 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE BH E1

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/07/2018 REF. NO.: SP18-306-20 ENCL NO.: 2
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV. DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
154.6	ASPHALT: 114 mm												IBL in ppm
154.3	GRAVEL: 150 mm												
0.3	FILL: clayey silt mixed with construction debris, trace cobbles, trace gravel, trace topsoil, brown, moist		1	SS	8			○					26
1	clayey silt, trace sand, becoming reddish brown		2	SS	7			○					162
2	silty sand, brown, very moist		3	SS	6			○					1050
4			4	SS	11			○					SS4 - PHCs
152.0	CLAYEY SILT TILL: some sand, trace gravel, trace rootlets, yellowish grey, moist, stiff to hard												2000
2.6			5	SS	50/ 125 mm			○					3 20 44 33
4													1342
150.0	RESIDUAL SOIL/WEATHERED SHALE BEDROCK: grey, moist		6	SS	74/ 203 mm			○					
149.6	Augered to 5.64 mbgs												
5.0			AUGRE										
149.0	END OF BOREHOLE:												
5.6	Notes: 1. Borehole Open upon Completion of Drilling. 2. Auger Refusal at 5.64 m Depth. 3. Water Encountered at 5.59 m upon Completion of Drilling. 4. Monitoring Well was Installed in the Borehole upon Completion of Drilling. 5. Groundwater Level was Observed at 2.96 m in the Well on May 28, 2018.												

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement  1st  2nd  3rd  4th

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ ● = 3% Strain at Failure

# LOG OF BOREHOLE BH E2

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/07/2018 REF. NO.: SP18-306-20 ENCL NO.: 3
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
154.0	ASPHALT: 150 mm												GR SA SI CL
153.9	GRAVEL: 125 mm												IBL in ppm
150.2	FILL: clayey silt mixed with topsoil, some sand, trace gravel, brown, moist		1	SS	6								0
0.3	trace sand, trace topsoil, becoming dark brown		2	SS	5								SS2 - M&I 256
1			3	SS	17								204
151.7	CLAYEY SILT TILL: some sand, trace gravel, light brown, moist, hard		4	SS	38								SS4 - PHCs 474
2.3			5	SS	41								152
151.0	SANDY SILT TILL: trace shale fragments, trace gravel, grey, moist, dense												
3.0													
4													
149.4	INFERRED BEDROCK Shale, Georgian Bay Formation, grey Augered to 5.49		6	SS	50/50 mm								50
149.6													
4.7													
148.5	END OF BOREHOLE:												
5.5	Notes: 1. Borehole Open and Dry upon Completion of Drilling. 2. Auger Refusal at 5.49 m Depth. 3. Monitoring Well was Installed in the Borehole upon Completion of Drilling. 4. Groundwater Level was Observed at 1.56 m in the Well on May 28, 2018.												

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement  1st  2nd  3rd  4th

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ ● = 3% Strain at Failure

LOG OF BOREHOLE BH E3

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Pionjar Diameter: Date: Jun/05/2018 REF. NO.: SP18-306-20 ENCL NO.: 4
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
154.7													
0.0	<b>CONCRETE:</b> 180 mm												
154.9	<b>FILL:</b> silty sand to clayey silt, trace cobbles, trace gravel, brown, moist		1	DO									
0.2	trace construction debris		2	DO									
1	trace topsoil, brown to grey		3	DO									
2	becoming brown		4	DO									
152.6	<b>SANDY SILT TILL:</b> brown, wet, very moist		4	DO									
2.1			5	DO									
152.3	<b>CLAYEY SILT TILL:</b> clayey silt till to native sandy silt till, brown, wet to very moist		5	DO									
2.4	at 3.04 m, layers of wet sand		6	DO									
151.0													
3.7	<b>END OF BOREHOLE:</b>												
	Notes: 1. Monitoring Well was Installed in the Borehole upon Completion of Drilling. 2. Groundwater Level was Observed at 2.16 m in the Well on June 7, 2018.												

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE BH E4

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/08/2018 REF. NO.: SP18-306-20 ENCL NO.: 5
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
154.3													GR SA SI CL
154.0	<b>ASPHALT:</b> 89 mm												IBL in ppm
154.1	<b>GRAVEL:</b> 125 mm												180
0.2	<b>FILL:</b> sand to clayey silt, reddish brown, moist		1	SS	10								
	mixed with topsoil		2	SS	5								SS2 - PHCs/VOCs/PCBs
1													346
	clayey silt, some sand, trace gravel, reddish brown, very moist to wet		3	SS	9								219
152.0	<b>CLAYEY SILT TILL:</b> trace gravel, light brown, moist, hard		4	SS	30								SS4 - M&I
2.3													89
151.3	<b>SANDY SILT TILL:</b> trace shale fragments, trace gravel, grey, very moist, dense		5	SS	48								38
3.0													
149.7	<b>RESIDUAL SOIL/WEATHERED SHALE BEDROCK:</b> grey, moist		6	SS	50/100								44
4.7	Augered to 5.49 mbgs												
148.8	<b>END OF BOREHOLE:</b>												
5.5	Notes: 1. Borehole Open upon Completion of Drilling. 2. Water Encountered at 1.83 m upon Completion of Drilling. 3. Auger Refusal at 5.49 m. 4. Monitoring Well was Installed in the Borehole upon completion of Drilling. 5. Groundwater Level was Observed at 1.67 m in the Well on May 28, 2018.												

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement: 1st, 2nd, 3rd, 4th  
**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ = 3% Strain at Failure

# LOG OF BOREHOLE BH E5

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/08/2018 REF. NO.: SP18-306-20 ENCL NO.: 6
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ELEV. DEPTH (m)	SOIL PROFILE DESCRIPTION	STRATA PLOT	SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT (Wp)	NATURAL MOISTURE CONTENT (w)	LIQUID LIMIT (Wl)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
			NUMBER	TYPE	"N" BLOWS 0.3 m									
155.3	ASPHALT: 75 mm												GR SA SI CL	
155.2	GRAVEL: 75 mm												IBL in ppm	
154.5	FILL: clayey silt mixed with topsoil, brown, moist		1	SS	6								157	
153.8	BURRIED TOPSOIL: 740 mm		2	SS	6								SS2 - PCBs (DUP - S2) 296	
153.0	FILL: clayey silt, some sand, trace gravel, light brown, very moist		3	SS	5								SS3 - M&I 237	
153.0	CLAYEY SILT TILL: some sand, trace gravel, light brown, very moist, hard		4	SS	36								SS4 - PHCs/VOCs 355	
152.3			5	SS	38									
150.7	SANDY SILT TILL: trace shale fragments, trace gravel, grey, moist very dense		6	SS	50/100 mm								78	
149.5														
149.5	INFERRED BEDROCK Shale, Georgian Bay Formation, grey												66	
149.8			7	SS	50/25 mm									

Notes:  
 1. Borehole Open upon Completion of Drilling.  
 2. Water Encountered at 5.77 m upon Completion of Drilling.  
 3. Monitoring Well was Installed in the Borehole upon Completion of Drilling.  
 4. Groundwater Level was Observed at 2.41 m in the Well on May 28, 2018.

W. L. 152.9 m  
May 28, 2018

W. L. 149.5 m  
May 08, 2018

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPI SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** +3, x3: Numbers refer to Sensitivity      ○ = 3% Strain at Failure

# LOG OF BOREHOLE BH E6

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/07/2018 REF. NO.: SP18-306-20 ENCL NO.: 7
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
154.5 0.0	<b>TOPSOIL MIXED WITH CONSTRUCTION DEBRIS:</b> 460 mm		1	SS	13								IBL in ppm
154.0 0.5	<b>FILL:</b> sandy silt mixed with topsoil, moist												1
153.6 1.0	<b>FILL:</b> clayey silt, reddish brown, moist		2	SS	14								0
	mixed with topsoil		3	SS	12								1
			4	SS	6								SS4 - PHCs/VOCs 2
151.5 3.0	<b>CLAYEY SILT TILL:</b> some sand, trace shale fragments, trace cobbles, trace gravel, grey, moist, very stiff to hard		5	SS	22								1
149.8 4.9	trace shale		6	SS	50/125								
149.6	Augered to 4.9 mbgs		AUGRE										
	<b>END OF BOREHOLE:</b>												1
	Notes: 1. Borehole Open and Dry upon Completion of Drilling. 2. Auger Refusal at 4.9 m Depth. 3. Monitoring Well was installed in the Borehole upon completion of Drilling. 4. Groundwater Level was Observed at 2.79 m in the well on June 7, 2018.												

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

LOG OF BOREHOLE BH E7

PROJECT: Proposed Slope Stability & Erosion Assessment Study	<b>DRILLING DATA</b>
CLIENT: The Biglieri Group	Method: Pionjar
PROJECT LOCATION: 66 Thomas Street, Mississauga, ON	Diameter:
DATUM: Geodetic	Date: Jun/05/2018
BH LOCATION:	REF. NO.: SP18-306-20
	ENCL NO.: 8

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)					
(m) ELEV. DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE										"N" BLOWS 0.3 m	100	200	300	400
154.8	<b>CONCRETE:</b> 130 mm																	
154.0 0.1	<b>FILL:</b> silty sand to clayey silt, trace gravel, brown, very moist		1	DO														
153.6 1.2	<b>CLAYEY SILT TILL:</b> brown, moist		2	DO														
153.0 1.8	<b>SANDY SILT TILL:</b> trace shale, brown, moist		3	DO														
152.4 2.4	<b>END OF BOREHOLE:</b>  Notes: 1. Auger refusal at 2.44 m depth. 2. Monitoring Well was installed in the Borehole upon Completion of Drilling. 3. Groundwater Level was Observed at 1.38 m in the Well on June 7, 2018.		4	DO														

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement 1st 2nd 3rd 4th

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure



# LOG OF BOREHOLE BH E8

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/07/2018 REF. NO.: SP18-306-20 ENCL NO.: 9
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SOIL PROFILE	SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
	DESCRIPTION	NUMBER	TYPE									
155.2												
155.0	<b>ASPHALT: 114 mm</b>											IBL in ppm
154.8	<b>GRAVEL: 75 mm</b>											
154.6	<b>FILL: topsoil mixed with clayey silt, moist</b>	1	SS	6								6
154.0	clayey silt, some sand, trace gravel, construction debris	2	SS	21								129
153.5	construction debris, wet topsoil	3	SS	14								55
153.0	mixed with topsoil	4	SS	7								126
152.5		5	SS	13								119
152.1												
152.1												
151.8												
151.0												
150.8												
150.6	<b>SANDY SILT TILL: trace shale fragments, grey, very moist, very dense</b>	6	SS	15-50								22
150.3	Augered to 5.18 mbgs			125 mm								
150.0	<b>END OF BOREHOLE:</b>											
5.2	Notes: 1. Borehole Open upon Completion of Drilling. 2. Water was Encountered at 4.42 m upon Completion of Drilling. 3. Auger Refusal at 5.18 m Depth. 4. Monitoring Well was Installed in the Borehole upon completion of Drilling. 5. Groundwater Level was Observed at 3.09 m in the well on June 7, 2018.											

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement: 1st, 2nd, 3rd, 4th  
**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ● = 3% Strain at Failure

LOG OF BOREHOLE BH E9

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/07/2018 REF. NO.: SP18-306-20 ENCL NO.: 10
--	---

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV. DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
155.7													GR SA SI CL
155.0	<b>ASPHALT:</b> 75 mm												IBL in ppm
155.2	<b>GRAVEL:</b> 125 mm												
0.2	<b>FILL:</b> sandy silt mixed with construction debris, trace topsoil, brown, moist		1	SS	10								26
154.9	<b>FILL:</b> clayey silt mixed with topsoil, trace gravel, trace sand, greyish brown, very moist		2	SS	6								162
0.8			3	SS	5								1050
	trace gravel		4	SS	8								2000
152.7	<b>SILTY SAND:</b> grey, wet		5	SS	22								1342
3.0													
152.2	Augered to 4.27 mbgs												
3.5													
151.4													
4.3	<b>END OF BOREHOLE:</b>												

Notes:  
 1. Borehole Open and Dry upon Completion of Drilling.  
 2. Monitoring Well was Installed in the Borehole upon completion of Drilling.  
 3. Auger Refusal at 4.27 m Depth.  
 4. Groundwater Level was Observed at 2.91 m in the well on June 7, 2018.

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

# LOG OF BOREHOLE BH E10

<b>PROJECT:</b> Proposed Slope Stability & Erosion Assessment Study <b>CLIENT:</b> The Biglieri Group <b>PROJECT LOCATION:</b> 66 Thomas Street, Mississauga, ON <b>DATUM:</b> Geodetic <b>BH LOCATION:</b>	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/07/2018 REF. NO.: SP18-306-20 ENCL NO.: 11
---	---

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
155.7													
155.0	<b>ASPHALT:</b> 100 mm												
154.8	<b>GRAVEL:</b> 114 mm												
0.2	<b>FILL:</b> sandy silt, trace cobbles, moist	1	1	SS	8			○					IBL in ppm
154.9													
0.8	<b>FILL:</b> clayey silt, some sand, trace gravel, trace topsoil, brown, moist	2	2	SS	10			○					26
1													
152.7	<b>SANDY SILT:</b> brown, moist, loose	3	3	SS	3			○					36
3.0													
152.2	No Recovery	4	4	SS	6			○					-
3.5													
151.1													
4.6													
151.1	<b>END OF BOREHOLE:</b>	5	5	SS	8			○					114
	Notes: 1. Borehole Open upon Completion of Drilling. 2. Water Encountered at 3.66 m upon Completion of Drilling. 2. Auger Refusal at 4.72 m Depth. 3. Monitoring Well was Installed in the Borehole upon completion of Drilling. 5. Groundwater Level was Observed at 2.9 m on June 7, 2018.	6	6	NR	50/0 mm								SS - PHCs 5 26 49 20 357

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement: 1st, 2nd, 3rd, 4th

**GRAPH NOTES**  
 + 3, × 3: Numbers refer to Sensitivity  
 ○ = 3% Strain at Failure

# LOG OF BOREHOLE BH E11

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/07/2018 REF. NO.: SP18-306-20 ENCL NO.: 12
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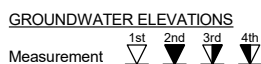
ELEV DEPTH (m)	SOIL PROFILE DESCRIPTION	STRATA PLOT	SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
			NUMBER	TYPE	"N" BLOWS 0.3 m									
155.3	ASPHALT: 90 mm													
155.0	GRAVEL: 100 mm													
155.1	FILL: sandy silt mixed with topsoil, some sand, trace gravel, trace construction debris, brown, very moist	[Pattern]	1	SS	9									IBL in ppm
154.5														118
154.8	FILL: clayey silt mixed with topsoil, brown, very moist	[Pattern]	2	SS	2									SS2 - PHCs
154.5														319
153.0	FILL: sandy silt, trace topsoil, brown, moist	[Pattern]	3	SS	3									278
153.0														249
152.3														
150.7	SANDY SILT TILL: trace shale fragments, grey, very moist, very dense	[Pattern]	4	SS	7									
150.6														
150.6			5	SS	25									
150.6			6	SS	50/100 mm									

W. L. 152.6 m  
May 07, 2018<sup>1</sup>  
Jun 07, 2018

**END OF BOREHOLE:**

Notes:  
 1. Borehole Open upon Completion of Drilling.  
 2. Water Encountered at 2.7 mbgs upon Completion of Drilling.  
 3. Auger Refusal at 5.79 m Depth.  
 4. Monitoring Well was Installed in the Borehole upon completion of drilling.  
 5. Groundwater Level was Observed at 2.85 m on June 7, 2018.

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18



**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ● = 3% Strain at Failure

LOG OF BOREHOLE BH E12

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	DRILLING DATA Method: Solid Stem Augers Diameter: 150 mm Date: May/08/2018 REF. NO.: SP18-306-20 ENCL NO.: 13
--	--

ELEV DEPTH (m)	SOIL PROFILE DESCRIPTION	STRATA PLOT	SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
			NUMBER	TYPE	"N" BLOWS 0.3 m									
157.6 0.0	<b>SAND AND GRAVEL MIXED WITH CONSTRUCTION DEBRIS:</b>		1	SS	6								GR SA SI CL IBL in ppm 118	
156.8 0.8	<b>CLAYEY SILT TILL:</b> some sand, trace gravel, brown, moist, very stiff to hard		2	SS	21								SS2 - PHCs 319	
	trace shale fragments		3	SS	40								7 20 43 30 278	
	becoming grey		4	SS	43								249	
154.6 3.0	<b>SANDY SILT TILL:</b> trace shale fragments, trace gravel, grey, moist, compact to very dense		5	SS	28								39	
	becoming very moist		6	SS	76								55	
152.5 5.1	Augered to 5.33 mbgs													
152.3 5.3	<b>END OF BOREHOLE:</b>													

Notes:  
 1. Borehole Open and Dry upon Completion of Drilling.  
 2. Auger Refusal at 5.33 m Depth.  
 3. Monitoring Well was Installed in the Borehole Upon Completion of Drilling.

AUGRE

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**LOG OF BOREHOLE BH E12**

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/08/2018 REF. NO.: SP18-306-20 ENCL NO.: 13
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV. DEPTH	DESCRIPTION	STRATA PLOT NUMBER	TYPE	"N" BLOWS 0.3 m									

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure



LOG OF BOREHOLE BH E13

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/08/2018 REF. NO.: SP18-306-20 ENCL NO.: 14
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV. DEPTH	DESCRIPTION	STRATA PLOT NUMBER	TYPE	"N" BLOWS 0.3 m									

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, × 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure



LOG OF BOREHOLE BH E14

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/08/2018 REF. NO.: SP18-306-20 ENCL NO.: 15
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SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE									
157.6 0.0	<b>SAND AND GRAVEL MIXED WITH CONSTRUCTION DEBRIS:</b>		1	SS	33								GR SA SI CL IBL in ppm SS1 - OCPs 416
156.8 0.8	<b>CLAYEY SILT TILL:</b> some sand, trace gravel, brown, moist, very stiff to hard		2	SS	22								420
155.3 2.3	<b>SANDY SILT TILL:</b> trace shale fragments, trace gravel, moist, grey, dense		3	SS	64/ 253 mm								SS3 - M&I (DUP-S1) 360
154.1 3.5	<b>END OF BOREHOLE:</b>  Notes: 1. Borehole Open and Dry upon Completion of Drilling.		4	SS	38								157
			5	SS	43								169

SPCL SOIL LOG (W) VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

**GROUNDWATER ELEVATIONS**  
 Measurement

**GRAPH NOTES** + 3, x 3: Numbers refer to Sensitivity      ○ ●=3% Strain at Failure

LOG OF BOREHOLE BH E15

PROJECT: Proposed Slope Stability & Erosion Assessment Study CLIENT: The Biglieri Group PROJECT LOCATION: 66 Thomas Street, Mississauga, ON DATUM: Geodetic BH LOCATION:	<b>DRILLING DATA</b> Method: Solid Stem Augers Diameter: 150 mm Date: May/08/2018 REF. NO.: SP18-306-20 ENCL NO.: 16
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SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	Head Space Combustible Vapor Reading (ppm)	PLASTIC LIMIT W <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W <sub>L</sub>	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m									
155.7 0.0	SAND AND GRAVEL MIXED WITH CONSTRUCTION DEBRIS: 700 mm		1	SS	61		200	10						IBL in ppm 249
154.9 0.8	FILL: clayey silt, some sand, trace gravel, trace topsoil, brown, moist		2	SS	10		250		20					SS2 - M&I 416
153.4 2.3	BURRIED TOPSOIL: 750 mm		3	SS	5		250		20					SS3 - PCBs 237
152.7 3.0	POSSIBLE FILL: sand and gravel, wet		4	SS	8		300		20					957
151.1 4.6	SANDY SILT TILL: trace gravel, grey, moist, very dense		5	SS	14		350		20					SS5 - PHCs/ VOCs 2000
150.7 5.0	END OF BOREHOLE:  Notes: 1. Borehole Open and Dry upon Completion of Drilling.		6	SS	67/ 278 mm									

SPCL SOIL LOG (W/ VOC 0-600 PPM SP18-306-20 - (17.OCT.2018).GPJ SPCL.GDT 10/25/18

GROUNDWATER ELEVATIONS  
 Measurement

GRAPH NOTES  
 + 3, x 3: Numbers refer to Sensitivity      ○ ● = 3% Strain at Failure

# APPENDIX C



Sirati & Partners Consultants Ltd.  
(Concord)  
ATTN: CHAORAN LI  
750 Millway Ave.  
Unit #8  
Vaughan ON L4K 3T7

Date Received: 03-MAY-18  
Report Date: 28-JUN-18 10:01 (MT)  
Version: FINAL REV. 2

Client Phone: 905-669-4477

## Certificate of Analysis

Lab Work Order #: L2088977  
Project P.O. #: SP18-306-20  
Job Reference: SP18-306-20  
C of C Numbers:  
Legal Site Desc:

Comments:

28-JUN-2018 ID revision for sample 3

Rick Hawthorne  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927  
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

## Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID	Client ID					
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use</b>						
L2088977-1	BH2-SS3	Hydrocarbons	F2 (C10-C16)	235	10	ug/g
			F3 (C16-C34)	2750	240	ug/g
			F4 (C34-C50)	802	120	ug/g
			F4G-SG (GHH-Silica)	2230	120	ug/g
L2088977-3	BH5-SS1	Physical Tests	Conductivity	10.2	0.57	mS/cm
			Saturated Paste Extractables	SAR	31.4	2.4
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Res/Park/Inst. Property Use (Coarse)</b>						
L2088977-1	BH2-SS3	Hydrocarbons	F2 (C10-C16)	235	98	ug/g
			F3 (C16-C34)	2750	300	ug/g
L2088977-3	BH5-SS1	Physical Tests	Conductivity	10.2	0.7	mS/cm
			Saturated Paste Extractables	SAR	31.4	5



Environmental

## ANALYTICAL REPORT


## Physical Tests - SOIL


Lab ID	L2088977-1	L2088977-2	L2088977-3	L2088977-4
Sample Date	18-APR-18	18-APR-18	18-APR-18	18-APR-18
Sample ID	BH2-SS3	BH6-SS5	BH5-SS1	BH7-SS4

Analyte	Unit	Guide Limits					
		#1	#2				
Conductivity	mS/cm	0.57	0.7			10.2	
% Moisture	%	-	-	14.9	5.64	11.4	16.0
pH	pH units	-	-			7.77	

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



Environmental

## ANALYTICAL REPORT

### Cyanides - SOIL

**Lab ID** L2088977-3  
**Sample Date** 18-APR-18  
**Sample ID** BH5-SS1

**Guide Limits**  
**Unit** **#1** **#2**

**Analyte**

Analyte	Unit	#1	#2	
Cyanide, Weak Acid Diss	ug/g	0.051	0.051	<0.050

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## ANALYTICAL REPORT

## Saturated Paste Extractables - SOIL

**Lab ID** L2088977-3  
**Sample Date** 18-APR-18  
**Sample ID** BH5-SS1

Analyte	Unit	Guide Limits		
		#1	#2	
SAR	SAR	2.4	5	31.4
Calcium (Ca)	mg/L	-	-	185
Magnesium (Mg)	mg/L	-	-	37.3
Sodium (Na)	mg/L	-	-	1790

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## Metals - SOIL

**Lab ID** L2088977-3  
**Sample Date** 18-APR-18  
**Sample ID** BH5-SS1

Analyte	Unit	Guide Limits		
		#1	#2	
Antimony (Sb)	ug/g	1.3	7.5	<1.0
Arsenic (As)	ug/g	18	18	4.4
Barium (Ba)	ug/g	220	390	104
Beryllium (Be)	ug/g	2.5	4	0.66
Boron (B)	ug/g	36	120	10.9
Boron (B), Hot Water Ext.	ug/g	36	1.5	0.20
Cadmium (Cd)	ug/g	1.2	1.2	<0.50
Chromium (Cr)	ug/g	70	160	18.5
Cobalt (Co)	ug/g	21	22	10.2
Copper (Cu)	ug/g	92	140	21.1
Lead (Pb)	ug/g	120	120	8.1
Mercury (Hg)	ug/g	0.27	0.27	0.0162
Molybdenum (Mo)	ug/g	2	6.9	<1.0
Nickel (Ni)	ug/g	82	100	21.9
Selenium (Se)	ug/g	1.5	2.4	<1.0
Silver (Ag)	ug/g	0.5	20	<0.20
Thallium (Tl)	ug/g	1	1	<0.50
Uranium (U)	ug/g	2.5	23	<1.0
Vanadium (V)	ug/g	86	86	27.6
Zinc (Zn)	ug/g	290	340	56.3

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.


## Speciated Metals - SOIL


**Lab ID** L2088977-3  
**Sample Date** 18-APR-18  
**Sample ID** BH5-SS1

Analyte	Unit	Guide Limits		
		#1	#2	
Chromium, Hexavalent	ug/g	0.66	8	0.20

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
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**B-HWS-R511-WT** Soil Boron-HWE-O.Reg 153/04 (July 2011) HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**CN-WAD-R511-WT** Soil Cyanide (WAD)-O.Reg 153/04 (July 2011) MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**CR-CR6-IC-WT** Soil Hexavalent Chromium in Soil SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**EC-WT** Soil Conductivity (EC) MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**F1-F4-511-CALC-WT** Soil F1-F4 Hydrocarbon Calculated Parameters CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
<b>F1-HS-511-WT</b>	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS
<p>Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>F2-F4-511-WT</b>	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1
<p>Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, &amp; F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.</p> <p>Notes:</p> <ol style="list-style-type: none"> <li>1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.</li> <li>2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.</li> <li>3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.</li> <li>4. F4G: Gravimetric Heavy Hydrocarbons</li> <li>5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.</li> <li>6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.</li> <li>7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.</li> <li>8. This method is validated for use.</li> <li>9. Data from analysis of validation and quality control samples is available upon request.</li> <li>10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.</li> </ol> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>F4G-ADD-511-WT</b>	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1
<p>F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
<b>HG-200.2-CVAA-WT</b>	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
<p>Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
<b>MET-200.2-CCMS-WT</b>	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
<p>This method uses a heated strong acid digestion with HNO<sub>3</sub> and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>MOISTURE-WT</b>	Soil	% Moisture	Gravimetric: Oven Dried
<b>PH-WT</b>	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

# Reference Information

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>SAR-R511-WT</b>	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C
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A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

\*\*ALS test methods may incorporate modifications from specified reference methods to improve performance.

## Chain of Custody Numbers:

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

## GLOSSARY OF REPORT TERMS

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*

*mg/kg - milligrams per kilogram based on dry weight of sample*

*mg/kg wwt - milligrams per kilogram based on wet weight of sample*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*

*mg/L - unit of concentration based on volume, parts per million.*

*< - Less than.*

*D.L. - The reporting limit.*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

*Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.*



## Quality Control Report

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Report Date: 28-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave. Unit #8  
 Vaughan ON L4K 3T7

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>B-HWS-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4039945</b>							
<b>WG2766599-4</b>	<b>DUP</b>	<b>L2089035-1</b>						
Boron (B), Hot Water Ext.		0.41	0.39		ug/g	3.7	30	09-MAY-18
<b>WG2766599-2</b>	<b>IRM</b>	<b>HOTB-SAL_SOIL5</b>						
Boron (B), Hot Water Ext.			112.3		%		70-130	09-MAY-18
<b>WG2766599-3</b>	<b>LCS</b>							
Boron (B), Hot Water Ext.			122.1		%		70-130	09-MAY-18
<b>WG2766599-1</b>	<b>MB</b>							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	09-MAY-18
<b>CN-WAD-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4039855</b>							
<b>WG2766818-3</b>	<b>DUP</b>	<b>L2088839-2</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	09-MAY-18
<b>WG2766818-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			93.5		%		80-120	09-MAY-18
<b>WG2766818-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	09-MAY-18
<b>WG2766818-4</b>	<b>MS</b>	<b>L2088839-2</b>						
Cyanide, Weak Acid Diss			106.0		%		70-130	09-MAY-18
<b>CR-CR6-IC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4038717</b>							
<b>WG2766819-3</b>	<b>CRM</b>	<b>WT-SQC012</b>						
Chromium, Hexavalent			88.0		%		70-130	09-MAY-18
<b>WG2766819-4</b>	<b>DUP</b>	<b>L2088977-3</b>						
Chromium, Hexavalent		0.20	<0.20	RPD-NA	ug/g	N/A	35	09-MAY-18
<b>WG2766819-2</b>	<b>LCS</b>							
Chromium, Hexavalent			102.0		%		80-120	09-MAY-18
<b>WG2766819-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.20		ug/g		0.2	09-MAY-18
<b>EC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4038043</b>							
<b>WG2766643-4</b>	<b>DUP</b>	<b>WG2766643-3</b>						
Conductivity		0.248	0.258		mS/cm	4.0	20	08-MAY-18
<b>WG2766903-1</b>	<b>LCS</b>							
Conductivity			105.9		%		90-110	08-MAY-18
<b>WG2766643-1</b>	<b>MB</b>							
Conductivity			<0.0040		mS/cm		0.004	08-MAY-18
<b>F1-HS-511-WT</b>								
	<b>Soil</b>							



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave. Unit #8  
 Vaughan ON L4K 3T7

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F1-HS-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4036987</b>							
<b>WG2764660-4</b>	<b>DUP</b>	<b>WG2764660-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	08-MAY-18
<b>WG2764660-2</b>	<b>LCS</b>							
F1 (C6-C10)			97.9		%		80-120	08-MAY-18
<b>WG2764660-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	08-MAY-18
Surrogate: 3,4-Dichlorotoluene			91.5		%		60-140	08-MAY-18
<b>WG2764660-6</b>	<b>MS</b>	<b>L2088944-20</b>						
F1 (C6-C10)			98.7		%		60-140	08-MAY-18
<b>Batch</b>		<b>R4039146</b>						
<b>WG2766840-4</b>	<b>DUP</b>	<b>WG2766840-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	09-MAY-18
<b>WG2766840-2</b>	<b>LCS</b>							
F1 (C6-C10)			100.2		%		80-120	09-MAY-18
<b>WG2766840-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	09-MAY-18
Surrogate: 3,4-Dichlorotoluene			93.4		%		60-140	09-MAY-18
<b>WG2766840-6</b>	<b>MS</b>	<b>L2090219-2</b>						
F1 (C6-C10)			107.2		%		60-140	09-MAY-18
<b>F2-F4-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4035647</b>							
<b>WG2764875-4</b>	<b>DUP</b>	<b>WG2764875-3</b>						
F2 (C10-C16)		<10	11	RPD-NA	ug/g	N/A	30	07-MAY-18
F3 (C16-C34)		<50	59	RPD-NA	ug/g	N/A	30	07-MAY-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	07-MAY-18
<b>WG2764875-2</b>	<b>LCS</b>							
F2 (C10-C16)			104.5		%		80-120	07-MAY-18
F3 (C16-C34)			105.6		%		80-120	07-MAY-18
F4 (C34-C50)			110.9		%		80-120	07-MAY-18
<b>WG2764875-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	07-MAY-18
F3 (C16-C34)			<50		ug/g		50	07-MAY-18
F4 (C34-C50)			<50		ug/g		50	07-MAY-18
Surrogate: 2-Bromobenzotrifluoride			88.4		%		60-140	07-MAY-18
<b>WG2764875-5</b>	<b>MS</b>	<b>WG2764875-3</b>						
F2 (C10-C16)			113.2		%		60-140	07-MAY-18
F3 (C16-C34)			112.7		%		60-140	07-MAY-18





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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave. Unit #8  
 Vaughan ON L4K 3T7

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F2-F4-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4035647</b>							
<b>WG2764875-5</b>	<b>MS</b>	<b>WG2764875-3</b>						
F4 (C34-C50)			114.3		%		60-140	07-MAY-18
<b>Batch</b>	<b>R4039589</b>							
<b>WG2766846-4</b>	<b>DUP</b>	<b>WG2766846-3</b>						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	09-MAY-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	09-MAY-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	09-MAY-18
<b>WG2766846-2</b>	<b>LCS</b>							
F2 (C10-C16)			122.6	LCS-H	%		80-120	09-MAY-18
F3 (C16-C34)			124.0	LCS-H	%		80-120	09-MAY-18
F4 (C34-C50)			128.4	LCS-H	%		80-120	09-MAY-18
<b>WG2766846-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	09-MAY-18
F3 (C16-C34)			<50		ug/g		50	09-MAY-18
F4 (C34-C50)			<50		ug/g		50	09-MAY-18
Surrogate: 2-Bromobenzotrifluoride			94.0		%		60-140	09-MAY-18
<b>WG2766846-5</b>	<b>MS</b>	<b>WG2766846-3</b>						
F2 (C10-C16)			124.7		%		60-140	09-MAY-18
F3 (C16-C34)			134.2		%		60-140	09-MAY-18
F4 (C34-C50)			133.4		%		60-140	09-MAY-18
<b>F4G-ADD-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4037873</b>							
<b>WG2767259-2</b>	<b>LCS</b>							
F4G-SG (GHH-Silica)			76.6		%		60-140	06-MAY-18
<b>WG2767259-1</b>	<b>MB</b>							
F4G-SG (GHH-Silica)			<250		ug/g		250	06-MAY-18
<b>HG-200.2-CVAA-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4037944</b>							
<b>WG2766532-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Mercury (Hg)			112.2		%		70-130	08-MAY-18
<b>WG2766532-6</b>	<b>DUP</b>	<b>WG2766532-5</b>						
Mercury (Hg)		0.0156	0.0160		ug/g	3.0	40	08-MAY-18
<b>WG2766532-3</b>	<b>LCS</b>							
Mercury (Hg)			108.5		%		80-120	08-MAY-18
<b>WG2766532-1</b>	<b>MB</b>							
Mercury (Hg)			<0.0050		mg/kg		0.005	08-MAY-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave. Unit #8  
 Vaughan ON L4K 3T7

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4039764</b>							
<b>WG2766532-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Antimony (Sb)			101.9		%		70-130	08-MAY-18
Arsenic (As)			100.3		%		70-130	08-MAY-18
Barium (Ba)			101.1		%		70-130	08-MAY-18
Beryllium (Be)			110.7		%		70-130	08-MAY-18
Boron (B)			3.5		mg/kg		0-8.2	08-MAY-18
Cadmium (Cd)			96.9		%		70-130	08-MAY-18
Chromium (Cr)			97.5		%		70-130	08-MAY-18
Cobalt (Co)			97.0		%		70-130	08-MAY-18
Copper (Cu)			100.0		%		70-130	08-MAY-18
Lead (Pb)			101.3		%		70-130	08-MAY-18
Molybdenum (Mo)			99.6		%		70-130	08-MAY-18
Nickel (Ni)			97.5		%		70-130	08-MAY-18
Selenium (Se)			0.31		mg/kg		0.11-0.51	08-MAY-18
Silver (Ag)			0.24		mg/kg		0.13-0.33	08-MAY-18
Thallium (Tl)			0.122		mg/kg		0.077-0.18	08-MAY-18
Uranium (U)			100.5		%		70-130	08-MAY-18
Vanadium (V)			102.1		%		70-130	08-MAY-18
Zinc (Zn)			101.0		%		70-130	08-MAY-18
<b>WG2766532-6</b>	<b>DUP</b>	<b>WG2766532-5</b>						
Antimony (Sb)		0.11	0.12		ug/g	2.8	30	08-MAY-18
Arsenic (As)		5.28	5.29		ug/g	0.2	30	08-MAY-18
Barium (Ba)		114	112		ug/g	1.3	40	08-MAY-18
Beryllium (Be)		1.13	1.18		ug/g	3.9	30	08-MAY-18
Boron (B)		19.9	21.9		ug/g	9.2	30	08-MAY-18
Cadmium (Cd)		0.086	0.083		ug/g	3.7	30	08-MAY-18
Chromium (Cr)		30.3	30.7		ug/g	1.1	30	08-MAY-18
Cobalt (Co)		14.7	14.5		ug/g	1.1	30	08-MAY-18
Copper (Cu)		23.8	23.8		ug/g	0.2	30	08-MAY-18
Lead (Pb)		12.8	12.2		ug/g	5.0	40	08-MAY-18
Molybdenum (Mo)		0.54	0.57		ug/g	6.5	40	08-MAY-18
Nickel (Ni)		32.9	32.3		ug/g	1.8	30	08-MAY-18
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	08-MAY-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	08-MAY-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave. Unit #8  
 Vaughan ON L4K 3T7

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4039764</b>							
<b>WG2766532-6</b>	<b>DUP</b>	<b>WG2766532-5</b>						
Thallium (Tl)		0.156	0.146		ug/g	6.9	30	08-MAY-18
Uranium (U)		0.884	0.861		ug/g	2.6	30	08-MAY-18
Vanadium (V)		43.0	43.8		ug/g	1.8	30	08-MAY-18
Zinc (Zn)		72.8	72.4		ug/g	0.6	30	08-MAY-18
<b>WG2766532-4</b>	<b>LCS</b>							
Antimony (Sb)			96.8		%		80-120	08-MAY-18
Arsenic (As)			94.5		%		80-120	08-MAY-18
Barium (Ba)			90.5		%		80-120	08-MAY-18
Beryllium (Be)			108.0		%		80-120	08-MAY-18
Boron (B)			111.7		%		80-120	08-MAY-18
Cadmium (Cd)			90.5		%		80-120	08-MAY-18
Chromium (Cr)			92.8		%		80-120	08-MAY-18
Cobalt (Co)			89.3		%		80-120	08-MAY-18
Copper (Cu)			91.8		%		80-120	08-MAY-18
Lead (Pb)			100.5		%		80-120	08-MAY-18
Molybdenum (Mo)			100.4		%		80-120	08-MAY-18
Nickel (Ni)			90.9		%		80-120	08-MAY-18
Selenium (Se)			88.3		%		80-120	08-MAY-18
Silver (Ag)			90.7		%		80-120	08-MAY-18
Thallium (Tl)			92.2		%		80-120	08-MAY-18
Uranium (U)			97.0		%		80-120	08-MAY-18
Vanadium (V)			97.0		%		80-120	08-MAY-18
Zinc (Zn)			88.7		%		80-120	08-MAY-18
<b>WG2766532-1</b>	<b>MB</b>							
Antimony (Sb)			<0.10		mg/kg		0.1	08-MAY-18
Arsenic (As)			<0.10		mg/kg		0.1	08-MAY-18
Barium (Ba)			<0.50		mg/kg		0.5	08-MAY-18
Beryllium (Be)			<0.10		mg/kg		0.1	08-MAY-18
Boron (B)			<5.0		mg/kg		5	08-MAY-18
Cadmium (Cd)			<0.020		mg/kg		0.02	08-MAY-18
Chromium (Cr)			<0.50		mg/kg		0.5	08-MAY-18
Cobalt (Co)			<0.10		mg/kg		0.1	08-MAY-18
Copper (Cu)			<0.50		mg/kg		0.5	08-MAY-18
Lead (Pb)			<0.50		mg/kg		0.5	08-MAY-18



## Quality Control Report

Workorder: L2088977

Report Date: 28-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave. Unit #8  
 Vaughan ON L4K 3T7

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4039764</b>							
<b>WG2766532-1</b>	<b>MB</b>							
Molybdenum (Mo)			<0.10		mg/kg		0.1	08-MAY-18
Nickel (Ni)			<0.50		mg/kg		0.5	08-MAY-18
Selenium (Se)			<0.20		mg/kg		0.2	08-MAY-18
Silver (Ag)			<0.10		mg/kg		0.1	08-MAY-18
Thallium (Tl)			<0.050		mg/kg		0.05	08-MAY-18
Uranium (U)			<0.050		mg/kg		0.05	08-MAY-18
Vanadium (V)			<0.20		mg/kg		0.2	08-MAY-18
Zinc (Zn)			<2.0		mg/kg		2	08-MAY-18
<b>MOISTURE-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4036727</b>							
<b>WG2766237-3</b>	<b>DUP</b>	<b>L2088839-2</b>						
% Moisture		14.4	13.9		%	3.4	20	07-MAY-18
<b>WG2766237-2</b>	<b>LCS</b>							
% Moisture			99.6		%		90-110	07-MAY-18
<b>WG2766237-1</b>	<b>MB</b>							
% Moisture			<0.10		%		0.1	07-MAY-18
<b>Batch</b>	<b>R4037931</b>							
<b>WG2766842-3</b>	<b>DUP</b>	<b>L2088840-3</b>						
% Moisture		17.8	17.2		%	4.0	20	08-MAY-18
<b>WG2766842-2</b>	<b>LCS</b>							
% Moisture			100.0		%		90-110	08-MAY-18
<b>WG2766842-1</b>	<b>MB</b>							
% Moisture			<0.10		%		0.1	08-MAY-18
<b>PH-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4038185</b>							
<b>WG2765971-1</b>	<b>DUP</b>	<b>L2088067-1</b>						
pH		6.96	6.99	J	pH units	0.03	0.3	08-MAY-18
<b>WG2766913-1</b>	<b>LCS</b>							
pH			6.90		pH units		6.9-7.1	08-MAY-18
<b>SAR-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4039910</b>							
<b>WG2766643-4</b>	<b>DUP</b>	<b>WG2766643-3</b>						
Calcium (Ca)		17.1	16.6		mg/L	3.4	30	09-MAY-18
Sodium (Na)		11.5	11.8		mg/L	2.4	30	09-MAY-18
Magnesium (Mg)		11.6	12.5		mg/L	6.9	30	09-MAY-18



## Quality Control Report

Workorder: L2088977

Report Date: 28-JUN-18

Page 7 of 9

Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave. Unit #8  
 Vaughan ON L4K 3T7

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>SAR-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4039910</b>							
<b>WG2766643-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Calcium (Ca)			112.1		%		70-130	09-MAY-18
Sodium (Na)			118.9		%		70-130	09-MAY-18
Magnesium (Mg)			124.5		%		70-130	09-MAY-18
<b>WG2766643-1</b>	<b>MB</b>							
Calcium (Ca)			<1.0		mg/L		1	09-MAY-18
Sodium (Na)			<1.0		mg/L		1	09-MAY-18
Magnesium (Mg)			<1.0		mg/L		1	09-MAY-18

# Quality Control Report

Workorder: L2088977

Report Date: 28-JUN-18

Client: Sirati & Partners Consultants Ltd. (Concord)  
750 Millway Ave. Unit #8  
Vaughan ON L4K 3T7  
Contact: CHAORAN LI

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## Legend:

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Limit ALS Control Limit (Data Quality Objectives)  
DUP Duplicate  
RPD Relative Percent Difference  
N/A Not Available  
LCS Laboratory Control Sample  
SRM Standard Reference Material  
MS Matrix Spike  
MSD Matrix Spike Duplicate  
ADE Average Desorption Efficiency  
MB Method Blank  
IRM Internal Reference Material  
CRM Certified Reference Material  
CCV Continuing Calibration Verification  
CVS Calibration Verification Standard  
LCSD Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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# Quality Control Report

Workorder: L2088977

Report Date: 28-JUN-18

Client: Sirati & Partners Consultants Ltd. (Concord)  
750 Millway Ave. Unit #8  
Vaughan ON L4K 3T7  
Contact: CHAORAN LI

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## Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
<b>Physical Tests</b>							
% Moisture							
	1	18-APR-18 17:00	07-MAY-18 15:23	14	19	days	EHTR
	2	18-APR-18 17:00	07-MAY-18 15:24	14	19	days	EHTR
	3	18-APR-18 17:00	07-MAY-18 15:25	14	19	days	EHTR
	4	18-APR-18 17:00	08-MAY-18 09:28	14	20	days	EHTR
<b>Cyanides</b>							
Cyanide (WAD)-O.Reg 153/04 (July 2011)							
	3	18-APR-18 17:00	08-MAY-18 07:00	14	20	days	EHTR
<b>Hydrocarbons</b>							
F1-O.Reg 153/04 (July 2011)							
	1	18-APR-18 17:00	04-MAY-18 07:39	14	16	days	EHTR
	2	18-APR-18 17:00	04-MAY-18 07:40	14	16	days	EHTR
	4	18-APR-18 17:00	08-MAY-18 08:07	14	20	days	EHTR
F2-F4-O.Reg 153/04 (July 2011)							
	1	18-APR-18 17:00	04-MAY-18 12:00	14	16	days	EHTR
	2	18-APR-18 17:00	04-MAY-18 12:00	14	16	days	EHTR
	4	18-APR-18 17:00	08-MAY-18 08:00	14	20	days	EHTR

## Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.  
EHTR: Exceeded ALS recommended hold time prior to sample receipt.  
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.  
EHT: Exceeded ALS recommended hold time prior to analysis.  
Rec. HT: ALS recommended hold time (see units).

Notes\*:  
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.  
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2088977 were received on 03-MAY-18 17:15.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

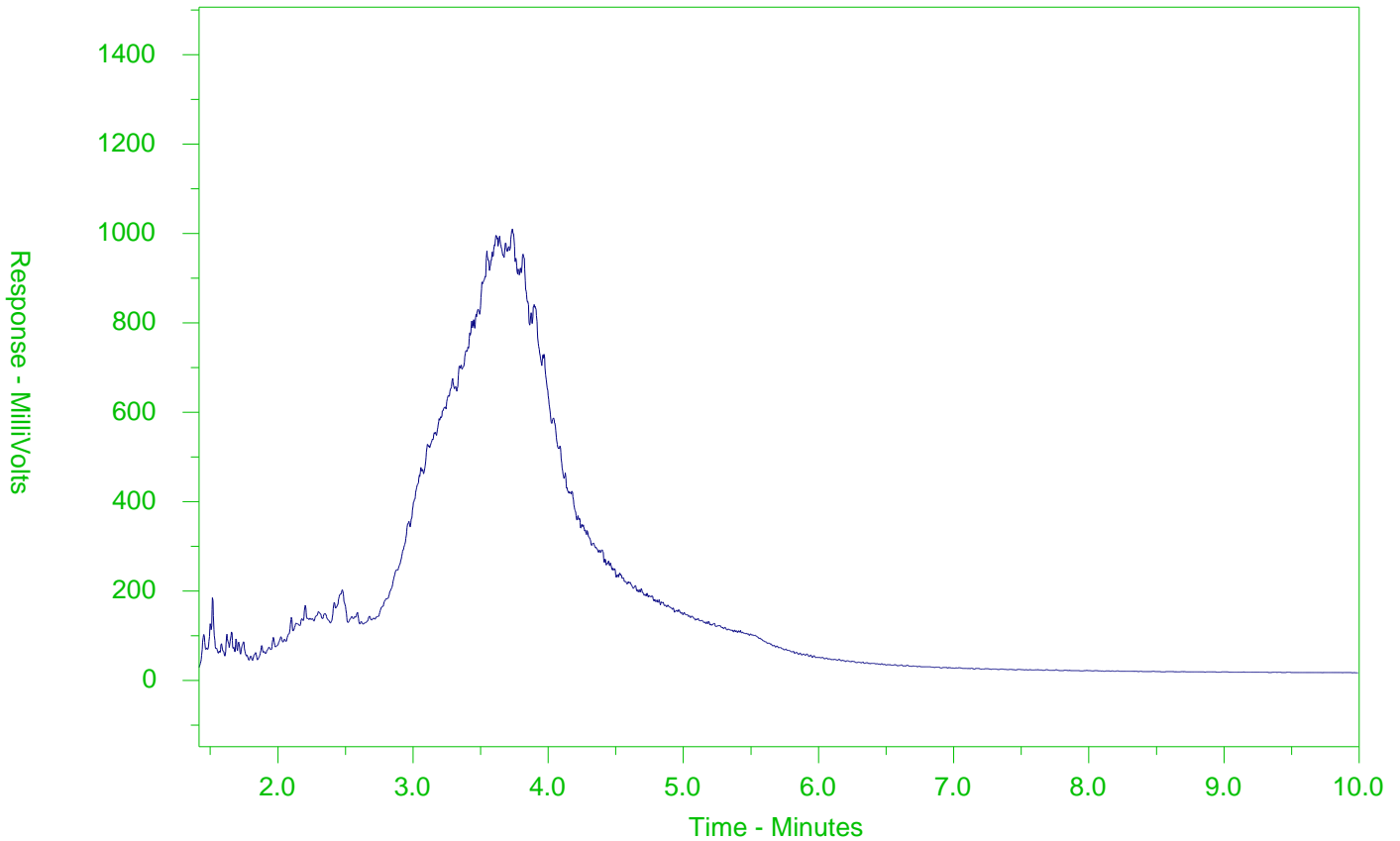
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2088977-1  
 Client Sample ID: BH2-SS3



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

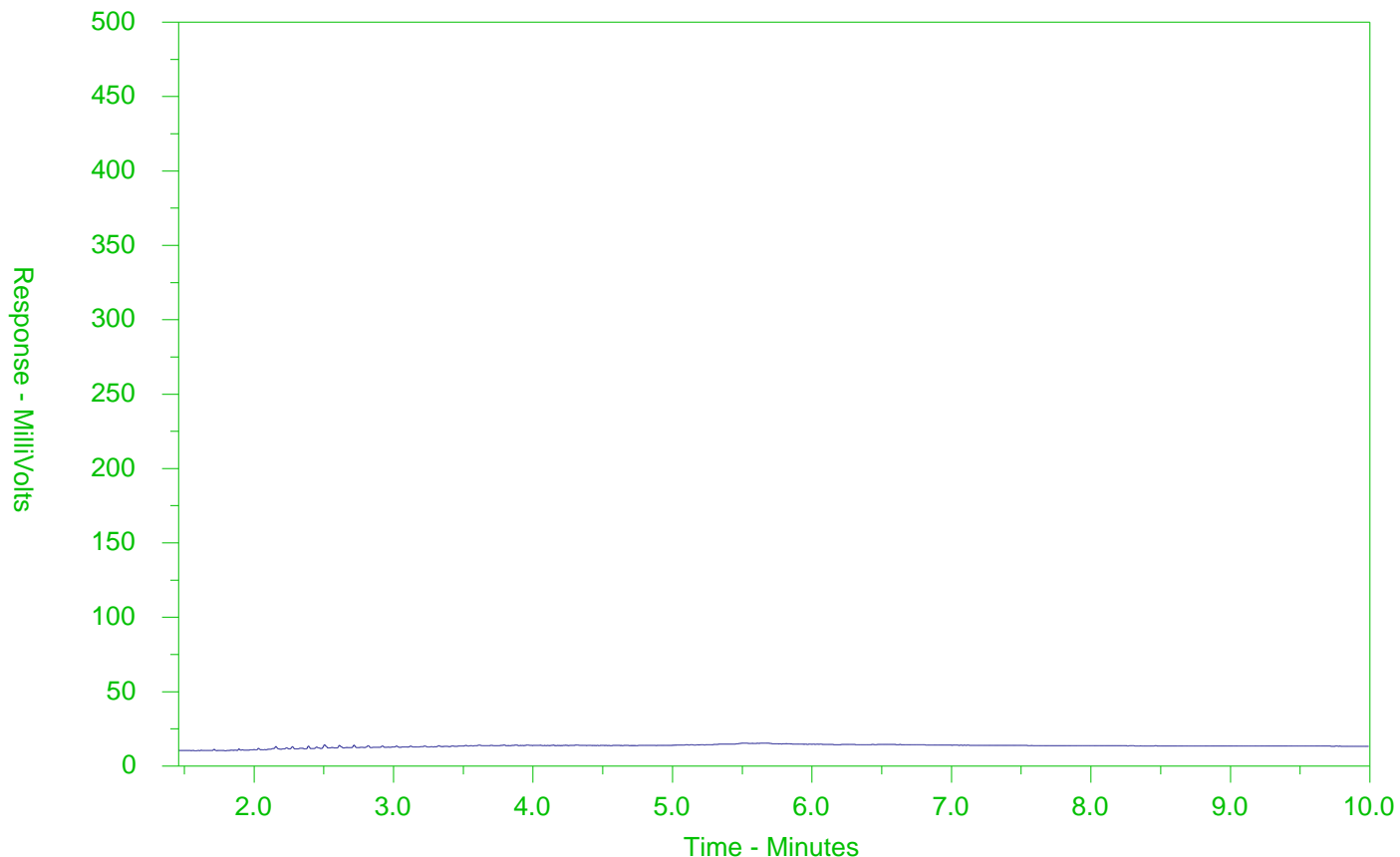
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2088977-2  
 Client Sample ID: BH6-SS5



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

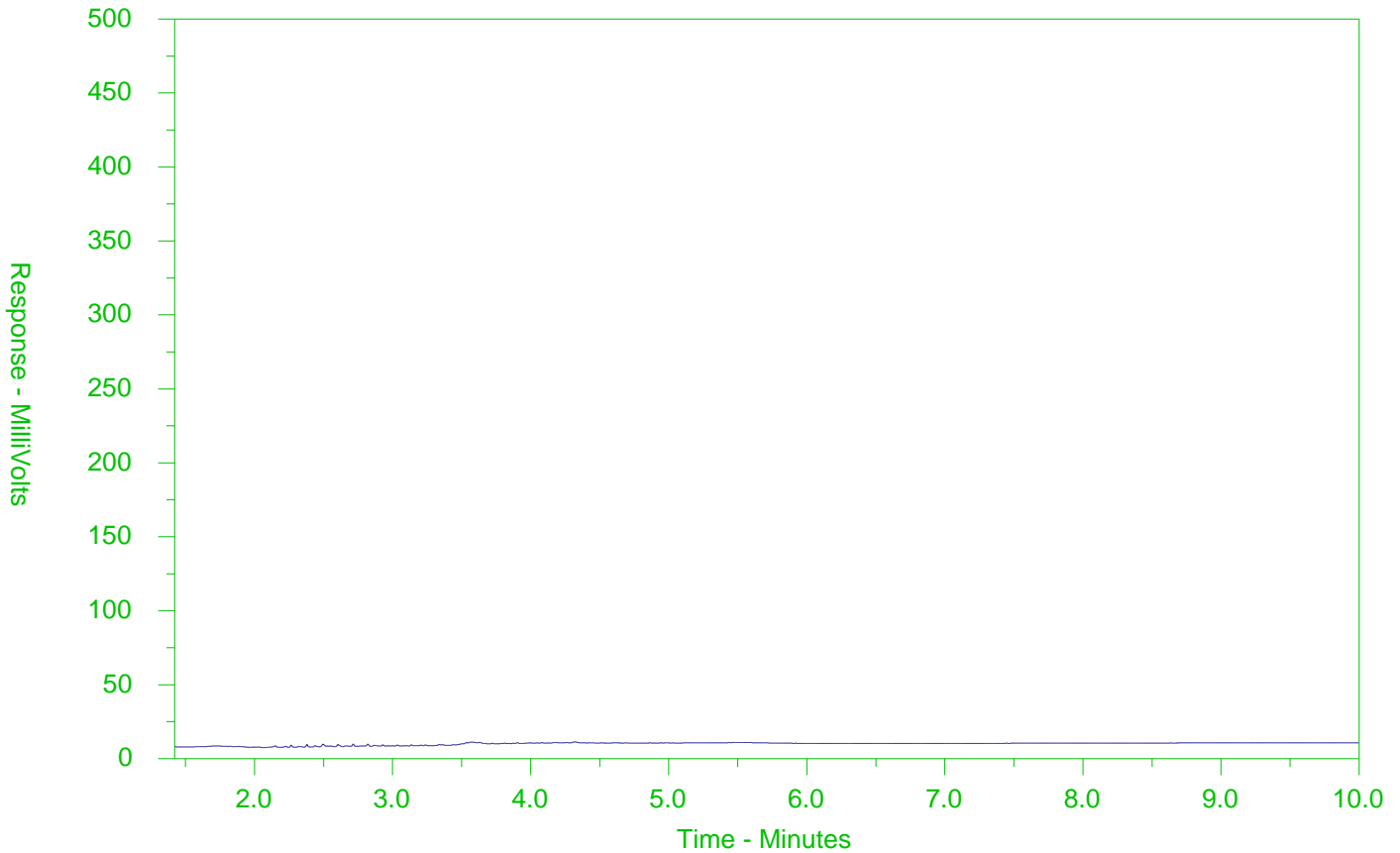
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2088977-4  
 Client Sample ID: BH7-SS4



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).





Sirati & Partners Consultants Ltd.  
(Concord)  
ATTN: Chaoran Li  
750 Millway Ave  
Unit 8  
Vaughan ON L4K3T7

Date Received: 10-MAY-18  
Report Date: 17-MAY-18 15:19 (MT)  
Version: FINAL

Client Phone: 905-669-4477

## Certificate of Analysis

Lab Work Order #: L2092836  
Project P.O. #: SP18-306-20  
Job Reference: SP18-306-20  
C of C Numbers:  
Legal Site Desc:

Rick Hawthorne  
Account Manager

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ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927  
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## Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID	Client ID					
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use</b>						
L2092836-5	BHE5-SS3	Physical Tests	Conductivity	0.853	0.57	mS/cm
		Saturated Paste Extractables	SAR	8.62	2.4	SAR
		Speciated Metals	Chromium, Hexavalent	0.78	0.66	ug/g
L2092836-6	BHE4-SS4	Physical Tests	Conductivity	0.709	0.57	mS/cm
		Saturated Paste Extractables	SAR	5.41	2.4	SAR
L2092836-7	BHE15-SS2	Physical Tests	Conductivity	0.598	0.57	mS/cm
		Saturated Paste Extractables	SAR	2.46	2.4	SAR
		Speciated Metals	Chromium, Hexavalent	0.94	0.66	ug/g
L2092836-8	BHE15-SS5	Volatile Organic Compounds	n-Hexane	1.06	0.05	ug/g
			Xylenes (Total)	0.676	0.05	ug/g
		Hydrocarbons	F1 (C6-C10)	35.0	25	ug/g
			F1-BTEX	34.3	25	ug/g
			F2 (C10-C16)	321	10	ug/g
L2092836-12	BHE6-SS4	Volatile Organic Compounds	Xylenes (Total)	0.102	0.05	ug/g
L2092836-13	BHE11-SS2	Hydrocarbons	F2 (C10-C16)	26	10	ug/g
			F3 (C16-C34)	648	240	ug/g
			F4 (C34-C50)	528	120	ug/g
			F4G-SG (GHH-Silica)	1670	120	ug/g
L2092836-17	BHE10-SS5	Hydrocarbons	F2 (C10-C16)	69	10	ug/g
L2092836-19	BHE9-SS4	Hydrocarbons	F2 (C10-C16)	108	10	ug/g
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Res/Park/Inst. Property Use (Coarse)</b>						
L2092836-5	BHE5-SS3	Physical Tests	Conductivity	0.853	0.7	mS/cm
		Saturated Paste Extractables	SAR	8.62	5	SAR
L2092836-6	BHE4-SS4	Physical Tests	Conductivity	0.709	0.7	mS/cm
		Saturated Paste Extractables	SAR	5.41	5	SAR
L2092836-8	BHE15-SS5	Hydrocarbons	F2 (C10-C16)	321	98	ug/g
L2092836-13	BHE11-SS2	Hydrocarbons	F3 (C16-C34)	648	300	ug/g
L2092836-19	BHE9-SS4	Hydrocarbons	F2 (C10-C16)	108	98	ug/g

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT


## Physical Tests - SOIL


Lab ID	L2092836-1	L2092836-2	L2092836-3	L2092836-4	L2092836-5	L2092836-6	L2092836-7	L2092836-8	L2092836-9
Sample Date	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18
Sample ID	BHE5-SS2	BHE15-SS3	BHE4-SS2	BHE14-SS3	BHE5-SS3	BHE4-SS4	BHE15-SS2	BHE15-SS5	DUP-S1

Analyte	Unit	Guide Limits										
		#1	#2									
Conductivity	mS/cm	0.57	0.7				0.391	0.853	0.709	0.598		0.394
% Moisture	%	-	-	24.3	14.0	13.1	11.6	16.1	11.8	13.4	18.3	11.2
pH	pH units	-	-				7.65	7.20	7.67	7.45		7.66

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## Physical Tests - SOIL

			Lab ID			
			L2092836-19	L2092836-20	L2092836-21	L2092836-22
			Sample Date			
			07-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18
			Sample ID			
			BHE9-SS4	BH13-SS1	BHE12-SS2	BHE5-SS4
Guide Limits						
Analyte	Unit	#1	#2			
Conductivity	mS/cm	0.57	0.7			
% Moisture	%	-	-	23.2	14.2	14.1
pH	pH units	-	-			

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.





# ANALYTICAL REPORT


## Cyanides - SOIL


Lab ID	L2092836-4	L2092836-5	L2092836-6	L2092836-7	L2092836-9
Sample Date	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18
Sample ID	BHE14-SS3	BHE5-SS3	BHE4-SS4	BHE15-SS2	DUP-S1

Analyte	Unit	Guide Limits						
		#1	#2					
Cyanide, Weak Acid Diss	ug/g	0.051	0.051	<0.050	<0.050	<0.050	<0.050	<0.050

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Saturated Paste Extractables - SOIL

Lab ID	L2092836-4	L2092836-5	L2092836-6	L2092836-7	L2092836-9
Sample Date	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18
Sample ID	BHE14-SS3	BHE5-SS3	BHE4-SS4	BHE15-SS2	DUP-S1

Analyte	Unit	Guide Limits						
		#1	#2					
SAR	SAR	2.4	5	0.20	8.62	5.41	2.46	0.21
Calcium (Ca)	mg/L	-	-	23.7	12.2	11.3	22.1	23.0
Magnesium (Mg)	mg/L	-	-	7.7	1.2	4.1	3.0	7.5
Sodium (Na)	mg/L	-	-	4.3	118	83.5	46.5	4.6

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## ANALYTICAL REPORT

## Metals - SOIL

Analyte	Unit	Guide Limits		Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID				
		#1	#2	L2092836-4	08-MAY-18	BHE14-SS3	L2092836-5	08-MAY-18	BHE5-SS3	L2092836-6	08-MAY-18	BHE4-SS4	L2092836-7	08-MAY-18	BHE15-SS2	L2092836-9	08-MAY-18	DUP-S1	
Antimony (Sb)	ug/g	1.3	7.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Arsenic (As)	ug/g	18	18	6.2	4.4	7.0	4.6	5.8											
Barium (Ba)	ug/g	220	390	88.6	74.9	99.0	87.0	76.9											
Beryllium (Be)	ug/g	2.5	4	0.74	0.57	0.86	0.73	0.72											
Boron (B)	ug/g	36	120	11.7	7.9	12.3	11.9	11.1											
Boron (B), Hot Water Ext.	ug/g	36	1.5	<0.10	0.32	0.30	0.21	<0.10											
Cadmium (Cd)	ug/g	1.2	1.2	<0.50	<0.50	<0.50	<0.50	<0.50											
Chromium (Cr)	ug/g	70	160	22.2	21.0	22.8	22.2	20.9											
Cobalt (Co)	ug/g	21	22	14.0	9.1	16.7	10.7	12.4											
Copper (Cu)	ug/g	92	140	34.4	21.1	45.8	25.3	32.6											
Lead (Pb)	ug/g	120	120	9.0	9.2	9.0	8.8	7.9											
Mercury (Hg)	ug/g	0.27	0.27	0.0145	0.0269	0.0172	0.0165	0.0145											
Molybdenum (Mo)	ug/g	2	6.9	<1.0	<1.0	<1.0	<1.0	<1.0											
Nickel (Ni)	ug/g	82	100	28.4	19.0	31.7	24.0	25.4											
Selenium (Se)	ug/g	1.5	2.4	<1.0	<1.0	<1.0	<1.0	<1.0											
Silver (Ag)	ug/g	0.5	20	<0.20	<0.20	<0.20	<0.20	<0.20											
Thallium (Tl)	ug/g	1	1	<0.50	<0.50	<0.50	<0.50	<0.50											
Uranium (U)	ug/g	2.5	23	<1.0	<1.0	<1.0	<1.0	<1.0											
Vanadium (V)	ug/g	86	86	30.5	33.5	30.7	32.2	28.4											
Zinc (Zn)	ug/g	290	340	64.1	48.0	65.8	58.1	60.2											

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

# ANALYTICAL REPORT

## Speciated Metals - SOIL

Analyte	Unit	Guide Limits						
		#1	#2					
Chromium, Hexavalent	ug/g	0.66	8	0.22	0.78	0.25	0.94	<0.20

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Volatile Organic Compounds - SOIL

Analyte	Unit	Guide Limits		Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID
		#1	#2	L2092836-8	08-MAY-18	BHE15-SS5	L2092836-12	07-MAY-18	BHE6-SS4	L2092836-18	08-MAY-18	BHE4-SS2	L2092836-22	08-MAY-18	BHE5-SS4
Acetone	ug/g	0.5	16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	0.21	<0.014 <sup>DLQ</sup>	0.0093	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	ug/g	0.05	1.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	ug/g	0.05	0.27	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon tetrachloride	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	ug/g	0.05	2.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	ug/g	0.05	2.3	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dibromoethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	0.05	1.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	ug/g	0.05	4.8	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	ug/g	0.05	0.083	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	ug/g	0.05	16	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	ug/g	0.05	0.47	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	ug/g	0.05	1.9	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
trans-1,2-Dichloroethylene	ug/g	0.05	0.084	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	ug/g	0.05	0.1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
trans-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
1,3-Dichloropropene (cis & trans)	ug/g	0.05	0.05	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042
Ethylbenzene	ug/g	0.05	1.1	0.040	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
n-Hexane	ug/g	0.05	2.8	1.06	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	ug/g	0.5	16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
MTBE	ug/g	0.05	0.75	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	ug/g	0.05	0.7	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Volatile Organic Compounds - SOIL

Lab ID	L2092836-8	L2092836-12	L2092836-18	L2092836-22
Sample Date	08-MAY-18	07-MAY-18	08-MAY-18	08-MAY-18
Sample ID	BHE15-SS5	BHE6-SS4	BHE4-SS2	BHE5-SS4

Analyte	Unit	Guide Limits					
		#1	#2				
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.058	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	ug/g	0.05	0.28	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	0.2	2.3	<0.080	<0.080	<0.080	<0.080
1,1,1-Trichloroethane	ug/g	0.05	0.38	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	ug/g	0.05	0.061	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	ug/g	0.25	4	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	ug/g	0.02	0.02	<0.020	<0.020	<0.020	<0.020
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	<0.020
m+p-Xylenes	ug/g	-	-	0.676	0.102	<0.030	<0.030
Xylenes (Total)	ug/g	0.05	3.1	0.676	0.102	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	101.2	99.7	97.2	103.6
Surrogate: 1,4-Difluorobenzene	%	-	-	102.8	105.6	103.1	109.3

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

## ANALYTICAL REPORT



## Hydrocarbons - SOIL

Analyte	Unit	Guide Limits											
		#1	#2	L2092836-8	L2092836-12	L2092836-13	L2092836-14	L2092836-15	L2092836-16	L2092836-17	L2092836-18	L2092836-19	
				Lab ID	L2092836-8	L2092836-12	L2092836-13	L2092836-14	L2092836-15	L2092836-16	L2092836-17	L2092836-18	L2092836-19
				Sample Date	08-MAY-18	07-MAY-18	07-MAY-18	07-MAY-18	07-MAY-18	07-MAY-18	07-MAY-18	08-MAY-18	07-MAY-18
				Sample ID	BHE15-SS5	BHE6-SS4	BHE11-SS2	BHE1-SS4	BHE8-SS5	BHE2-SS4	BHE10-SS5	BHE4-SS2	BHE9-SS4
F1 (C6-C10)	ug/g	25	55	35.0	<5.0	13.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	ug/g	25	55	34.3	<5.0							<5.0	
F2 (C10-C16)	ug/g	10	98	321	<10	26	<10	<10	<10	69	<10	108	
F3 (C16-C34)	ug/g	240	300	74	<50	648	<50	<50	<50	55	<50	75	
F4 (C34-C50)	ug/g	120	2800	<50	<50	528	<50	<50	<50	<50	50	<50	
F4G-SG (GHH-Silica)	ug/g	120	2800			1670							
Total Hydrocarbons (C6-C50)	ug/g	-	-	431	<72	1220	<72	<72	<72	124	<72	183	
Chrom. to baseline at nC50		-	-	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	103.2	90.0	80.4	95.3	92.4	88.5	90.0	88.7	90.1	
Surrogate: 3,4-Dichlorotoluene	%	-	-	95.4	101.5	81.1	90.9	81.5	86.0	84.3	100.7	92.6	

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

    Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

    Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## ANALYTICAL REPORT

## Hydrocarbons - SOIL

Analyte	Unit	Guide Limits		Lab ID	Sample Date	Sample ID
		#1	#2	L2092836-20	L2092836-21	L2092836-22
F1 (C6-C10)	ug/g	25	55	<5.0	<5.0	<5.0
F1-BTEX	ug/g	25	55			<5.0
F2 (C10-C16)	ug/g	10	98	<10	<10	<10
F3 (C16-C34)	ug/g	240	300	<50	<50	<50
F4 (C34-C50)	ug/g	120	2800	<50	<50	<50
F4G-SG (GHH-Silica)	ug/g	120	2800			
Total Hydrocarbons (C6-C50)	ug/g	-	-	<72	<72	<72
Chrom. to baseline at nC50		-	-	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	88.2	89.1	92.0
Surrogate: 3,4-Dichlorotoluene	%	-	-	90.5	99.6	99.1

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## Polychlorinated Biphenyls - SOIL

Lab ID	L2092836-1	L2092836-2	L2092836-3	L2092836-10
Sample Date	08-MAY-18	08-MAY-18	08-MAY-18	08-MAY-18
Sample ID	BHE5-SS2	BHE15-SS3	BHE4-SS2	DUP-S2

Analyte	Unit	Guide Limits					
		#1	#2				
Aroclor 1242	ug/g	-	-	<0.010	<0.010	<0.010	<0.010
Aroclor 1248	ug/g	-	-	<0.010	<0.010	<0.010	<0.010
Aroclor 1254	ug/g	-	-	<0.010	<0.010	<0.010	<0.010
Aroclor 1260	ug/g	-	-	<0.010	<0.010	<0.010	<0.010
Total PCBs	ug/g	0.3	0.35	<0.020	<0.020	<0.020	<0.020
Surrogate: d14-Terphenyl	%	-	-	106.8	101.4	103.8	108.9

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Organochlorine Pesticides - SOIL

Lab ID L2092836-11  
 Sample Date 08-MAY-18  
 Sample ID BHE14-SS1

Analyte	Unit	Guide Limits		
		#1	#2	
Aldrin	ug/g	0.05	0.05	<0.020
gamma-hexachlorocyclohexane	ug/g	0.01	0.056	<0.010
a-chlordane	ug/g	-	-	<0.020
Chlordane (Total)	ug/g	0.05	0.05	<0.028
g-chlordane	ug/g	-	-	<0.020
op-DDD	ug/g	-	-	<0.020
pp-DDD	ug/g	-	-	<0.020
Total DDD	ug/g	0.05	3.3	<0.028
o,p-DDE	ug/g	-	-	<0.020
pp-DDE	ug/g	-	-	<0.020
Total DDE	ug/g	0.05	0.26	<0.028
op-DDT	ug/g	-	-	<0.020
pp-DDT	ug/g	-	-	<0.020
Total DDT	ug/g	1.4	1.4	<0.028
Dieldrin	ug/g	0.05	0.05	<0.020
Endosulfan I	ug/g	-	-	<0.020
Endosulfan II	ug/g	-	-	<0.020
Endosulfan (Total)	ug/g	0.04	0.04	<0.028
Endrin	ug/g	0.04	0.04	<0.020
Heptachlor	ug/g	0.05	0.15	<0.020
Heptachlor Epoxide	ug/g	0.05	0.05	<0.020
Hexachlorobenzene	ug/g	0.01	0.52	<0.010
Hexachlorobutadiene	ug/g	0.01	0.012	<0.010
Hexachloroethane	ug/g	0.01	0.089	<0.010
Methoxychlor	ug/g	0.05	0.13	<0.020
Surrogate: 2-Fluorobiphenyl	%	-	-	87.1
Surrogate: d14-Terphenyl	%	-	-	63.6

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

# Reference Information

## Qualifiers for Individual Parameters Listed:

Qualifier	Description
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DLQ Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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**B-HWS-R511-WT** Soil Boron-HWE-O.Reg 153/04 (July 2011) HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**CHLORDANE-T-CALC-WT** Soil Chlordane Total sums CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

**CN-WAD-R511-WT** Soil Cyanide (WAD)-O.Reg 153/04 (July 2011) MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**CR-CR6-IC-WT** Soil Hexavalent Chromium in Soil SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**DDD-DDE-DDT-CALC-WT** Soil DDD, DDE, DDT sums CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

**EC-WT** Soil Conductivity (EC) MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**ENDOSULFAN-T-CALC-WT** Soil Endosulfan Total sums CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

**F1-F4-511-CALC-WT** Soil F1-F4 Hydrocarbon Calculated Parameters CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

# Reference Information

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

<b>F1-HS-511-WT</b>	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS
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Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

<b>F2-F4-511-WT</b>	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1
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Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

### Notes:

1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

<b>F4G-ADD-511-WT</b>	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1
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F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>HG-200.2-CVAA-WT</b>	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
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Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
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Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>MET-200.2-CCMS-WT</b>	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
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This method uses a heated strong acid digestion with HNO<sub>3</sub> and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

<b>MOISTURE-WT</b>	Soil	% Moisture	Gravimetric: Oven Dried
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<b>PCB-511-WT</b>	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082
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An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>PEST-OC-511-WT</b>	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)
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Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

<b>PH-WT</b>	Soil	pH	MOEE E3137A
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A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>SAR-R511-WT</b>	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C
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A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>VOC-1,3-DCP-CALC-WT</b>	Soil	Regulation 153 VOCs	SW8260B/SW8270C
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<b>VOC-511-HS-WT</b>	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)
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Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

<b>XYLENES-SUM-CALC-WT</b>	Soil	Sum of Xylene Isomer Concentrations	CALCULATION
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Total xylenes represents the sum of o-xylene and m&p-xylene.

# Reference Information

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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\*\*ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

Laboratory Definition Code	Laboratory Location
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WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
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## GLOSSARY OF REPORT TERMS

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*

*mg/kg - milligrams per kilogram based on dry weight of sample*

*mg/kg wwt - milligrams per kilogram based on wet weight of sample*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*

*mg/L - unit of concentration based on volume, parts per million.*

*< - Less than.*

*D.L. - The reporting limit.*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

*Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.*



## Quality Control Report

Workorder: L2092836

Report Date: 17-MAY-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>B-HWS-R511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4046732</b>							
<b>WG2773094-4</b>	<b>DUP</b>	<b>L2093136-1</b>						
Boron (B), Hot Water Ext.		0.15	0.14		ug/g	4.9	30	16-MAY-18
<b>WG2773094-2</b>	<b>IRM</b>	<b>HOTB-SAL_SOIL5</b>						
Boron (B), Hot Water Ext.			106.1		%		70-130	16-MAY-18
<b>WG2773094-3</b>	<b>LCS</b>							
Boron (B), Hot Water Ext.			110.1		%		70-130	16-MAY-18
<b>WG2773094-1</b>	<b>MB</b>							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	16-MAY-18
<b>CN-WAD-R511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4046681</b>							
<b>WG2772278-9</b>	<b>DUP</b>	<b>L2092460-1</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	16-MAY-18
<b>WG2772278-7</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			93.8		%		80-120	16-MAY-18
<b>WG2772278-6</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	16-MAY-18
<b>WG2772278-10</b>	<b>MS</b>	<b>L2092460-1</b>						
Cyanide, Weak Acid Diss			98.2		%		70-130	16-MAY-18
<b>Batch</b>	<b>R4046686</b>							
<b>WG2773101-3</b>	<b>DUP</b>	<b>L2093136-18</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	16-MAY-18
<b>WG2773101-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			93.4		%		80-120	16-MAY-18
<b>WG2773101-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	16-MAY-18
<b>WG2773101-4</b>	<b>MS</b>	<b>L2093136-18</b>						
Cyanide, Weak Acid Diss			103.1		%		70-130	16-MAY-18
<b>CR-CR6-IC-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4045154</b>							
<b>WG2772455-3</b>	<b>CRM</b>	<b>WT-SQC012</b>						
Chromium, Hexavalent			85.4		%		70-130	16-MAY-18
<b>WG2772455-2</b>	<b>LCS</b>							
Chromium, Hexavalent			99.3		%		80-120	16-MAY-18
<b>WG2772455-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.20		ug/g		0.2	16-MAY-18
<b>EC-WT</b>		<b>Soil</b>						



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Client: Sirati & Partners Consultants Ltd. (Concord)  
750 Millway Ave Unit 8  
Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>EC-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4045912</b>							
<b>WG2773118-4</b>	<b>DUP</b>	<b>WG2773118-3</b>						
Conductivity		0.0927	0.0945		mS/cm	1.9	20	16-MAY-18
<b>WG2773382-1</b>	<b>LCS</b>							
Conductivity			93.7		%		90-110	16-MAY-18
<b>WG2773118-1</b>	<b>MB</b>							
Conductivity			<0.0040		mS/cm		0.004	16-MAY-18
<b>F1-HS-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4043835</b>							
<b>WG2770451-4</b>	<b>DUP</b>	<b>WG2770451-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	15-MAY-18
<b>WG2770451-2</b>	<b>LCS</b>							
F1 (C6-C10)			85.5		%		80-120	15-MAY-18
<b>WG2770451-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	15-MAY-18
Surrogate: 3,4-Dichlorotoluene			100.1		%		60-140	15-MAY-18
<b>WG2770451-6</b>	<b>MS</b>	<b>L2093153-2</b>						
F1 (C6-C10)			91.5		%		60-140	15-MAY-18
<b>Batch</b>	<b>R4044751</b>							
<b>WG2769972-4</b>	<b>DUP</b>	<b>WG2769972-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	14-MAY-18
<b>WG2769972-2</b>	<b>LCS</b>							
F1 (C6-C10)			95.9		%		80-120	14-MAY-18
<b>WG2769972-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	14-MAY-18
Surrogate: 3,4-Dichlorotoluene			88.4		%		60-140	14-MAY-18
<b>WG2769972-6</b>	<b>MS</b>	<b>L2092798-2</b>						
F1 (C6-C10)			88.2		%		60-140	14-MAY-18
<b>Batch</b>	<b>R4045430</b>							
<b>WG2770148-4</b>	<b>DUP</b>	<b>WG2770148-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	16-MAY-18
<b>WG2770148-2</b>	<b>LCS</b>							
F1 (C6-C10)			92.5		%		80-120	16-MAY-18
<b>WG2770148-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	16-MAY-18
Surrogate: 3,4-Dichlorotoluene			97.9		%		60-140	16-MAY-18
<b>WG2770148-6</b>	<b>MS</b>	<b>L2092849-1</b>						
F1 (C6-C10)			96.0		%		60-140	16-MAY-18





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Workorder: L2092836

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F2-F4-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4044230</b>							
<b>WG2771496-3</b>	<b>DUP</b>	<b>WG2771496-5</b>						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	16-MAY-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	16-MAY-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	16-MAY-18
<b>WG2771496-2</b>	<b>LCS</b>							
F2 (C10-C16)			100.4		%		80-120	15-MAY-18
F3 (C16-C34)			96.4		%		80-120	15-MAY-18
F4 (C34-C50)			91.3		%		80-120	15-MAY-18
<b>WG2771496-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	15-MAY-18
F3 (C16-C34)			<50		ug/g		50	15-MAY-18
F4 (C34-C50)			<50		ug/g		50	15-MAY-18
Surrogate: 2-Bromobenzotrifluoride			89.1		%		60-140	15-MAY-18
<b>WG2771496-4</b>	<b>MS</b>	<b>WG2771496-5</b>						
F2 (C10-C16)			100.7		%		60-140	16-MAY-18
F3 (C16-C34)			100.1		%		60-140	16-MAY-18
F4 (C34-C50)			94.1		%		60-140	16-MAY-18
<b>Batch</b>	<b>R4045155</b>							
<b>WG2771493-3</b>	<b>DUP</b>	<b>WG2771493-5</b>						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	15-MAY-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	15-MAY-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	15-MAY-18
<b>WG2771493-2</b>	<b>LCS</b>							
F2 (C10-C16)			100.9		%		80-120	15-MAY-18
F3 (C16-C34)			95.7		%		80-120	15-MAY-18
F4 (C34-C50)			85.4		%		80-120	15-MAY-18
<b>WG2771493-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	15-MAY-18
F3 (C16-C34)			<50		ug/g		50	15-MAY-18
F4 (C34-C50)			<50		ug/g		50	15-MAY-18
Surrogate: 2-Bromobenzotrifluoride			88.8		%		60-140	15-MAY-18
<b>WG2771493-4</b>	<b>MS</b>	<b>WG2771493-5</b>						
F2 (C10-C16)			101.1		%		60-140	15-MAY-18
F3 (C16-C34)			93.3		%		60-140	15-MAY-18
F4 (C34-C50)			90.6		%		60-140	15-MAY-18

**F4G-ADD-511-WT**      **Soil**



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F4G-ADD-511-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R4045787</b>							
<b>WG2773769-2</b>	<b>LCS</b>							
F4G-SG (GHH-Silica)			88.3		%		60-140	14-MAY-18
<b>WG2773769-1</b>	<b>MB</b>							
F4G-SG (GHH-Silica)			<250		ug/g		250	14-MAY-18
<b>HG-200.2-CVAA-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R4045435</b>							
<b>WG2773016-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Mercury (Hg)			98.3		%		70-130	16-MAY-18
<b>WG2773016-6</b>	<b>DUP</b>	<b>WG2773016-5</b>						
Mercury (Hg)		0.0266	0.0265		ug/g	0.6	40	16-MAY-18
<b>WG2773016-3</b>	<b>LCS</b>							
Mercury (Hg)			106.0		%		80-120	16-MAY-18
<b>WG2773016-1</b>	<b>MB</b>							
Mercury (Hg)			<0.0050		mg/kg		0.005	16-MAY-18
<b>MET-200.2-CCMS-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R4046912</b>							
<b>WG2773016-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Antimony (Sb)			103.5		%		70-130	16-MAY-18
Arsenic (As)			97.4		%		70-130	16-MAY-18
Barium (Ba)			102.5		%		70-130	16-MAY-18
Beryllium (Be)			96.6		%		70-130	16-MAY-18
Boron (B)			2.7		mg/kg		0-8.2	16-MAY-18
Cadmium (Cd)			101.6		%		70-130	16-MAY-18
Chromium (Cr)			96.6		%		70-130	16-MAY-18
Cobalt (Co)			97.2		%		70-130	16-MAY-18
Copper (Cu)			98.4		%		70-130	16-MAY-18
Lead (Pb)			93.8		%		70-130	16-MAY-18
Molybdenum (Mo)			96.5		%		70-130	16-MAY-18
Nickel (Ni)			97.3		%		70-130	16-MAY-18
Selenium (Se)			0.30		mg/kg		0.11-0.51	16-MAY-18
Silver (Ag)			0.23		mg/kg		0.13-0.33	16-MAY-18
Thallium (Tl)			0.121		mg/kg		0.077-0.18	16-MAY-18
Uranium (U)			96.0		%		70-130	16-MAY-18
Vanadium (V)			96.7		%		70-130	16-MAY-18
Zinc (Zn)			96.2		%		70-130	16-MAY-18
<b>WG2773016-6</b>	<b>DUP</b>	<b>WG2773016-5</b>						



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4046912</b>							
<b>WG2773016-6</b>	<b>DUP</b>	<b>WG2773016-5</b>						
Antimony (Sb)		0.27	0.32		ug/g	15	30	16-MAY-18
Arsenic (As)		10.4	12.2		ug/g	16	30	16-MAY-18
Barium (Ba)		80.8	101		ug/g	22	40	16-MAY-18
Beryllium (Be)		0.78	0.90		ug/g	14	30	16-MAY-18
Boron (B)		9.6	11.4		ug/g	18	30	16-MAY-18
Cadmium (Cd)		0.261	0.314		ug/g	18	30	16-MAY-18
Chromium (Cr)		25.3	30.7		ug/g	19	30	16-MAY-18
Cobalt (Co)		11.4	13.3		ug/g	16	30	16-MAY-18
Copper (Cu)		17.9	21.1		ug/g	17	30	16-MAY-18
Lead (Pb)		10.0	11.4		ug/g	13	40	16-MAY-18
Molybdenum (Mo)		1.94	2.21		ug/g	13	40	16-MAY-18
Nickel (Ni)		31.5	37.4		ug/g	17	30	16-MAY-18
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	16-MAY-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	16-MAY-18
Thallium (Tl)		0.280	0.332		ug/g	17	30	16-MAY-18
Uranium (U)		0.661	0.785		ug/g	17	30	16-MAY-18
Vanadium (V)		39.5	47.3		ug/g	18	30	16-MAY-18
Zinc (Zn)		65.6	78.5		ug/g	18	30	16-MAY-18
<b>WG2773016-4</b>	<b>LCS</b>							
Antimony (Sb)			101.8		%		80-120	16-MAY-18
Arsenic (As)			95.5		%		80-120	16-MAY-18
Barium (Ba)			98.5		%		80-120	16-MAY-18
Beryllium (Be)			93.5		%		80-120	16-MAY-18
Boron (B)			88.5		%		80-120	16-MAY-18
Cadmium (Cd)			102.9		%		80-120	16-MAY-18
Chromium (Cr)			97.3		%		80-120	16-MAY-18
Cobalt (Co)			96.2		%		80-120	16-MAY-18
Copper (Cu)			96.7		%		80-120	16-MAY-18
Lead (Pb)			90.0		%		80-120	16-MAY-18
Molybdenum (Mo)			94.0		%		80-120	16-MAY-18
Nickel (Ni)			96.2		%		80-120	16-MAY-18
Selenium (Se)			94.2		%		80-120	16-MAY-18
Silver (Ag)			91.8		%		80-120	16-MAY-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4046912</b>							
<b>WG2773016-4</b>	<b>LCS</b>							
Thallium (Tl)			90.7		%		80-120	16-MAY-18
Uranium (U)			95.6		%		80-120	16-MAY-18
Vanadium (V)			99.1		%		80-120	16-MAY-18
Zinc (Zn)			90.3		%		80-120	16-MAY-18
<b>WG2773016-1</b>	<b>MB</b>							
Antimony (Sb)			<0.10		mg/kg		0.1	16-MAY-18
Arsenic (As)			<0.10		mg/kg		0.1	16-MAY-18
Barium (Ba)			<0.50		mg/kg		0.5	16-MAY-18
Beryllium (Be)			<0.10		mg/kg		0.1	16-MAY-18
Boron (B)			<5.0		mg/kg		5	16-MAY-18
Cadmium (Cd)			<0.020		mg/kg		0.02	16-MAY-18
Chromium (Cr)			<0.50		mg/kg		0.5	16-MAY-18
Cobalt (Co)			<0.10		mg/kg		0.1	16-MAY-18
Copper (Cu)			<0.50		mg/kg		0.5	16-MAY-18
Lead (Pb)			<0.50		mg/kg		0.5	16-MAY-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	16-MAY-18
Nickel (Ni)			<0.50		mg/kg		0.5	16-MAY-18
Selenium (Se)			<0.20		mg/kg		0.2	16-MAY-18
Silver (Ag)			<0.10		mg/kg		0.1	16-MAY-18
Thallium (Tl)			<0.050		mg/kg		0.05	16-MAY-18
Uranium (U)			<0.050		mg/kg		0.05	16-MAY-18
Vanadium (V)			<0.20		mg/kg		0.2	16-MAY-18
Zinc (Zn)			<2.0		mg/kg		2	16-MAY-18
<b>MOISTURE-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4044628</b>							
<b>WG2772394-3</b>	<b>DUP</b>	<b>L2092836-1</b>						
% Moisture		24.3	23.5		%	3.3	20	16-MAY-18
<b>WG2772394-2</b>	<b>LCS</b>							
% Moisture			100.1		%		90-110	16-MAY-18
<b>WG2772394-1</b>	<b>MB</b>							
% Moisture			<0.10		%		0.1	16-MAY-18
<b>Batch</b>	<b>R4044631</b>							
<b>WG2772526-3</b>	<b>DUP</b>	<b>L2092836-21</b>						
% Moisture		14.1	14.6		%	3.3	20	16-MAY-18
<b>WG2772526-2</b>	<b>LCS</b>							



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MOISTURE-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4044631</b>							
<b>WG2772526-2</b>	<b>LCS</b>							
% Moisture			100.9		%		90-110	16-MAY-18
<b>WG2772526-1</b>	<b>MB</b>							
% Moisture			<0.10		%		0.1	16-MAY-18
<b>PCB-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4046589</b>							
<b>WG2771410-3</b>	<b>DUP</b>	<b>WG2771410-5</b>						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	17-MAY-18
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	17-MAY-18
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	17-MAY-18
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	17-MAY-18
<b>WG2771410-2</b>	<b>LCS</b>							
Aroclor 1242			96.1		%		60-140	17-MAY-18
Aroclor 1248			88.8		%		60-140	17-MAY-18
Aroclor 1254			99.6		%		60-140	17-MAY-18
Aroclor 1260			110.2		%		60-140	17-MAY-18
<b>WG2771410-1</b>	<b>MB</b>							
Aroclor 1242			<0.010		ug/g		0.01	17-MAY-18
Aroclor 1248			<0.010		ug/g		0.01	17-MAY-18
Aroclor 1254			<0.010		ug/g		0.01	17-MAY-18
Aroclor 1260			<0.010		ug/g		0.01	17-MAY-18
Surrogate: d14-Terphenyl			107.8		%		60-140	17-MAY-18
<b>WG2771410-4</b>	<b>MS</b>	<b>WG2771410-5</b>						
Aroclor 1242			89.1		%		60-140	17-MAY-18
Aroclor 1254			94.5		%		60-140	17-MAY-18
Aroclor 1260			103.4		%		60-140	17-MAY-18
<b>PEST-OC-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4044768</b>							
<b>WG2770234-3</b>	<b>DUP</b>	<b>WG2770234-5</b>						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
750 Millway Ave Unit 8  
Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PEST-OC-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4044768</b>							
<b>WG2770234-3</b>	<b>DUP</b>	<b>WG2770234-5</b>						
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
op-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
pp-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
Endosulfan II		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
gamma-hexachlorocyclohexane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	15-MAY-18
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
Hexachlorobenzene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	15-MAY-18
Hexachlorobutadiene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	15-MAY-18
Hexachloroethane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	15-MAY-18
Methoxychlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-MAY-18
<b>WG2770234-2</b>	<b>LCS</b>							
Aldrin			84.8		%		50-140	15-MAY-18
a-chlordane			81.2		%		50-140	15-MAY-18
g-chlordane			75.3		%		50-140	15-MAY-18
op-DDD			83.2		%		50-140	15-MAY-18
pp-DDD			80.4		%		50-140	15-MAY-18
o,p-DDE			87.7		%		50-140	15-MAY-18
pp-DDE			88.2		%		50-140	15-MAY-18
op-DDT			102.0		%		50-140	15-MAY-18
pp-DDT			90.8		%		50-140	15-MAY-18
Dieldrin			85.6		%		50-140	15-MAY-18
Endosulfan I			86.8		%		50-140	15-MAY-18
Endosulfan II			80.8		%		50-140	15-MAY-18
Endrin			79.9		%		50-140	15-MAY-18
gamma-hexachlorocyclohexane			84.3		%		50-140	15-MAY-18
Heptachlor			80.3		%		50-140	15-MAY-18
Heptachlor Epoxide			84.1		%		50-140	15-MAY-18
Hexachlorobenzene			95.9		%		50-140	15-MAY-18
Hexachlorobutadiene			97.8		%		50-140	15-MAY-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PEST-OC-511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4044768</b>							
<b>WG2770234-2</b>	<b>LCS</b>							
Hexachloroethane			100.7		%		50-140	15-MAY-18
Methoxychlor			97.0		%		50-140	15-MAY-18
<b>WG2770234-1</b>	<b>MB</b>							
Aldrin			<0.020		ug/g		0.02	15-MAY-18
a-chlordane			<0.020		ug/g		0.02	15-MAY-18
g-chlordane			<0.020		ug/g		0.02	15-MAY-18
op-DDD			<0.020		ug/g		0.02	15-MAY-18
pp-DDD			<0.020		ug/g		0.02	15-MAY-18
o,p-DDE			<0.020		ug/g		0.02	15-MAY-18
pp-DDE			<0.020		ug/g		0.02	15-MAY-18
op-DDT			<0.020		ug/g		0.02	15-MAY-18
pp-DDT			<0.020		ug/g		0.02	15-MAY-18
Dieldrin			<0.020		ug/g		0.02	15-MAY-18
Endosulfan I			<0.020		ug/g		0.02	15-MAY-18
Endosulfan II			<0.020		ug/g		0.02	15-MAY-18
Endrin			<0.020		ug/g		0.02	15-MAY-18
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	15-MAY-18
Heptachlor			<0.020		ug/g		0.02	15-MAY-18
Heptachlor Epoxide			<0.020		ug/g		0.02	15-MAY-18
Hexachlorobenzene			<0.010		ug/g		0.01	15-MAY-18
Hexachlorobutadiene			<0.010		ug/g		0.01	15-MAY-18
Hexachloroethane			<0.010		ug/g		0.01	15-MAY-18
Methoxychlor			<0.020		ug/g		0.02	15-MAY-18
Surrogate: 2-Fluorobiphenyl			93.8		%		50-140	15-MAY-18
Surrogate: d14-Terphenyl			89.3		%		50-140	15-MAY-18
<b>WG2770234-4</b>	<b>MS</b>	<b>WG2770234-5</b>						
Aldrin			85.5		%		50-140	15-MAY-18
a-chlordane			71.3		%		50-140	15-MAY-18
g-chlordane			75.6		%		50-140	15-MAY-18
op-DDD			68.9		%		50-140	15-MAY-18
pp-DDD			68.2		%		50-140	15-MAY-18
o,p-DDE			86.3		%		50-140	15-MAY-18
pp-DDE			81.9		%		50-140	15-MAY-18
op-DDT			74.4		%		50-140	15-MAY-18



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 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PEST-OC-511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4044768</b>							
<b>WG2770234-4</b>	<b>MS</b>	<b>WG2770234-5</b>						
pp-DDT			73.3		%		50-140	15-MAY-18
Dieldrin			79.2		%		50-140	15-MAY-18
Endosulfan I			83.9		%		50-140	15-MAY-18
Endosulfan II			71.8		%		50-140	15-MAY-18
Endrin			78.6		%		50-140	15-MAY-18
gamma-hexachlorocyclohexane			78.3		%		50-140	15-MAY-18
Heptachlor			71.6		%		50-140	15-MAY-18
Heptachlor Epoxide			82.9		%		50-140	15-MAY-18
Hexachlorobenzene			94.3		%		50-140	15-MAY-18
Hexachlorobutadiene			99.3		%		50-140	15-MAY-18
Hexachloroethane			97.8		%		50-140	15-MAY-18
Methoxychlor			86.8		%		50-140	15-MAY-18
<b>PH-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4046203</b>							
<b>WG2771779-1</b>	<b>DUP</b>	<b>L2092819-10</b>						
pH		7.39	7.45	J	pH units	0.06	0.3	16-MAY-18
<b>WG2773378-1</b>	<b>LCS</b>							
pH			6.91		pH units		6.9-7.1	16-MAY-18
<b>SAR-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4046747</b>							
<b>WG2773118-4</b>	<b>DUP</b>	<b>WG2773118-3</b>						
Calcium (Ca)		3.9	3.8		mg/L	4.3	30	16-MAY-18
Sodium (Na)		2.0	2.0		mg/L	2.8	30	16-MAY-18
Magnesium (Mg)		1.5	1.4		mg/L	3.0	30	16-MAY-18
<b>WG2773118-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Calcium (Ca)			78.1		%		70-130	16-MAY-18
Sodium (Na)			85.8		%		70-130	16-MAY-18
Magnesium (Mg)			74.9		%		70-130	16-MAY-18
<b>WG2773118-1</b>	<b>MB</b>							
Calcium (Ca)			<1.0		mg/L		1	16-MAY-18
Sodium (Na)			<1.0		mg/L		1	16-MAY-18
Magnesium (Mg)			<1.0		mg/L		1	16-MAY-18
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							





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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4045430</b>							
<b>WG2770148-4</b>	<b>DUP</b>	<b>WG2770148-3</b>						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	16-MAY-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	16-MAY-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	16-MAY-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	16-MAY-18
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	16-MAY-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	16-MAY-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	16-MAY-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	16-MAY-18
Styrene		<0.050	<0.050		ug/g			16-MAY-18



## Quality Control Report

Workorder: L2092836

Report Date: 17-MAY-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4045430</b>							
<b>WG2770148-4</b>	<b>DUP</b>	<b>WG2770148-3</b>						
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	16-MAY-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	16-MAY-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	16-MAY-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-MAY-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	16-MAY-18
<b>WG2770148-2</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			95.2		%		60-130	16-MAY-18
1,1,2,2-Tetrachloroethane			94.4		%		60-130	16-MAY-18
1,1,1-Trichloroethane			97.4		%		60-130	16-MAY-18
1,1,2-Trichloroethane			96.2		%		60-130	16-MAY-18
1,1-Dichloroethane			96.9		%		60-130	16-MAY-18
1,1-Dichloroethylene			85.7		%		60-130	16-MAY-18
1,2-Dibromoethane			99.0		%		70-130	16-MAY-18
1,2-Dichlorobenzene			94.3		%		70-130	16-MAY-18
1,2-Dichloroethane			102.2		%		60-130	16-MAY-18
1,2-Dichloropropane			97.0		%		70-130	16-MAY-18
1,3-Dichlorobenzene			90.7		%		70-130	16-MAY-18
1,4-Dichlorobenzene			92.9		%		70-130	16-MAY-18
Acetone			115.9		%		60-140	16-MAY-18
Benzene			97.2		%		70-130	16-MAY-18
Bromodichloromethane			97.2		%		50-140	16-MAY-18
Bromoform			94.3		%		70-130	16-MAY-18
Bromomethane			100.1		%		50-140	16-MAY-18
Carbon tetrachloride			96.9		%		70-130	16-MAY-18
Chlorobenzene			94.7		%		70-130	16-MAY-18
Chloroform			99.2		%		70-130	16-MAY-18
cis-1,2-Dichloroethylene			99.1		%		70-130	16-MAY-18
cis-1,3-Dichloropropene			97.6		%		70-130	16-MAY-18
Dibromochloromethane			100.8		%		60-130	16-MAY-18
Dichlorodifluoromethane			93.7		%		50-140	16-MAY-18



## Quality Control Report

Workorder: L2092836

Report Date: 17-MAY-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4045430</b>							
<b>WG2770148-2</b>	<b>LCS</b>							
Ethylbenzene			84.1		%		70-130	16-MAY-18
n-Hexane			96.4		%		70-130	16-MAY-18
Methylene Chloride			102.4		%		70-130	16-MAY-18
MTBE			97.7		%		70-130	16-MAY-18
m+p-Xylenes			84.5		%		70-130	16-MAY-18
Methyl Ethyl Ketone			112.7		%		60-140	16-MAY-18
Methyl Isobutyl Ketone			97.2		%		60-140	16-MAY-18
o-Xylene			85.5		%		70-130	16-MAY-18
Styrene			86.1		%		70-130	16-MAY-18
Tetrachloroethylene			90.2		%		60-130	16-MAY-18
Toluene			86.6		%		70-130	16-MAY-18
trans-1,2-Dichloroethylene			94.6		%		60-130	16-MAY-18
trans-1,3-Dichloropropene			89.6		%		70-130	16-MAY-18
Trichloroethylene			100.2		%		60-130	16-MAY-18
Trichlorofluoromethane			100.3		%		50-140	16-MAY-18
Vinyl chloride			91.0		%		60-140	16-MAY-18
<b>WG2770148-1</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	16-MAY-18
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	16-MAY-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	16-MAY-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	16-MAY-18
1,1-Dichloroethane			<0.050		ug/g		0.05	16-MAY-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	16-MAY-18
1,2-Dibromoethane			<0.050		ug/g		0.05	16-MAY-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	16-MAY-18
1,2-Dichloroethane			<0.050		ug/g		0.05	16-MAY-18
1,2-Dichloropropane			<0.050		ug/g		0.05	16-MAY-18
1,3-Dichlorobenzene			<0.050		ug/g		0.05	16-MAY-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	16-MAY-18
Acetone			<0.50		ug/g		0.5	16-MAY-18
Benzene			<0.0068		ug/g		0.0068	16-MAY-18
Bromodichloromethane			<0.050		ug/g		0.05	16-MAY-18
Bromoform			<0.050		ug/g		0.05	16-MAY-18
Bromomethane			<0.050		ug/g		0.05	16-MAY-18



## Quality Control Report

Workorder: L2092836

Report Date: 17-MAY-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4045430</b>							
<b>WG2770148-1</b>	<b>MB</b>							
Carbon tetrachloride			<0.050		ug/g		0.05	16-MAY-18
Chlorobenzene			<0.050		ug/g		0.05	16-MAY-18
Chloroform			<0.050		ug/g		0.05	16-MAY-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	16-MAY-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	16-MAY-18
Dibromochloromethane			<0.050		ug/g		0.05	16-MAY-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	16-MAY-18
Ethylbenzene			<0.018		ug/g		0.018	16-MAY-18
n-Hexane			<0.050		ug/g		0.05	16-MAY-18
Methylene Chloride			<0.050		ug/g		0.05	16-MAY-18
MTBE			<0.050		ug/g		0.05	16-MAY-18
m+p-Xylenes			<0.030		ug/g		0.03	16-MAY-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	16-MAY-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	16-MAY-18
o-Xylene			<0.020		ug/g		0.02	16-MAY-18
Styrene			<0.050		ug/g		0.05	16-MAY-18
Tetrachloroethylene			<0.050		ug/g		0.05	16-MAY-18
Toluene			<0.080		ug/g		0.08	16-MAY-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	16-MAY-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	16-MAY-18
Trichloroethylene			<0.010		ug/g		0.01	16-MAY-18
Trichlorofluoromethane			<0.050		ug/g		0.05	16-MAY-18
Vinyl chloride			<0.020		ug/g		0.02	16-MAY-18
Surrogate: 1,4-Difluorobenzene			98.3		%		50-140	16-MAY-18
Surrogate: 4-Bromofluorobenzene			92.7		%		50-140	16-MAY-18
<b>WG2770148-5</b>	<b>MS</b>	<b>L2092836-18</b>						
1,1,1,2-Tetrachloroethane			106.1		%		50-140	16-MAY-18
1,1,2,2-Tetrachloroethane			105.3		%		50-140	16-MAY-18
1,1,1-Trichloroethane			107.4		%		50-140	16-MAY-18
1,1,2-Trichloroethane			105.9		%		50-140	16-MAY-18
1,1-Dichloroethane			106.9		%		50-140	16-MAY-18
1,1-Dichloroethylene			94.3		%		50-140	16-MAY-18
1,2-Dibromoethane			108.3		%		50-140	16-MAY-18
1,2-Dichlorobenzene			103.8		%		50-140	16-MAY-18



## Quality Control Report

Workorder: L2092836

Report Date: 17-MAY-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 750 Millway Ave Unit 8  
 Vaughan ON L4K3T7

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4045430</b>							
<b>WG2770148-5 MS</b>		<b>L2092836-18</b>						
1,2-Dichloroethane			110.4		%		50-140	16-MAY-18
1,2-Dichloropropane			106.1		%		50-140	16-MAY-18
1,3-Dichlorobenzene			99.5		%		50-140	16-MAY-18
1,4-Dichlorobenzene			102.5		%		50-140	16-MAY-18
Acetone			123.0		%		50-140	16-MAY-18
Benzene			107.2		%		50-140	16-MAY-18
Bromodichloromethane			106.8		%		50-140	16-MAY-18
Bromoform			104.1		%		50-140	16-MAY-18
Bromomethane			105.8		%		50-140	16-MAY-18
Carbon tetrachloride			107.3		%		50-140	16-MAY-18
Chlorobenzene			105.0		%		50-140	16-MAY-18
Chloroform			109.5		%		50-140	16-MAY-18
cis-1,2-Dichloroethylene			108.6		%		50-140	16-MAY-18
cis-1,3-Dichloropropene			104.5		%		50-140	16-MAY-18
Dibromochloromethane			111.5		%		50-140	16-MAY-18
Dichlorodifluoromethane			88.0		%		50-140	16-MAY-18
Ethylbenzene			93.9		%		50-140	16-MAY-18
n-Hexane			104.9		%		50-140	16-MAY-18
Methylene Chloride			111.0		%		50-140	16-MAY-18
MTBE			108.1		%		50-140	16-MAY-18
m+p-Xylenes			94.3		%		50-140	16-MAY-18
Methyl Ethyl Ketone			118.7		%		50-140	16-MAY-18
Methyl Isobutyl Ketone			105.0		%		50-140	16-MAY-18
o-Xylene			95.0		%		50-140	16-MAY-18
Styrene			86.2		%		50-140	16-MAY-18
Tetrachloroethylene			100.9		%		50-140	16-MAY-18
Toluene			96.6		%		50-140	16-MAY-18
trans-1,2-Dichloroethylene			103.6		%		50-140	16-MAY-18
trans-1,3-Dichloropropene			93.8		%		50-140	16-MAY-18
Trichloroethylene			110.8		%		50-140	16-MAY-18
Trichlorofluoromethane			109.2		%		50-140	16-MAY-18
Vinyl chloride			97.6		%		50-140	16-MAY-18

# Quality Control Report

Workorder: L2092836

Report Date: 17-MAY-18

Client: Sirati & Partners Consultants Ltd. (Concord)  
750 Millway Ave Unit 8  
Vaughan ON L4K3T7  
Contact: Chaoran Li

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## Legend:

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Limit ALS Control Limit (Data Quality Objectives)  
DUP Duplicate  
RPD Relative Percent Difference  
N/A Not Available  
LCS Laboratory Control Sample  
SRM Standard Reference Material  
MS Matrix Spike  
MSD Matrix Spike Duplicate  
ADE Average Desorption Efficiency  
MB Method Blank  
IRM Internal Reference Material  
CRM Certified Reference Material  
CCV Continuing Calibration Verification  
CVS Calibration Verification Standard  
LCSD Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

---

## Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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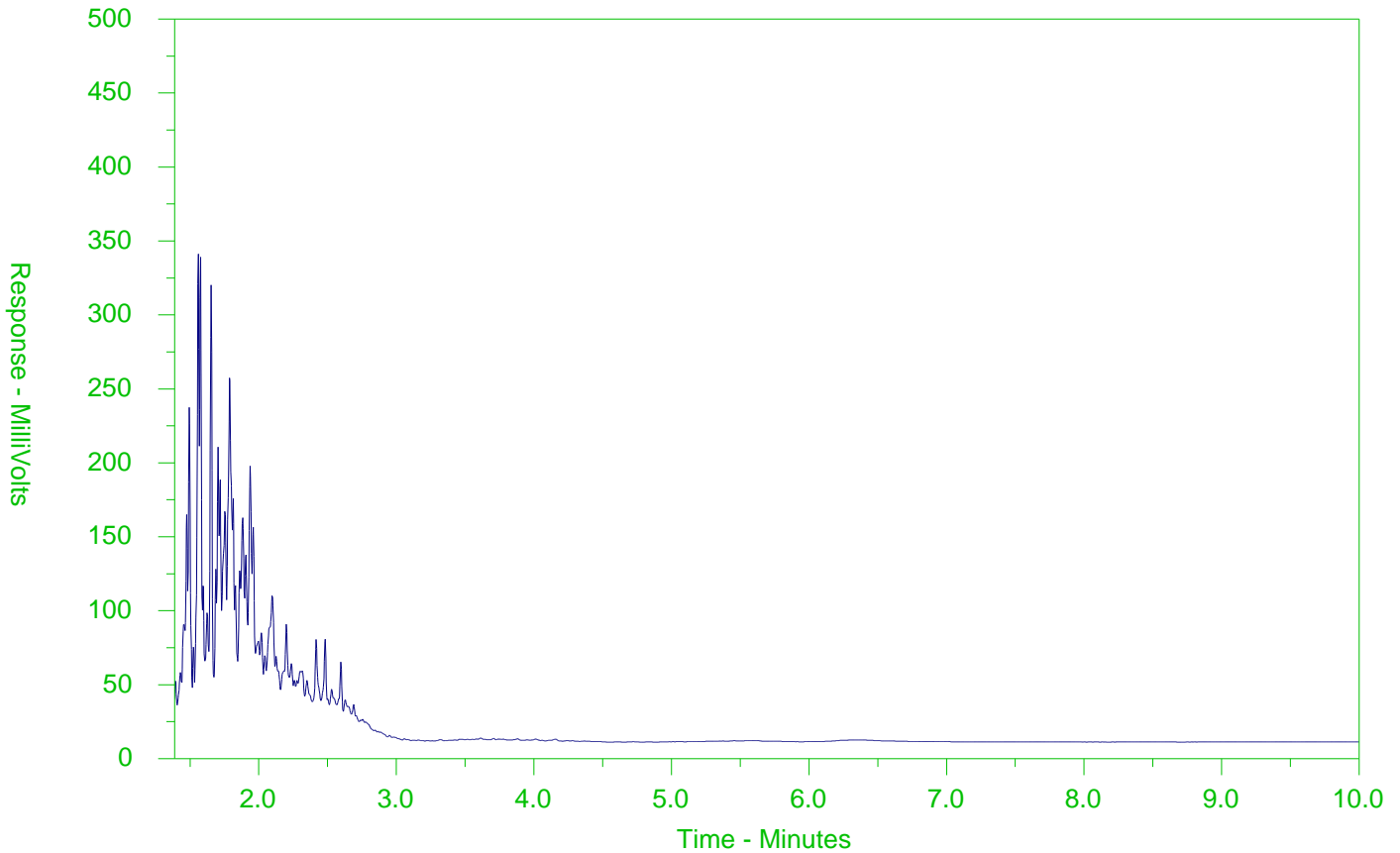
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-8  
 Client Sample ID: BHE15-SS5



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

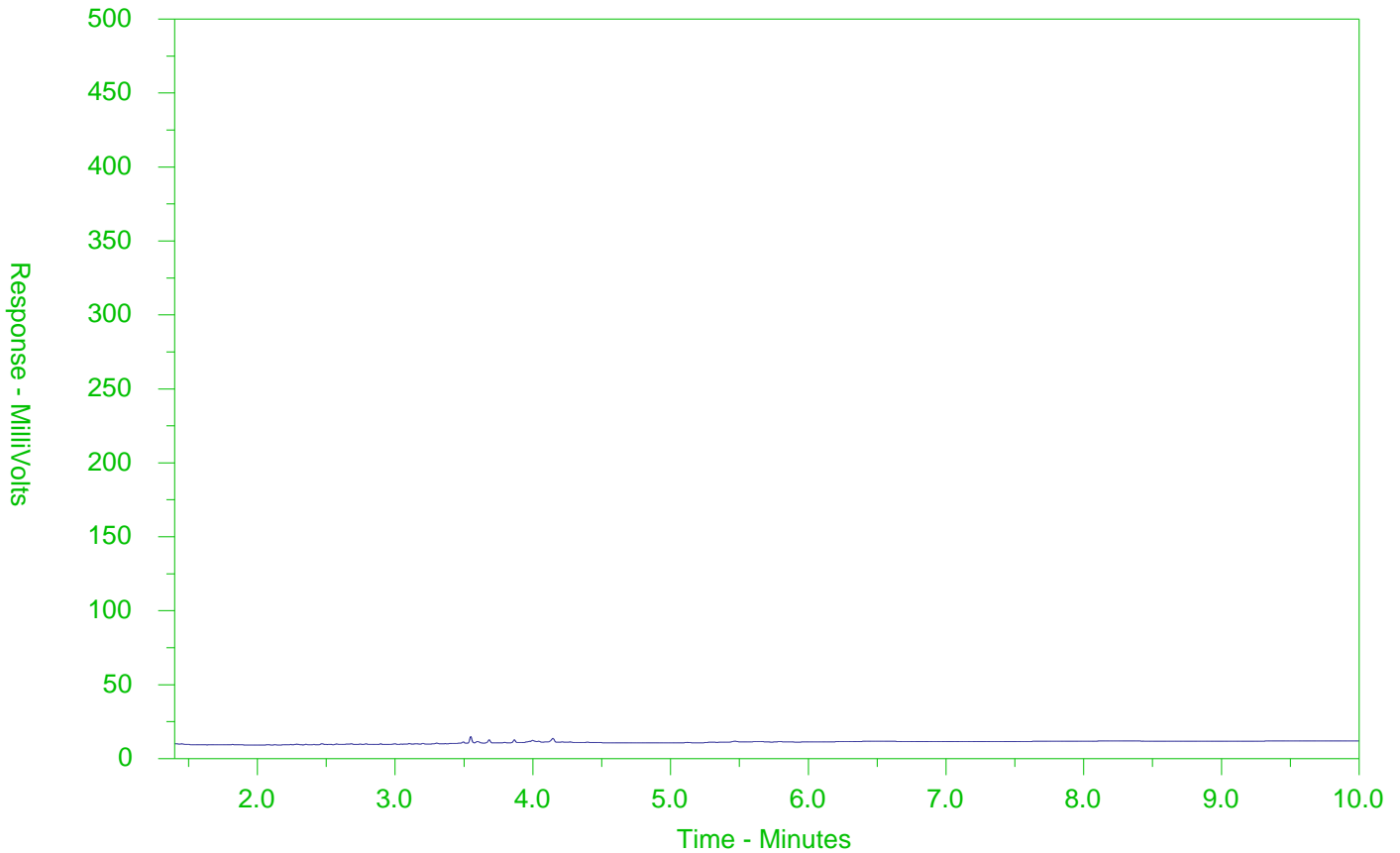
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-12  
 Client Sample ID: BHE6-SS4



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

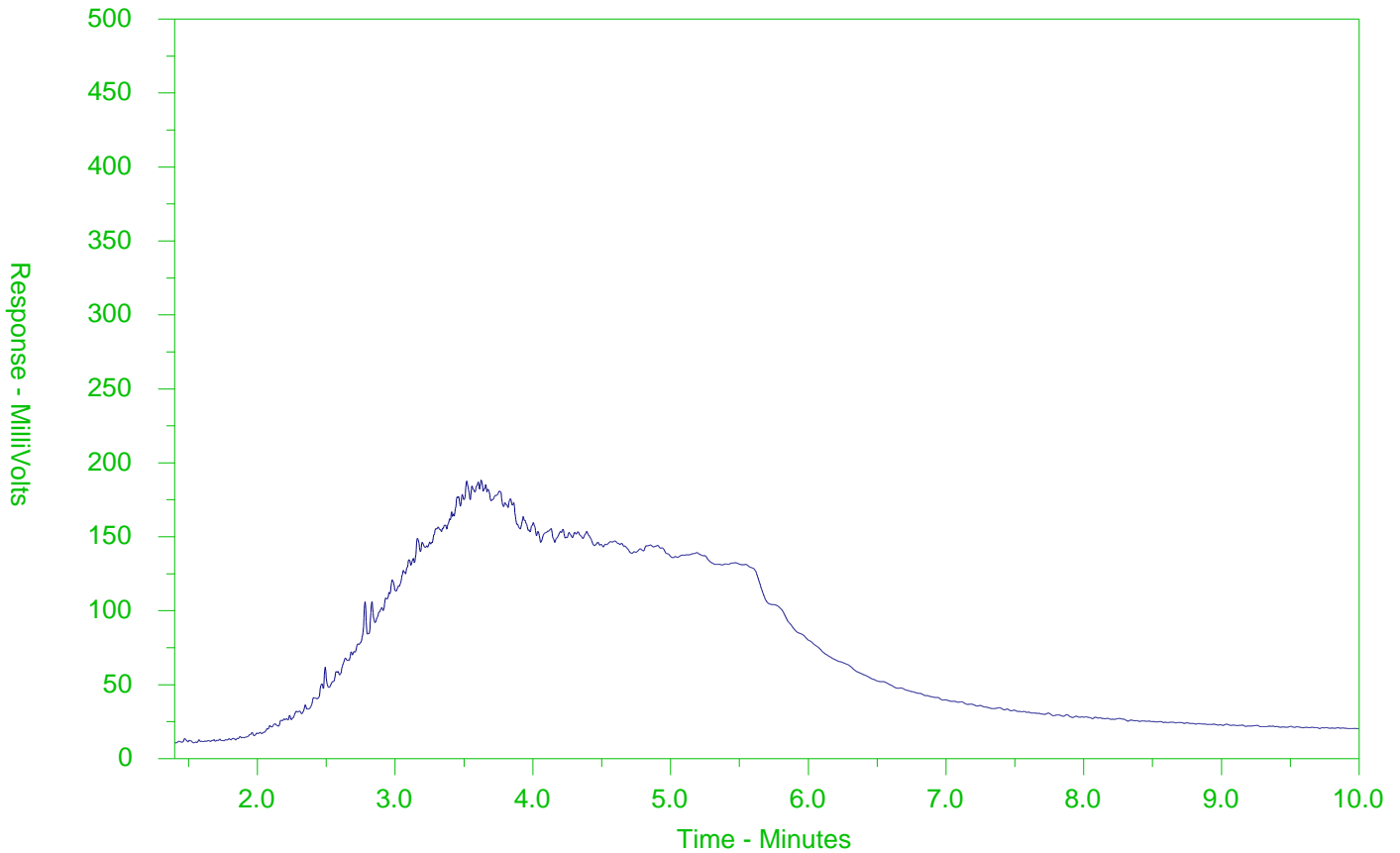
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-13  
 Client Sample ID: BHE11-SS2



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

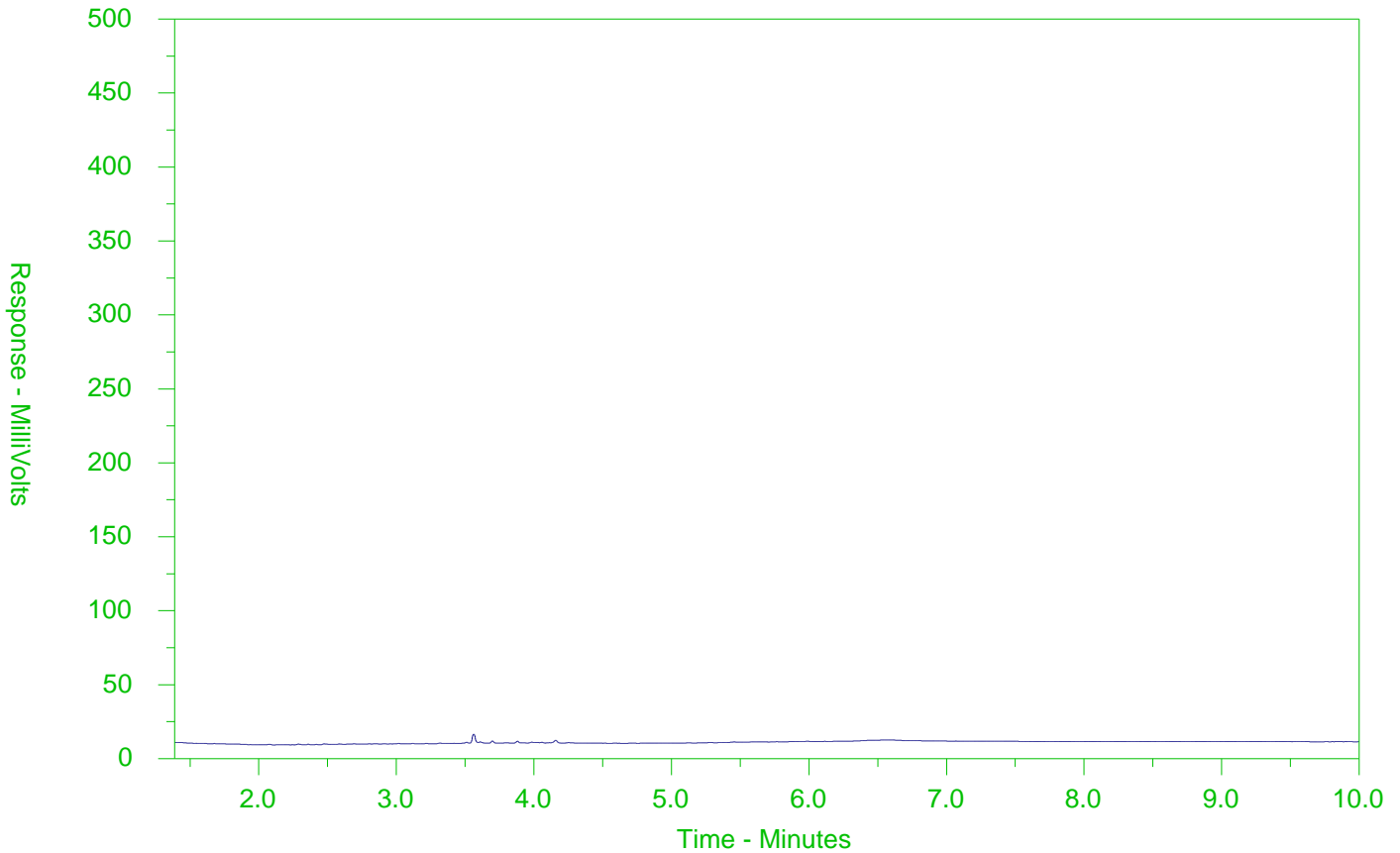
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-14  
 Client Sample ID: BHE1-SS4



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

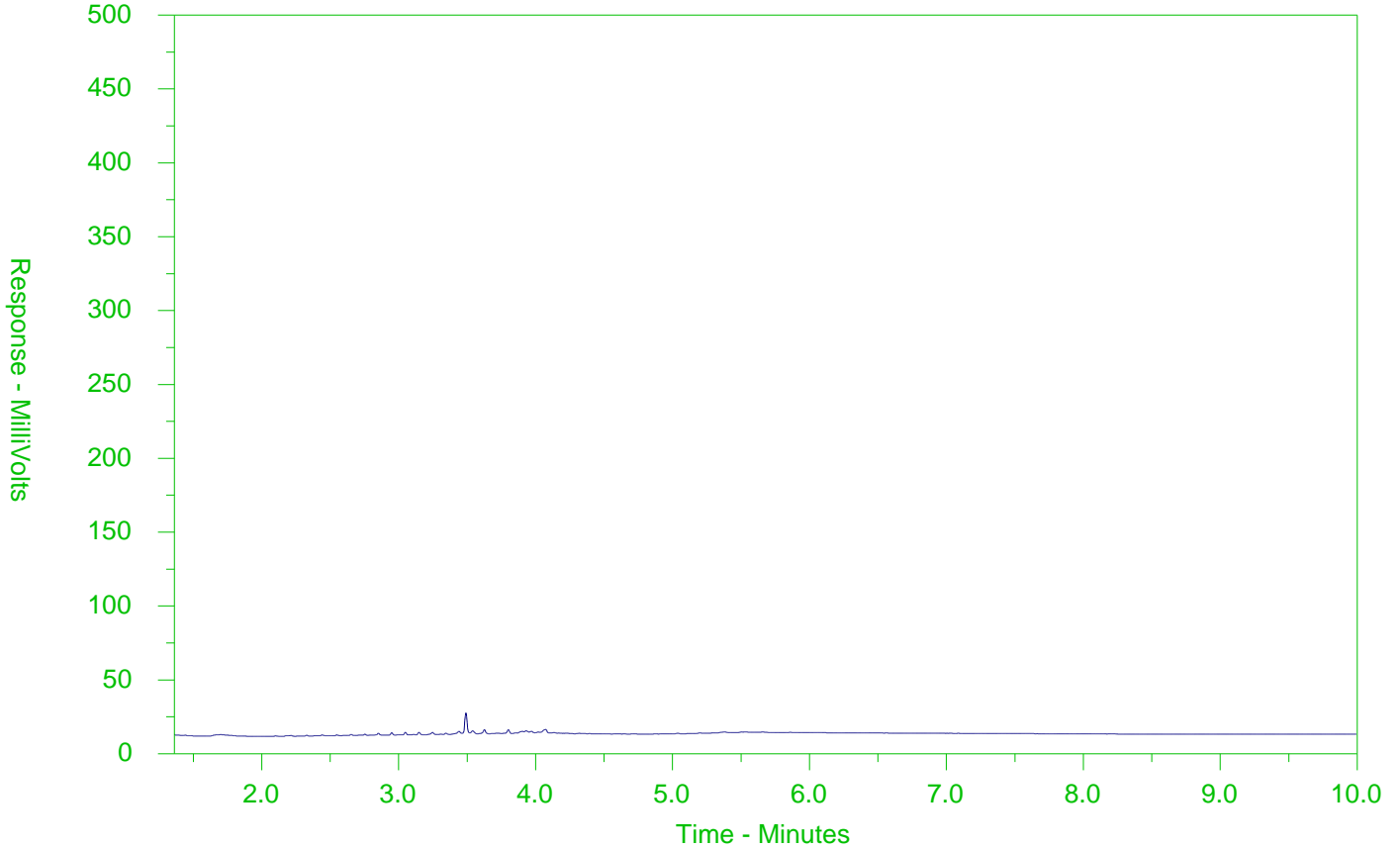
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-15  
 Client Sample ID: BHE8-SS5



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

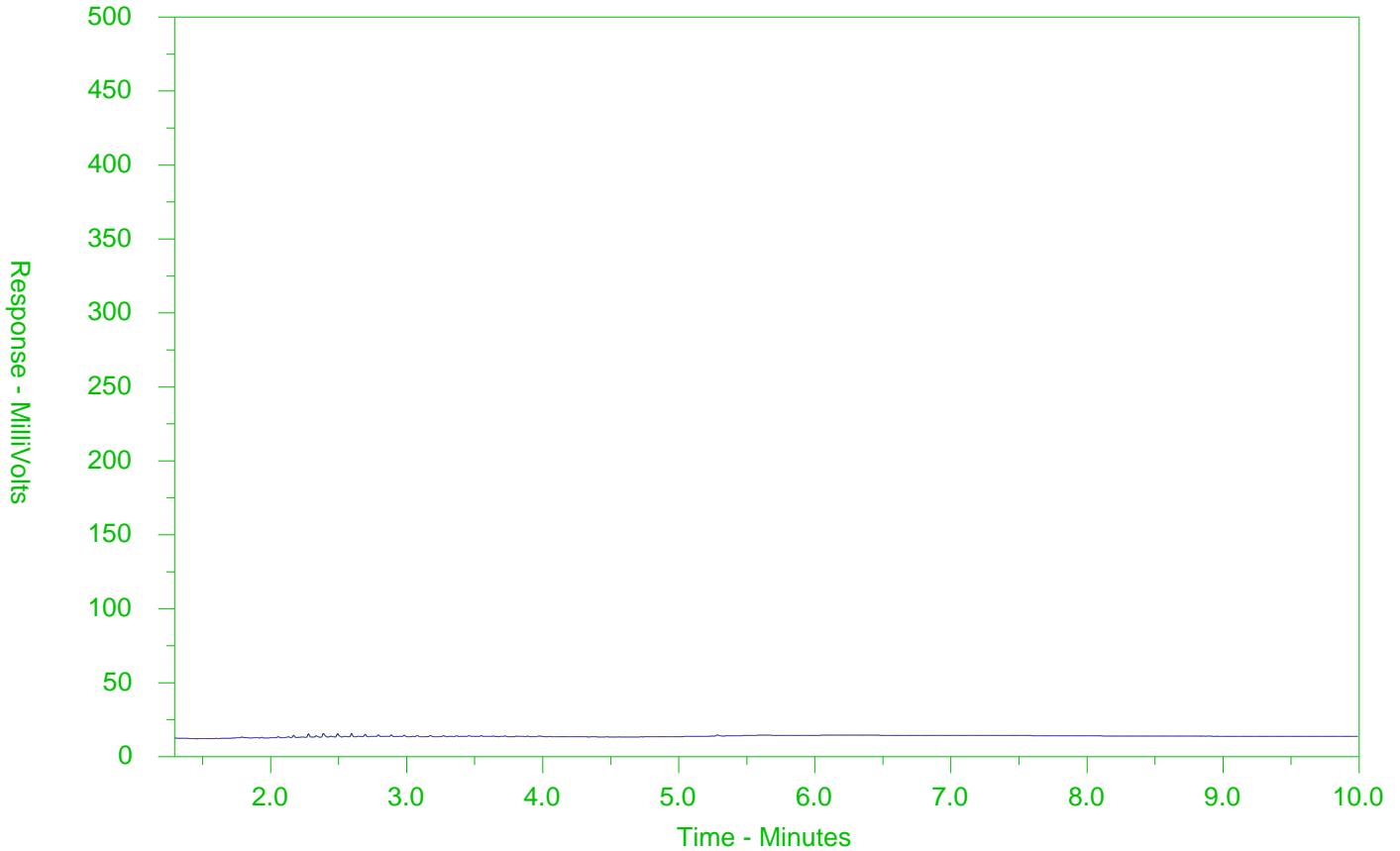
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-16  
 Client Sample ID: BHE2-SS4



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

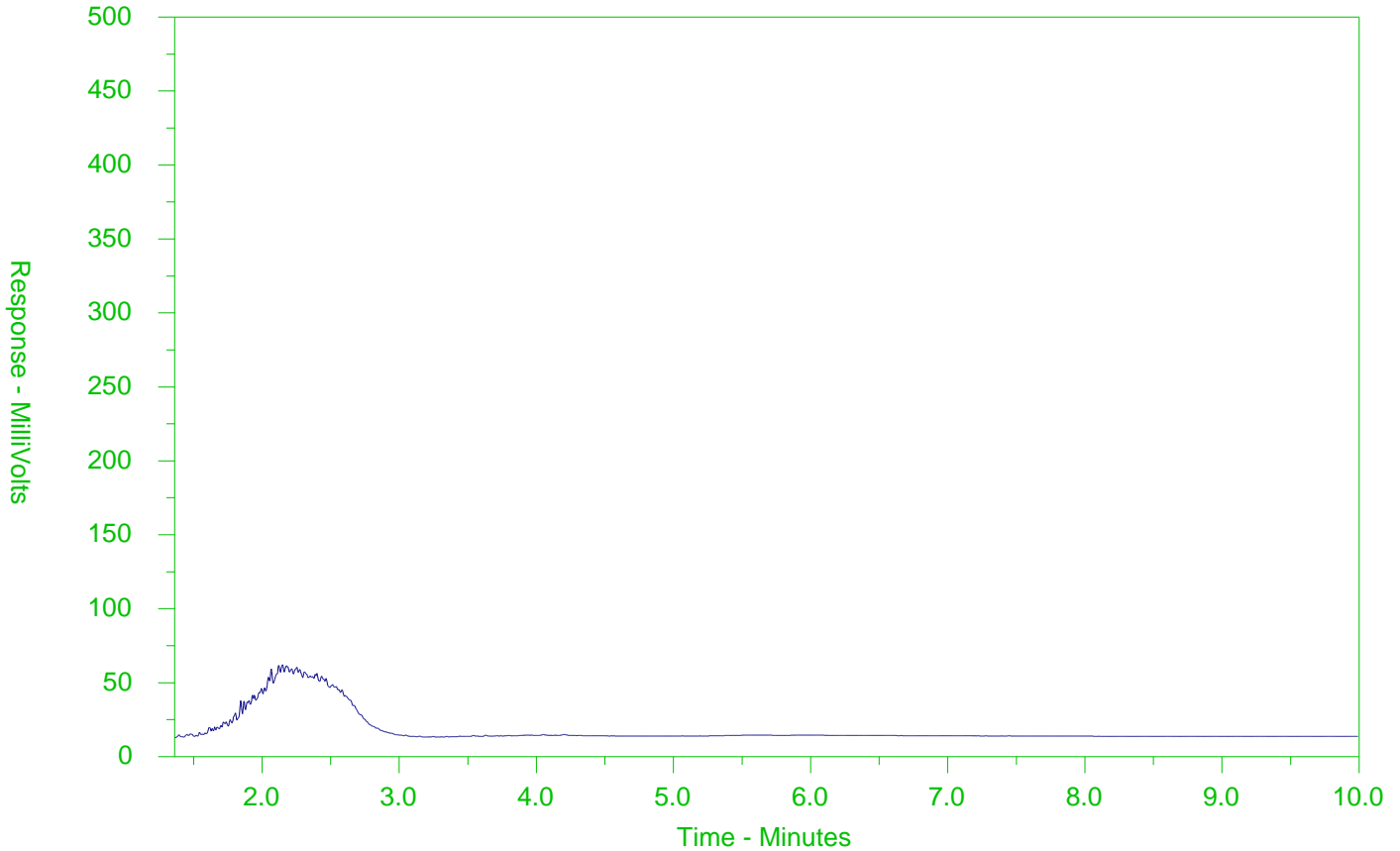
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-17  
 Client Sample ID: BHE10-SS5



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

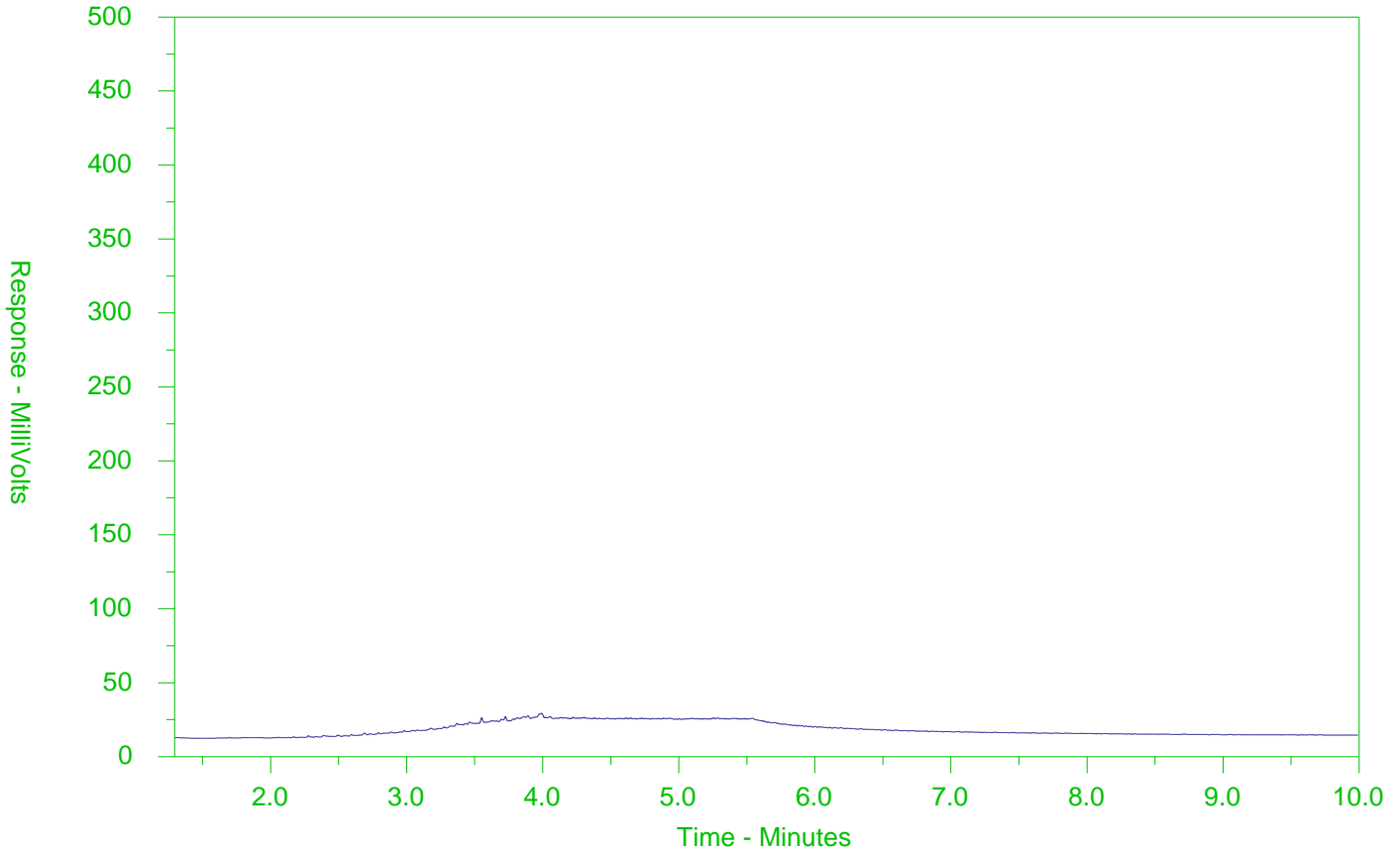
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-18  
 Client Sample ID: BHE4-SS2



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

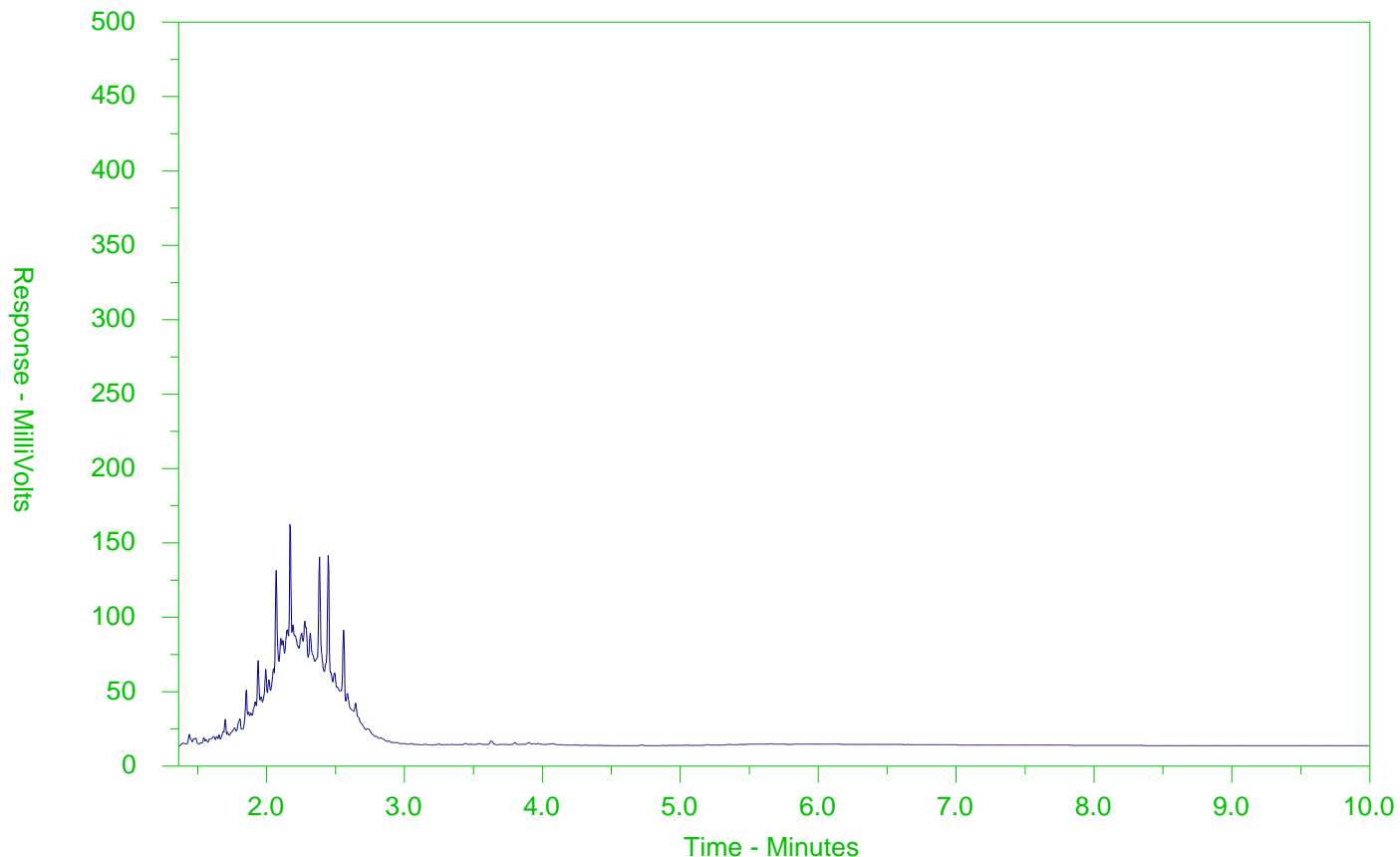
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-19  
 Client Sample ID: BHE9-SS4



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

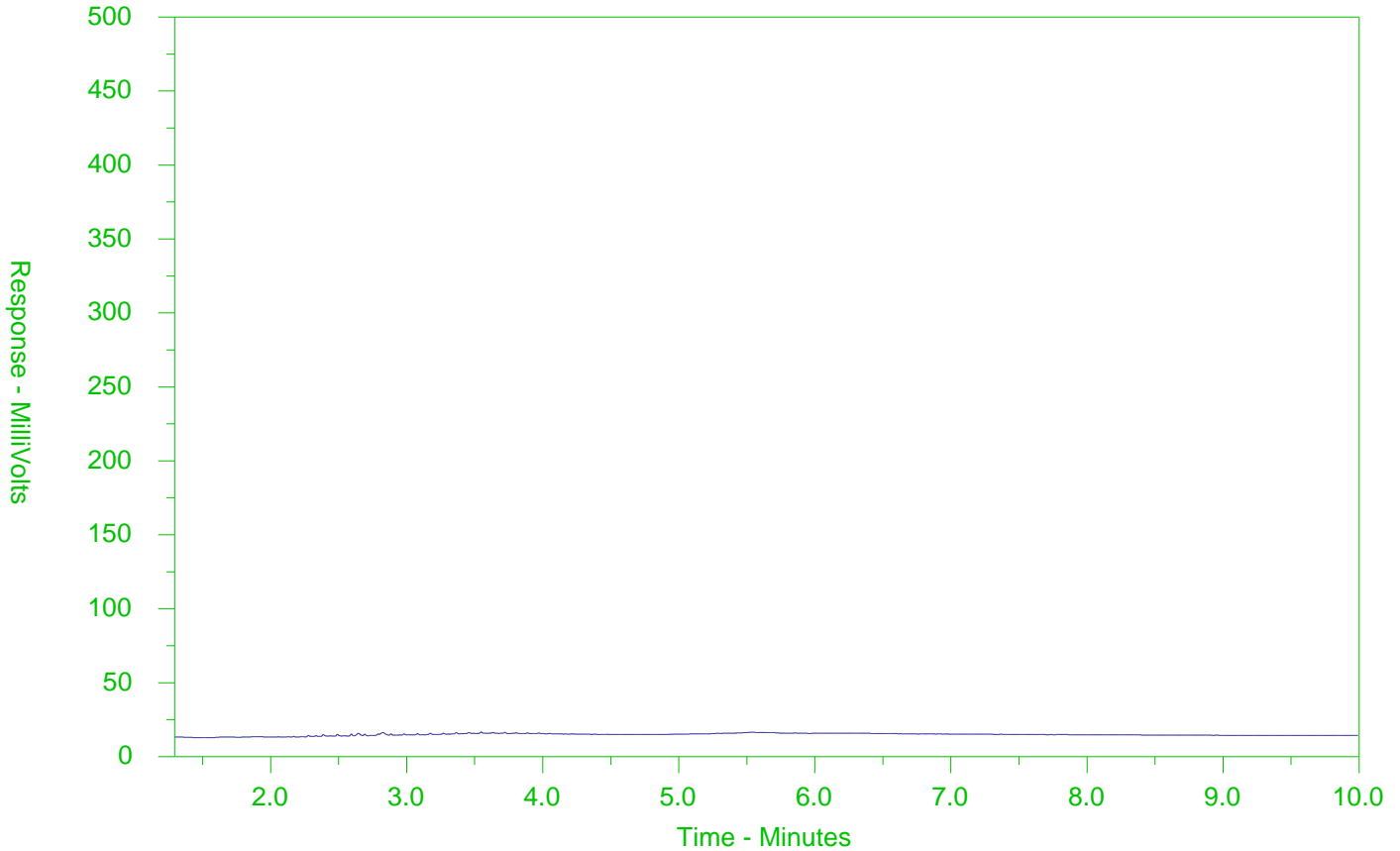
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-20  
 Client Sample ID: BH13-SS1



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

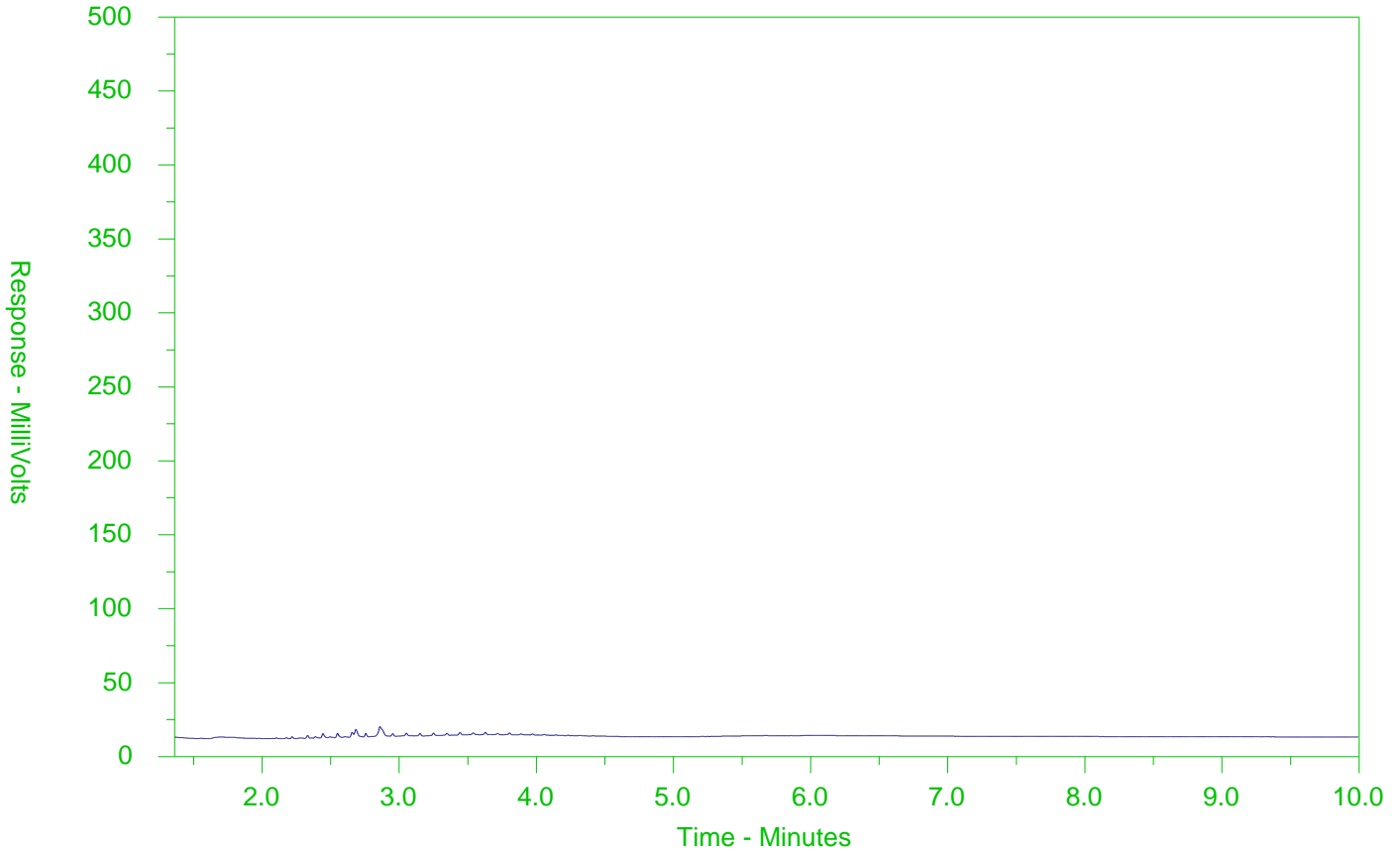
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-21  
 Client Sample ID: BHE12-SS2



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

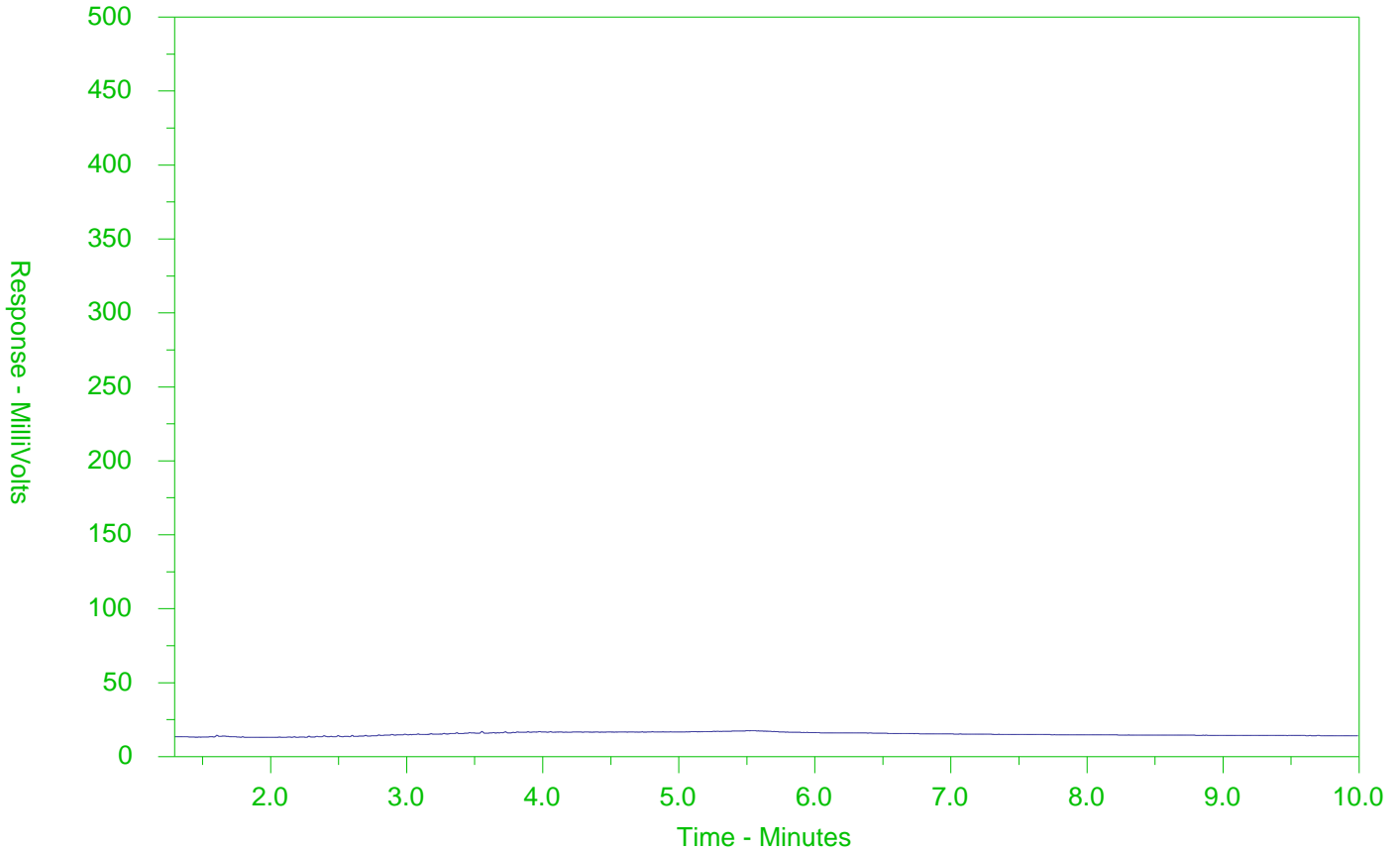
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2092836-22  
 Client Sample ID: BHE5-SS4



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).







Sirati & Partners Consultants Ltd.  
(Concord)  
ATTN: CHAORAN LI  
12700 Keele St  
King City ON L7B 1H5

Date Received: 06-JUN-18  
Report Date: 14-JUN-18 14:14 (MT)  
Version: FINAL

Client Phone: 905-833-1582

## Certificate of Analysis

Lab Work Order #: L2107448  
Project P.O. #: SP18-306-20  
Job Reference: SP18-306-20  
C of C Numbers:  
Legal Site Desc:

Rick Hawthorne  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

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## Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID	Client ID					
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use</b>						
L2107448-2	BH7-SS1	Saturated Paste Extractables	SAR	3.34	2.4	SAR
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Agricultural or Other Property Use (Coarse)</b>						
(No parameter exceedances)						



## ANALYTICAL REPORT


## Physical Tests - SOIL


Lab ID	L2107448-1	L2107448-2	L2107448-3	L2107448-4
Sample Date	05-JUN-18	05-JUN-18	05-JUN-18	05-JUN-18
Sample ID	BH3-SS5	BH7-SS1	BH7-SS3	DUP-S3

Analyte	Unit	Guide Limits					
		#1	#2				
Conductivity	mS/cm	0.57	0.7		0.192		
% Moisture	%	-	-	19.2	3.76	17.3	15.6
pH	pH units	-	-		7.69		

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Agricultural or Other Property Use (Coarse)**

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

## Cyanides - SOIL


**Lab ID** L2107448-2  
**Sample Date** 05-JUN-18  
**Sample ID** BH7-SS1


**Guide Limits**  
**Unit #1 #2**

Analyte	Unit	#1	#2	
Cyanide, Weak Acid Diss	ug/g	0.051	0.051	<0.050

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Agricultural or Other Property Use (Coarse)**

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## Saturated Paste Extractables - SOIL

**Lab ID** L2107448-2  
**Sample Date** 05-JUN-18  
**Sample ID** BH7-SS1

Analyte	Unit	Guide Limits		
		#1	#2	
SAR	SAR	2.4	5	3.34
Calcium (Ca)	mg/L	-	-	3.3
Magnesium (Mg)	mg/L	-	-	2.0
Sodium (Na)	mg/L	-	-	31.2

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Agricultural or Other Property Use (Coarse)**

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## ANALYTICAL REPORT

## Metals - SOIL

**Lab ID** L2107448-2  
**Sample Date** 05-JUN-18  
**Sample ID** BH7-SS1

Analyte	Unit	Guide Limits		
		#1	#2	
Antimony (Sb)	ug/g	1.3	7.5	<1.0
Arsenic (As)	ug/g	18	11	1.3
Barium (Ba)	ug/g	220	390	10.2
Beryllium (Be)	ug/g	2.5	4	<0.50
Boron (B)	ug/g	36	120	<5.0
Boron (B), Hot Water Ext.	ug/g	36	1.5	<0.10
Cadmium (Cd)	ug/g	1.2	1	<0.50
Chromium (Cr)	ug/g	70	160	5.5
Cobalt (Co)	ug/g	21	22	2.2
Copper (Cu)	ug/g	92	140	4.7
Lead (Pb)	ug/g	120	45	2.4
Mercury (Hg)	ug/g	0.27	0.25	<0.0050
Molybdenum (Mo)	ug/g	2	6.9	<1.0
Nickel (Ni)	ug/g	82	100	4.3
Selenium (Se)	ug/g	1.5	2.4	<1.0
Silver (Ag)	ug/g	0.5	20	<0.20
Thallium (Tl)	ug/g	1	1	<0.50
Uranium (U)	ug/g	2.5	23	<1.0
Vanadium (V)	ug/g	86	86	13.1
Zinc (Zn)	ug/g	290	340	11.9

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Agricultural or Other Property Use (Coarse)**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

## Speciated Metals - SOIL


**Lab ID** L2107448-2  
**Sample Date** 05-JUN-18  
**Sample ID** BH7-SS1


**Guide Limits**  
**Unit #1 #2**

Analyte	Unit	#1	#2	
Chromium, Hexavalent	ug/g	0.66	8	<0.20

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Agricultural or Other Property Use (Coarse)**

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
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<b>B-HWS-R511-WT</b>	Soil	Boron-HWE-O.Reg 153/04 (July 2011) HW EXTR, EPA 6010B	
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A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>CN-WAD-R511-WT</b>	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD
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The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>CR-CR6-IC-WT</b>	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199
---------------------	------	-----------------------------	------------------

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>EC-WT</b>	Soil	Conductivity (EC)	MOEE E3138
--------------	------	-------------------	------------

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>F1-F4-511-CALC-WT</b>	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S
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Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
<b>F1-HS-511-WT</b>	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS
<p>Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>F2-F4-511-WT</b>	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1
<p>Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, &amp; F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.</p> <p>Notes:</p> <ol style="list-style-type: none"> <li>1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.</li> <li>2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.</li> <li>3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.</li> <li>4. F4G: Gravimetric Heavy Hydrocarbons</li> <li>5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.</li> <li>6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.</li> <li>7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.</li> <li>8. This method is validated for use.</li> <li>9. Data from analysis of validation and quality control samples is available upon request.</li> <li>10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.</li> </ol> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>HG-200.2-CVAA-WT</b>	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
<p>Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
<b>MET-200.2-CCMS-WT</b>	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
<p>This method uses a heated strong acid digestion with HNO<sub>3</sub> and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>MOISTURE-WT</b>	Soil	% Moisture	Gravimetric: Oven Dried
<b>PH-WT</b>	Soil	pH	MOEE E3137A
<p>A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
<b>SAR-R511-WT</b>	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca

# Reference Information

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

\*\*ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
----	---

## GLOSSARY OF REPORT TERMS

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*

*mg/kg - milligrams per kilogram based on dry weight of sample*

*mg/kg wwt - milligrams per kilogram based on wet weight of sample*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*

*mg/L - unit of concentration based on volume, parts per million.*

*< - Less than.*

*D.L. - The reporting limit.*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

*Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.*



## Quality Control Report

Workorder: L2107448

Report Date: 14-JUN-18

Page 1 of 7

Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>B-HWS-R511-WT</b>								
<b>Soil</b>								
<b>Batch</b>	<b>R4081218</b>							
<b>WG2794483-4</b>	<b>DUP</b>	<b>L2106742-1</b>						
Boron (B), Hot Water Ext.		0.13	0.12		ug/g	5.5	30	12-JUN-18
<b>WG2794483-2</b>	<b>IRM</b>	<b>HOTB-SAL_SOIL5</b>						
Boron (B), Hot Water Ext.			101.5		%		70-130	12-JUN-18
<b>WG2794483-3</b>	<b>LCS</b>							
Boron (B), Hot Water Ext.			112.6		%		70-130	12-JUN-18
<b>WG2794483-1</b>	<b>MB</b>							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	12-JUN-18
<b>CN-WAD-R511-WT</b>								
<b>Soil</b>								
<b>Batch</b>	<b>R4080788</b>							
<b>WG2793561-3</b>	<b>DUP</b>	<b>L2107448-2</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	12-JUN-18
<b>WG2793561-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			90.8		%		80-120	12-JUN-18
<b>WG2793561-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	12-JUN-18
<b>WG2793561-4</b>	<b>MS</b>	<b>L2107448-2</b>						
Cyanide, Weak Acid Diss			97.4		%		70-130	12-JUN-18
<b>CR-CR6-IC-WT</b>								
<b>Soil</b>								
<b>Batch</b>	<b>R4081216</b>							
<b>WG2793728-4</b>	<b>CRM</b>	<b>WT-SQC012</b>						
Chromium, Hexavalent			90.7		%		70-130	12-JUN-18
<b>WG2793728-3</b>	<b>DUP</b>	<b>L2107448-2</b>						
Chromium, Hexavalent		<0.20	0.24	RPD-NA	ug/g	N/A	35	12-JUN-18
<b>WG2793728-2</b>	<b>LCS</b>							
Chromium, Hexavalent			98.4		%		80-120	12-JUN-18
<b>WG2793728-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.20		ug/g		0.2	12-JUN-18
<b>EC-WT</b>								
<b>Soil</b>								
<b>Batch</b>	<b>R4081137</b>							
<b>WG2794470-4</b>	<b>DUP</b>	<b>WG2794470-3</b>						
Conductivity		0.547	0.570		mS/cm	4.1	20	12-JUN-18
<b>WG2794658-1</b>	<b>LCS</b>							
Conductivity			96.5		%		90-110	12-JUN-18
<b>WG2794470-1</b>	<b>MB</b>							
Conductivity			<0.0040		mS/cm		0.004	12-JUN-18
<b>F1-HS-511-WT</b>								
<b>Soil</b>								





## Quality Control Report

Workorder: L2107448

Report Date: 14-JUN-18

Page 2 of 7

Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F1-HS-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4076088</b>							
<b>WG2790831-4</b>	<b>DUP</b>	<b>WG2790831-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	08-JUN-18
<b>WG2790831-2</b>	<b>LCS</b>							
F1 (C6-C10)			102.7		%		80-120	08-JUN-18
<b>WG2790831-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	08-JUN-18
Surrogate: 3,4-Dichlorotoluene			102.9		%		60-140	08-JUN-18
<b>WG2790831-6</b>	<b>MS</b>	<b>L2107454-8</b>						
F1 (C6-C10)			100.2		%		60-140	08-JUN-18
<b>F2-F4-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4080535</b>							
<b>WG2792090-3</b>	<b>DUP</b>	<b>WG2792090-3</b>						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	12-JUN-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	12-JUN-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	12-JUN-18
<b>WG2792090-2</b>	<b>LCS</b>							
F2 (C10-C16)			103.9		%		80-120	12-JUN-18
F3 (C16-C34)			101.6		%		80-120	12-JUN-18
F4 (C34-C50)			94.8		%		80-120	12-JUN-18
<b>WG2792090-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	12-JUN-18
F3 (C16-C34)			<50		ug/g		50	12-JUN-18
F4 (C34-C50)			<50		ug/g		50	12-JUN-18
Surrogate: 2-Bromobenzotrifluoride			90.7		%		60-140	12-JUN-18
<b>WG2792090-4</b>	<b>MS</b>	<b>WG2792090-5</b>						
F2 (C10-C16)			101.1		%		60-140	12-JUN-18
F3 (C16-C34)			99.0		%		60-140	12-JUN-18
F4 (C34-C50)			89.5		%		60-140	12-JUN-18
<b>HG-200.2-CVAA-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4080950</b>							
<b>WG2794447-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Mercury (Hg)			94.0		%		70-130	12-JUN-18
<b>WG2794447-6</b>	<b>DUP</b>	<b>WG2794447-5</b>						
Mercury (Hg)		0.0162	0.0167		ug/g	3.5	40	12-JUN-18
<b>WG2794447-3</b>	<b>LCS</b>							
Mercury (Hg)			109.0		%		80-120	12-JUN-18
<b>WG2794447-1</b>	<b>MB</b>							



## Quality Control Report

Workorder: L2107448

Report Date: 14-JUN-18

Page 3 of 7

Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>HG-200.2-CVAA-WT      Soil</b>								
Batch	R4080950							
WG2794447-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	12-JUN-18
<b>MET-200.2-CCMS-WT      Soil</b>								
Batch	R4083103							
WG2796492-2	CRM	WT-CANMET-TILL1						
Antimony (Sb)			103.6		%		70-130	14-JUN-18
Arsenic (As)			104.9		%		70-130	14-JUN-18
Barium (Ba)			122.0		%		70-130	14-JUN-18
Beryllium (Be)			96.7		%		70-130	14-JUN-18
Boron (B)			4.1		mg/kg		0-8.2	14-JUN-18
Cadmium (Cd)			100.6		%		70-130	14-JUN-18
Chromium (Cr)			100.7		%		70-130	14-JUN-18
Cobalt (Co)			94.2		%		70-130	14-JUN-18
Copper (Cu)			100.8		%		70-130	14-JUN-18
Lead (Pb)			97.8		%		70-130	14-JUN-18
Molybdenum (Mo)			105.3		%		70-130	14-JUN-18
Nickel (Ni)			100.2		%		70-130	14-JUN-18
Selenium (Se)			0.30		mg/kg		0.11-0.51	14-JUN-18
Silver (Ag)			0.22		mg/kg		0.13-0.33	14-JUN-18
Thallium (Tl)			0.115		mg/kg		0.077-0.18	14-JUN-18
Uranium (U)			100.7		%		70-130	14-JUN-18
Vanadium (V)			102.7		%		70-130	14-JUN-18
Zinc (Zn)			97.0		%		70-130	14-JUN-18
WG2796492-6	DUP	L2107454-1						
Antimony (Sb)		<1.0	<1.0	RPD-NA	ug/g	N/A	30	14-JUN-18
Arsenic (As)		2.6	2.6		ug/g	0.6	30	14-JUN-18
Barium (Ba)		49.0	55.2		ug/g	12	40	14-JUN-18
Beryllium (Be)		<0.50	<0.50	RPD-NA	ug/g	N/A	30	14-JUN-18
Boron (B)		5.6	5.5		ug/g	0.8	30	14-JUN-18
Cadmium (Cd)		<0.50	<0.50	RPD-NA	ug/g	N/A	30	14-JUN-18
Chromium (Cr)		15.0	14.9		ug/g	0.7	30	14-JUN-18
Cobalt (Co)		5.5	5.5		ug/g	0.7	30	14-JUN-18
Copper (Cu)		11.3	11.6		ug/g	2.9	30	14-JUN-18
Lead (Pb)		16.5	16.8		ug/g	2.2	40	14-JUN-18



## Quality Control Report

Workorder: L2107448

Report Date: 14-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4083103</b>							
<b>WG2796492-6</b>	<b>DUP</b>	<b>L2107454-1</b>						
Molybdenum (Mo)		<1.0	<1.0	RPD-NA	ug/g	N/A	40	14-JUN-18
Nickel (Ni)		12.5	13.1		ug/g	5.1	30	14-JUN-18
Selenium (Se)		<1.0	<1.0	RPD-NA	ug/g	N/A	30	14-JUN-18
Silver (Ag)		<0.20	<0.20	RPD-NA	ug/g	N/A	40	14-JUN-18
Thallium (Tl)		<0.50	<0.50	RPD-NA	ug/g	N/A	30	14-JUN-18
Uranium (U)		<1.0	<1.0	RPD-NA	ug/g	N/A	30	14-JUN-18
Vanadium (V)		25.8	26.8		ug/g	3.7	30	14-JUN-18
Zinc (Zn)		40.0	40.7		ug/g	1.8	30	14-JUN-18
<b>WG2796492-4</b>	<b>LCS</b>							
Antimony (Sb)			106.7		%		80-120	14-JUN-18
Arsenic (As)			106.1		%		80-120	14-JUN-18
Barium (Ba)			115.8		%		80-120	14-JUN-18
Beryllium (Be)			92.5		%		80-120	14-JUN-18
Boron (B)			95.5		%		80-120	14-JUN-18
Cadmium (Cd)			103.9		%		80-120	14-JUN-18
Chromium (Cr)			107.3		%		80-120	14-JUN-18
Cobalt (Co)			97.7		%		80-120	14-JUN-18
Copper (Cu)			102.0		%		80-120	14-JUN-18
Lead (Pb)			105.0		%		80-120	14-JUN-18
Molybdenum (Mo)			106.3		%		80-120	14-JUN-18
Nickel (Ni)			105.8		%		80-120	14-JUN-18
Selenium (Se)			101.5		%		80-120	14-JUN-18
Silver (Ag)			95.6		%		80-120	14-JUN-18
Thallium (Tl)			104.1		%		80-120	14-JUN-18
Uranium (U)			104.0		%		80-120	14-JUN-18
Vanadium (V)			109.4		%		80-120	14-JUN-18
Zinc (Zn)			97.0		%		80-120	14-JUN-18
<b>WG2796492-1</b>	<b>MB</b>							
Antimony (Sb)			<0.10		mg/kg		0.1	14-JUN-18
Arsenic (As)			<0.10		mg/kg		0.1	14-JUN-18
Barium (Ba)			<0.50		mg/kg		0.5	14-JUN-18
Beryllium (Be)			<0.10		mg/kg		0.1	14-JUN-18
Boron (B)			<5.0		mg/kg		5	14-JUN-18
Cadmium (Cd)			<0.020		mg/kg		0.02	14-JUN-18



## Quality Control Report

Workorder: L2107448

Report Date: 14-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4083103</b>							
<b>WG2796492-1</b>	<b>MB</b>							
Chromium (Cr)			<0.50		mg/kg		0.5	14-JUN-18
Cobalt (Co)			<0.10		mg/kg		0.1	14-JUN-18
Copper (Cu)			<0.50		mg/kg		0.5	14-JUN-18
Lead (Pb)			<0.50		mg/kg		0.5	14-JUN-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	14-JUN-18
Nickel (Ni)			<0.50		mg/kg		0.5	14-JUN-18
Selenium (Se)			<0.20		mg/kg		0.2	14-JUN-18
Silver (Ag)			<0.10		mg/kg		0.1	14-JUN-18
Thallium (Tl)			<0.050		mg/kg		0.05	14-JUN-18
Uranium (U)			<0.050		mg/kg		0.05	14-JUN-18
Vanadium (V)			<0.20		mg/kg		0.2	14-JUN-18
Zinc (Zn)			<2.0		mg/kg		2	14-JUN-18
<b>MOISTURE-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4080211</b>							
<b>WG2793907-3</b>	<b>DUP</b>	<b>L2107448-2</b>						
% Moisture		3.76	3.52		%	6.5	20	12-JUN-18
<b>WG2793907-2</b>	<b>LCS</b>							
% Moisture			99.9		%		90-110	12-JUN-18
<b>WG2793907-1</b>	<b>MB</b>							
% Moisture			<0.10		%		0.1	12-JUN-18
<b>PH-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4079067</b>							
<b>WG2792547-3</b>	<b>DUP</b>	<b>L2107447-1</b>						
pH		7.14	7.21	J	pH units	0.07	0.3	11-JUN-18
<b>WG2793601-1</b>	<b>LCS</b>							
pH			6.97		pH units		6.9-7.1	11-JUN-18
<b>SAR-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4081823</b>							
<b>WG2794470-4</b>	<b>DUP</b>	<b>WG2794470-3</b>						
Calcium (Ca)		9.4	9.2		mg/L	1.8	30	12-JUN-18
Sodium (Na)		81.7	81.5		mg/L	0.2	30	12-JUN-18
Magnesium (Mg)		<1.0	<1.0	RPD-NA	mg/L	N/A	30	12-JUN-18
<b>WG2794470-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Calcium (Ca)			102.9		%		70-130	12-JUN-18
Sodium (Na)			102.9		%		70-130	12-JUN-18



## Quality Control Report

Workorder: L2107448

Report Date: 14-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>SAR-R511-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R4081823</b>							
<b>WG2794470-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Magnesium (Mg)			97.0		%		70-130	12-JUN-18
<b>WG2794470-1</b>	<b>MB</b>							
Calcium (Ca)			<1.0		mg/L		1	12-JUN-18
Sodium (Na)			<1.0		mg/L		1	12-JUN-18
Magnesium (Mg)			<1.0		mg/L		1	12-JUN-18

# Quality Control Report

Workorder: L2107448

Report Date: 14-JUN-18

Client: Sirati & Partners Consultants Ltd. (Concord)  
12700 Keele St  
King City ON L7B 1H5

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Contact: CHAORAN LI

## Legend:

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Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

---

## Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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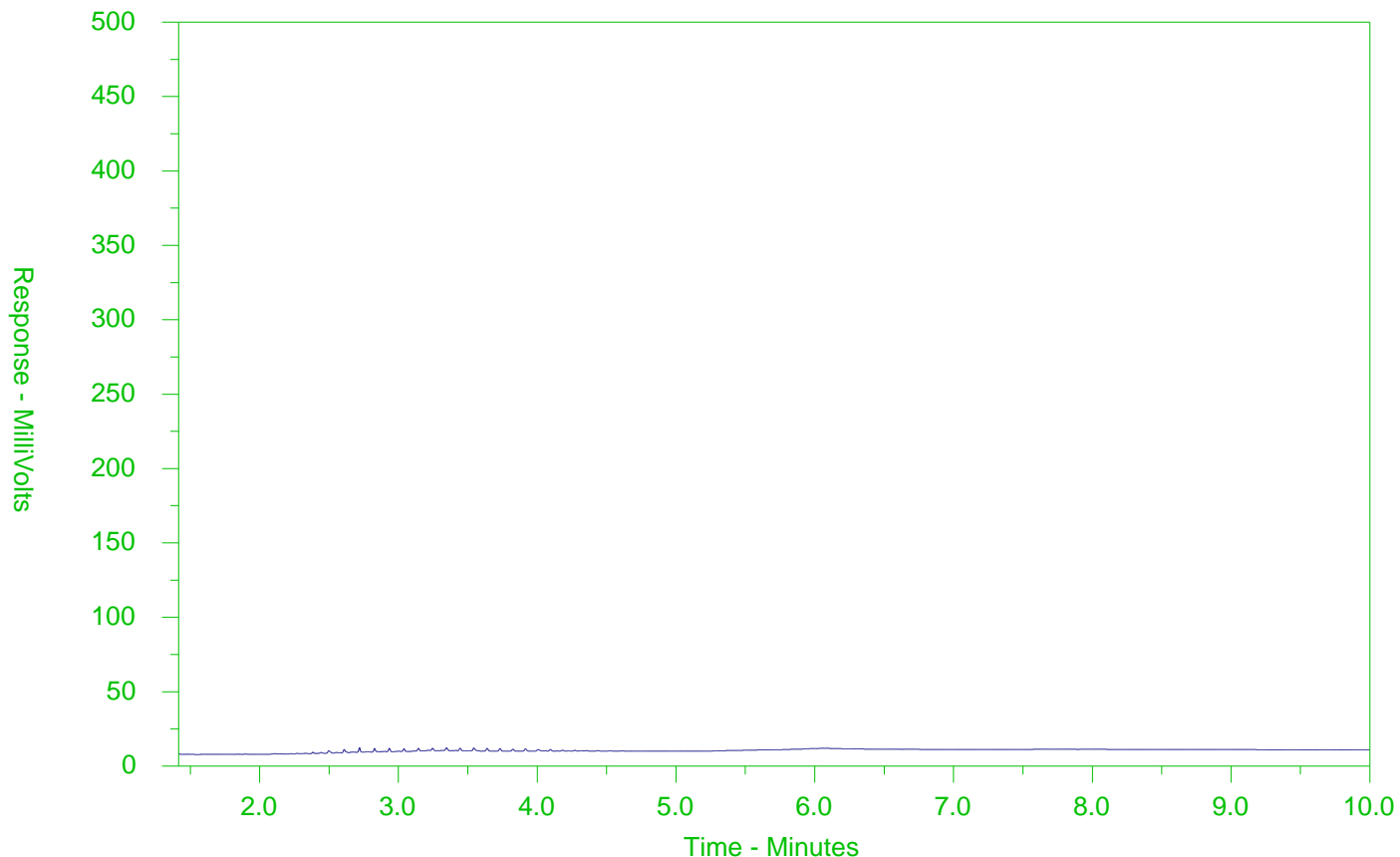
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2107448-1  
 Client Sample ID: BH3-SS5



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

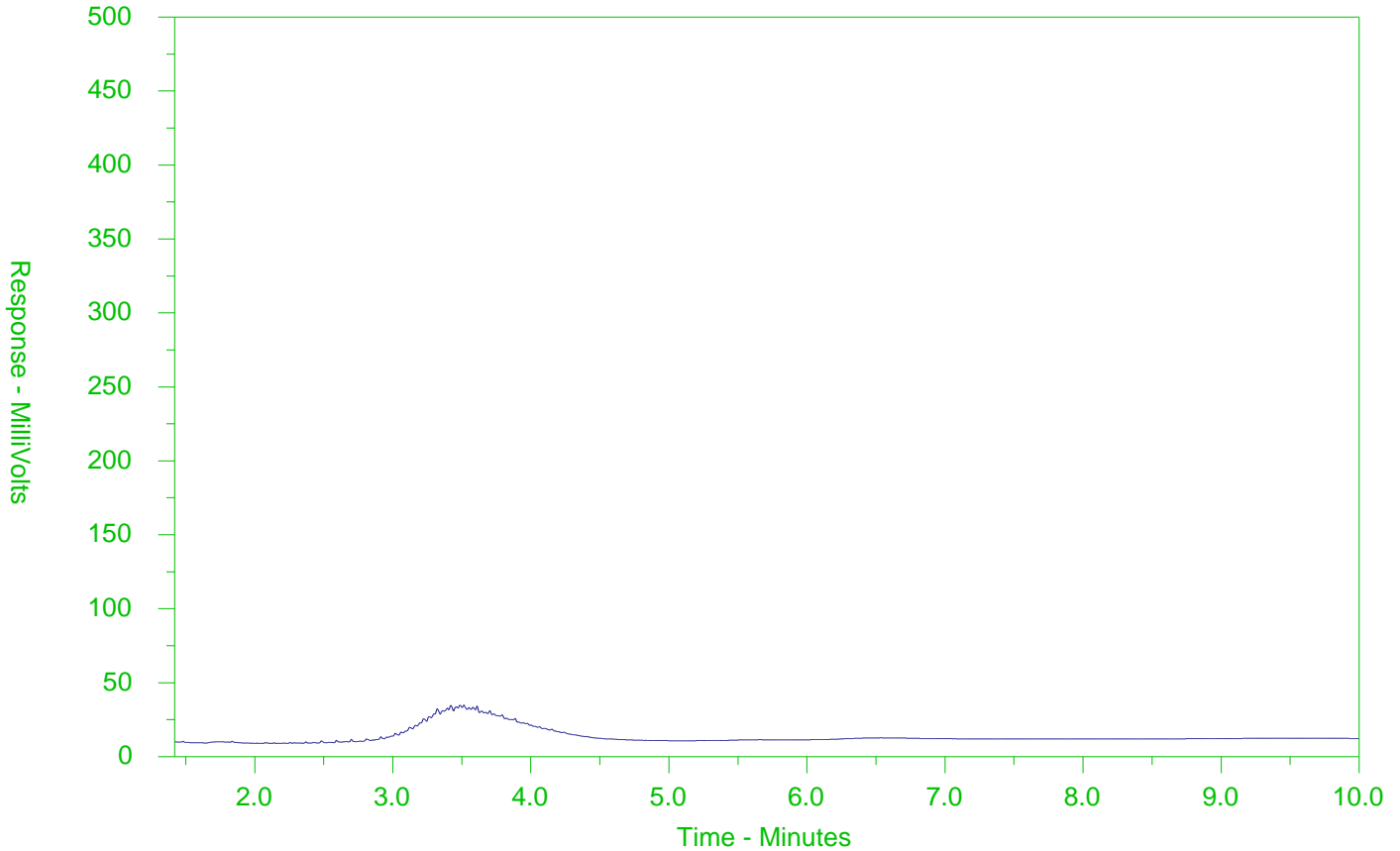
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2107448-3  
 Client Sample ID: BH7-SS3



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

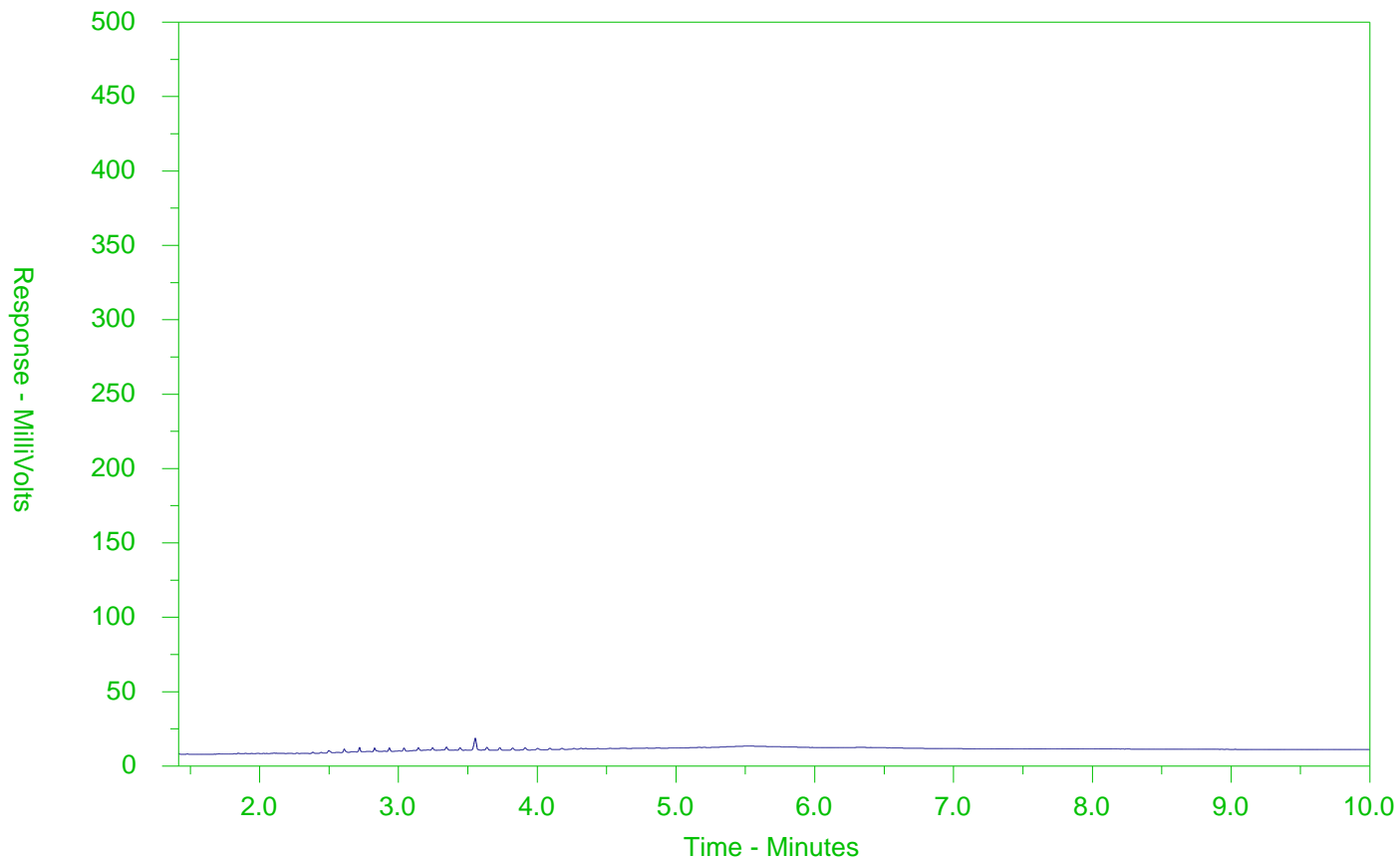
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2107448-4  
 Client Sample ID: DUP-S3



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).





Sirati & Partners Consultants Ltd.  
(Concord)  
ATTN: CHAORAN LI  
12700 Keele St  
King City ON L7B 1H5

Date Received: 24-AUG-18  
Report Date: 30-AUG-18 10:06 (MT)  
Version: FINAL

Client Phone: 905-833-1582

## Certificate of Analysis

Lab Work Order #: L2152974  
Project P.O. #: SP18-306-20  
Job Reference: SP18-306-20  
C of C Numbers: 17-727586  
Legal Site Desc:

Rick Hawthorne  
Account Manager

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## Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID	Client ID					
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use</b>						
L2152974-2	BH202-SS5	Volatil Organic Compounds	n-Hexane	0.208	0.05	ug/g
		Hydrocarbons	F2 (C10-C16)	44	10	ug/g
L2152974-3	BH214-SS2	Saturated Paste Extractables	SAR	5.13	2.4	SAR
L2152974-6	BH201-SS4	Hydrocarbons	F2 (C10-C16)	29	10	ug/g
L2152974-7	BH204-SS4	Volatil Organic Compounds	Benzene	2.26	0.02	ug/g
			Methylene Chloride	<0.35	0.05	ug/g
			Ethylbenzene	1.77	0.05	ug/g
			n-Hexane	1.49	0.05	ug/g
			Toluene	1.00	0.2	ug/g
			Xylenes (Total)	10.0	0.05	ug/g
		Hydrocarbons	F1 (C6-C10)	48.0	25	ug/g
			F1-BTEX	33.0	25	ug/g
			F2 (C10-C16)	37	10	ug/g
L2152974-8	BH205-SS3	Volatil Organic Compounds	Benzene	0.0400	0.02	ug/g
			Ethylbenzene	0.943	0.05	ug/g
			n-Hexane	0.054	0.05	ug/g
			1,1,2,2-Tetrachloroethane	<0.20	0.05	ug/g
			1,1,2-Trichloroethane	<0.20	0.05	ug/g
			Xylenes (Total)	2.29	0.05	ug/g
		Hydrocarbons	F1 (C6-C10)	71	25	ug/g
			F1-BTEX	68	25	ug/g
			F2 (C10-C16)	331	10	ug/g
L2152974-9	BH207-SS4	Volatil Organic Compounds	Benzene	0.0786	0.02	ug/g
			n-Hexane	0.072	0.05	ug/g
L2152974-10	BH208-SS5	Volatil Organic Compounds	Benzene	0.0708	0.02	ug/g
			Bromodichloromethane	<0.15	0.05	ug/g
			Ethylbenzene	0.060	0.05	ug/g
			n-Hexane	0.210	0.05	ug/g
			1,1,2-Trichloroethane	<0.25	0.05	ug/g
			Xylenes (Total)	0.075	0.05	ug/g
		Hydrocarbons	F1 (C6-C10)	47.8	25	ug/g
			F1-BTEX	47.6	25	ug/g
			F2 (C10-C16)	15	10	ug/g
L2152974-11	DUP-S202	Volatil Organic Compounds	Benzene	0.0714	0.02	ug/g

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID	Client ID					
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use</b>						
L2152974-11	DUP-S202	Volatile Organic Compounds	n-Hexane	0.076	0.05	ug/g
		Hydrocarbons	F2 (C10-C16)	13	10	ug/g
L2152974-12	DUP-S203	Hydrocarbons	F2 (C10-C16)	12	10	ug/g
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Res/Park/Inst. Property Use (Coarse)</b>						
L2152974-3	BH214-SS2	Saturated Paste Extractables	SAR	5.13	5	SAR
L2152974-7	BH204-SS4	Volatile Organic Compounds	Benzene	2.26	0.21	ug/g
			Methylene Chloride	<0.35	0.1	ug/g
			Ethylbenzene	1.77	1.1	ug/g
			Xylenes (Total)	10.0	3.1	ug/g
L2152974-8	BH205-SS3	Volatile Organic Compounds	1,1,2,2-Tetrachloroethane	<0.20	0.05	ug/g
			1,1,2-Trichloroethane	<0.20	0.05	ug/g
		Hydrocarbons	F1 (C6-C10)	71	55	ug/g
			F1-BTEX	68	55	ug/g
			F2 (C10-C16)	331	98	ug/g
L2152974-10	BH208-SS5	Volatile Organic Compounds	1,1,2-Trichloroethane	<0.25	0.05	ug/g

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

Environmental

## Physical Tests - SOIL

Lab ID	L2152974-1	L2152974-2	L2152974-3	L2152974-4	L2152974-5	L2152974-6	L2152974-7	L2152974-8	L2152974-9
Sample Date	23-AUG-18	24-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18
Sample ID	BH201-SS2	BH202-SS5	BH214-SS2	BH215-SS2	BH216-SS2	BH201-SS4	BH204-SS4	BH205-SS3	BH207-SS4

Analyte	Unit	Guide Limits												
		#1	#2											
Conductivity	mS/cm	0.57	0.7	0.439		0.310	0.363	0.350						
% Moisture	%	-	-	13.6	17.5	12.3	19.3	21.7	15.7	12.4	12.5	17.5		
pH	pH units	-	-	7.40		7.69	7.61	6.91						

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

	Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
	Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

## Physical Tests - SOIL

Lab ID	L2152974-10	L2152974-11	L2152974-12
Sample Date	23-AUG-18	23-AUG-18	23-AUG-18
Sample ID	BH208-SS5	DUP-S202	DUP-S203

Analyte	Unit	Guide Limits				
		#1	#2			
Conductivity	mS/cm	0.57	0.7			
% Moisture	%	-	-	14.7	17.1	15.8
pH	pH units	-	-			

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

# ANALYTICAL REPORT

## Cyanides - SOIL

Lab ID	L2152974-1	L2152974-3	L2152974-4	L2152974-5
Sample Date	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18
Sample ID	BH201-SS2	BH214-SS2	BH215-SS2	BH216-SS2

Analyte	Unit	Guide Limits			
		#1	#2	#3	#4
Cyanide, Weak Acid Diss	ug/g	0.051	0.051	<0.050	<0.050

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## Saturated Paste Extractables - SOIL

Lab ID	L2152974-1	L2152974-3	L2152974-4	L2152974-5
Sample Date	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18
Sample ID	BH201-SS2	BH214-SS2	BH215-SS2	BH216-SS2

Analyte	Unit	Guide Limits					
		#1	#2				
SAR	SAR	2.4	5	0.63	5.13 <sup>SAR-M</sup>	1.99	2.29
Calcium (Ca)	mg/L	-	-	28.7	4.4	10.8	10.8
Magnesium (Mg)	mg/L	-	-	2.4	<1.0	1.5	1.0
Sodium (Na)	mg/L	-	-	13.2	38.9	26.4	29.4

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Metals - SOIL

Analyte	Unit	Guide Limits		Lab ID	Sample Date	Sample ID	
		#1	#2	L2152974-1	L2152974-3	L2152974-4	L2152974-5
				L2152974-1	23-AUG-18	BH201-SS2	
				L2152974-3	23-AUG-18	BH214-SS2	
				L2152974-4	23-AUG-18	BH215-SS2	
				L2152974-5	23-AUG-18	BH216-SS2	
Antimony (Sb)	ug/g	1.3	7.5	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	18	5.4	5.7	8.5	5.7
Barium (Ba)	ug/g	220	390	112	73.2	118	79.3
Beryllium (Be)	ug/g	2.5	4	0.80	0.60	0.66	0.60
Boron (B)	ug/g	36	120	10.7	10.0	9.6	7.0
Boron (B), Hot Water Ext.	ug/g	36	1.5	0.41	0.24	0.29	0.56
Cadmium (Cd)	ug/g	1.2	1.2	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	70	160	24.9	20.1	23.6	17.0
Cobalt (Co)	ug/g	21	22	12.1	9.2	10.5	7.7
Copper (Cu)	ug/g	92	140	28.2	24.8	30.1	25.6
Lead (Pb)	ug/g	120	120	10.8	20.9	20.7	15.1
Mercury (Hg)	ug/g	0.27	0.27	0.0240	0.0573	0.0447	0.0346
Molybdenum (Mo)	ug/g	2	6.9	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	82	100	26.3	20.4	22.2	16.1
Selenium (Se)	ug/g	1.5	2.4	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.5	20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	1	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	2.5	23	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	86	36.0	30.8	34.0	27.6
Zinc (Zn)	ug/g	290	340	64.3	59.3	75.0	98.6

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Speciated Metals - SOIL

Analyte	Unit	Guide Limits					
		#1	#2				
Chromium, Hexavalent	ug/g	0.66	8	<0.20	<0.20	0.64	<0.20

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Volatile Organic Compounds - SOIL

Analyte	Unit	Guide Limits		Lab ID	L2152974-2	L2152974-6	L2152974-7	L2152974-8	L2152974-9	L2152974-10	L2152974-11	L2152974-12
		#1	#2	Sample Date	24-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18
				Sample ID	BH202-SS5	BH201-SS4	BH204-SS4	BH205-SS3	BH207-SS4	BH208-SS5	DUP-S202	DUP-S203
Acetone	ug/g	0.5	16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	0.21	<0.0068	<0.0068	2.26	0.0400	0.0786	0.0708	0.0714	<0.0068	<0.0068
Bromodichloromethane	ug/g	0.05	1.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.15 <sup>DLVH</sup>	<0.050	<0.050	<0.050
Bromoform	ug/g	0.05	0.27	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon tetrachloride	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	ug/g	0.05	2.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	ug/g	0.05	2.3	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dibromoethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	0.05	1.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	ug/g	0.05	4.8	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	ug/g	0.05	0.083	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	ug/g	0.05	16	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	ug/g	0.05	0.47	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	ug/g	0.05	1.9	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
trans-1,2-Dichloroethylene	ug/g	0.05	0.084	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	ug/g	0.05	0.1	<0.050	<0.050	<0.35 <sup>DLVH</sup>	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
trans-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
1,3-Dichloropropene (cis & trans)	ug/g	0.05	0.05	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042
Ethylbenzene	ug/g	0.05	1.1	<0.018	<0.018	1.77	0.943	<0.018	0.060	<0.018	<0.018	<0.018
n-Hexane	ug/g	0.05	2.8	0.208	<0.050	1.49	0.054	0.072	0.210	0.076	<0.050	<0.050
Methyl Ethyl Ketone	ug/g	0.5	16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
MTBE	ug/g	0.05	0.75	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	ug/g	0.05	0.7	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use  
 Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Volatile Organic Compounds - SOIL

	Lab ID	L2152974-2	L2152974-6	L2152974-7	L2152974-8	L2152974-9	L2152974-10	L2152974-11	L2152974-12		
	Sample Date	24-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18	23-AUG-18		
	Sample ID	BH202-SS5	BH201-SS4	BH204-SS4	BH205-SS3	BH207-SS4	BH208-SS5	DUP-S202	DUP-S203		
Analyte	Unit	Guide Limits									
		#1	#2								
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.058	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.20 <sup>DLVH</sup>	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	ug/g	0.05	0.28	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	0.2	2.3	<0.080	<0.080	1.00	<0.080	<0.080	<0.080	<0.080	<0.080
1,1,1-Trichloroethane	ug/g	0.05	0.38	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.20 <sup>DLVH</sup>	<0.050	<0.25 <sup>DLVH</sup>	<0.050	<0.050
Trichloroethylene	ug/g	0.05	0.061	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	ug/g	0.25	4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	ug/g	0.02	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
o-Xylene	ug/g	-	-	<0.020	<0.020	2.73	0.443	<0.020	<0.020	<0.020	<0.020
m+p-Xylenes	ug/g	-	-	<0.030	<0.030	7.29	1.85	<0.030	0.075	<0.030	<0.030
Xylenes (Total)	ug/g	0.05	3.1	<0.050	<0.050	10.0	2.29	<0.050	0.075	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	104.5	107.7	102.6	99.6	95.6	104.2	104.4	99.0
Surrogate: 1,4-Difluorobenzene	%	-	-	106.7	113.4	99.8	107.5	97.6	101.8	105.1	104.9

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

## Hydrocarbons - SOIL

Analyte	Unit	Guide Limits																										
		#1	#2	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID										
F1 (C6-C10)	ug/g	25	55	L2152974-2	24-AUG-18	BH202-SS5	L2152974-6	23-AUG-18	BH201-SS4	L2152974-7	23-AUG-18	BH204-SS4	L2152974-8	23-AUG-18	BH205-SS3	L2152974-9	23-AUG-18	BH207-SS4	L2152974-10	23-AUG-18	BH208-SS5	L2152974-11	23-AUG-18	DUP-S202	L2152974-12	23-AUG-18	DUP-S203	
F1 (C6-C10)	ug/g	25	55	18.5	<5.0	48.0	71 <sup>DLHC</sup>	13.2	47.8	16.4	<5.0																	
F1-BTEX	ug/g	25	55	18.5	<5.0	33.0	68	13.1	47.6	16.3	<5.0																	
F2 (C10-C16)	ug/g	10	98	44	29	37	331	<10	15	13	12																	
F3 (C16-C34)	ug/g	240	300	<50	116	<50	218	<50	<50	<50	64																	
F4 (C34-C50)	ug/g	120	2800	54	64	<50	<50	<50	<50	<50	<50																	
Total Hydrocarbons (C6-C50)	ug/g	-	-	117	209	85	619	<72	<72	<72	76																	
Chrom. to baseline at nC50		-	-	YES	YES	YES	YES	YES	YES	YES	YES																	
Surrogate: 2-Bromobenzotrifluoride	%	-	-	82.1	89.2	92.9	94.5	92.1	93.2	95.3	92.4																	
Surrogate: 3,4-Dichlorotoluene	%	-	-	85.6	85.7	87.7	128.9	81.9	85.7	91.3	86.5																	

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

# Reference Information

## Qualifiers for Individual Parameters Listed:

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Qualifier	Description
DLVH	Detection Limit raised due to interference from Volatile Hydrocarbons on VOC method. Chromatographic elution of interfering peaks in the same region as test analytes prevents a

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# Reference Information

determination of whether VOC analyte is present or absent (above/below regular detection limits).

SAR:M Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

DLHC Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
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<b>B-HWS-R511-WT</b>	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B
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A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>CN-WAD-R511-WT</b>	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD
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The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>CR-CR6-IC-WT</b>	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199
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This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>EC-WT</b>	Soil	Conductivity (EC)	MOEE E3138
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A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>F1-F4-511-CALC-WT</b>	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S
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Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.



# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
<p>2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.                      3. Linearity of gasoline response within 15% throughout the calibration range.</p> <p>Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:                      1. All extraction and analysis holding times were met.                      2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.                      3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.                      4. Linearity of diesel or motor oil response within 15% throughout the calibration range.</p>			
<b>F1-HS-511-WT</b>	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS
<p>Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>F2-F4-511-WT</b>	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1
<p>Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, &amp; F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.</p> <p>Notes:                      1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.                      2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.                      3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.                      4. F4G: Gravimetric Heavy Hydrocarbons                      5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.                      6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.                      7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.                      8. This method is validated for use.                      9. Data from analysis of validation and quality control samples is available upon request.                      10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>HG-200.2-CVAA-WT</b>	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
<p>Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
<b>MET-200.2-CCMS-WT</b>	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
<p>This method uses a heated strong acid digestion with HNO<sub>3</sub> and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>MOISTURE-WT</b>	Soil	% Moisture	Gravimetric: Oven Dried
<b>PH-WT</b>	Soil	pH	MOEE E3137A

# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
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A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>SAR-R511-WT</b>	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C
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A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>VOC-1,3-DCP-CALC-WT</b>	Soil	Regulation 153 VOCs	SW8260B/SW8270C
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<b>VOC-511-HS-WT</b>	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)
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Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

<b>XYLENES-SUM-CALC-WT</b>	Soil	Sum of Xylene Isomer Concentrations	CALCULATION
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Total xylenes represents the sum of o-xylene and m&p-xylene.

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\*\*ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

17-727586

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

Laboratory Definition Code	Laboratory Location
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WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
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# Reference Information

## GLOSSARY OF REPORT TERMS

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*

*mg/kg - milligrams per kilogram based on dry weight of sample*

*mg/kg wwt - milligrams per kilogram based on wet weight of sample*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*

*mg/L - unit of concentration based on volume, parts per million.*

*< - Less than.*

*D.L. - The reporting limit.*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

*Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.*



## Quality Control Report

Workorder: L2152974

Report Date: 30-AUG-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>B-HWS-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4188118</b>							
<b>WG2861375-4</b>	<b>DUP</b>	<b>L2152974-5</b>						
Boron (B), Hot Water Ext.		0.56	0.63		ug/g	11	30	28-AUG-18
<b>WG2861375-2</b>	<b>IRM</b>	<b>HOTB-SAL_SOIL5</b>						
Boron (B), Hot Water Ext.			79.8		%		70-130	28-AUG-18
<b>WG2861375-3</b>	<b>LCS</b>							
Boron (B), Hot Water Ext.			113.9		%		70-130	28-AUG-18
<b>WG2861375-1</b>	<b>MB</b>							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	28-AUG-18
<b>CN-WAD-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191347</b>							
<b>WG2859341-3</b>	<b>DUP</b>	<b>L2147619-5</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	28-AUG-18
<b>WG2859341-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			96.1		%		80-120	28-AUG-18
<b>WG2859341-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	28-AUG-18
<b>WG2859341-4</b>	<b>MS</b>	<b>L2147619-5</b>						
Cyanide, Weak Acid Diss			99.9		%		70-130	28-AUG-18
<b>CR-CR6-IC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191887</b>							
<b>WG2859539-3</b>	<b>CRM</b>	<b>WT-SQC012</b>						
Chromium, Hexavalent			90.9		%		70-130	28-AUG-18
<b>WG2859539-4</b>	<b>DUP</b>	<b>L2147619-5</b>						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	28-AUG-18
<b>WG2859539-2</b>	<b>LCS</b>							
Chromium, Hexavalent			99.8		%		80-120	28-AUG-18
<b>WG2859539-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.20		ug/g		0.2	28-AUG-18
<b>EC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4188415</b>							
<b>WG2861362-4</b>	<b>DUP</b>	<b>WG2861362-3</b>						
Conductivity		0.339	0.374		mS/cm	9.8	20	28-AUG-18
<b>WG2861362-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Conductivity			111.1		%		70-130	28-AUG-18
<b>WG2861656-1</b>	<b>LCS</b>							
Conductivity			102.7		%		90-110	28-AUG-18
<b>WG2861362-1</b>	<b>MB</b>							



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>EC-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4188415</b>							
<b>WG2861362-1</b>	<b>MB</b>							
Conductivity			<0.0040		mS/cm		0.004	28-AUG-18
<b>F1-HS-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4185147</b>							
<b>WG2859480-4</b>	<b>DUP</b>	<b>WG2859480-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	27-AUG-18
<b>WG2859480-2</b>	<b>LCS</b>							
F1 (C6-C10)			97.2		%		80-120	27-AUG-18
<b>WG2859480-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	27-AUG-18
Surrogate: 3,4-Dichlorotoluene			95.1		%		60-140	27-AUG-18
<b>WG2859480-6</b>	<b>MS</b>	<b>L2152963-8</b>						
F1 (C6-C10)			83.9		%		60-140	27-AUG-18
<b>F2-F4-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4188881</b>							
<b>WG2859246-3</b>	<b>DUP</b>	<b>L2152550-4</b>						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	27-AUG-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	27-AUG-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	27-AUG-18
<b>WG2859246-2</b>	<b>LCS</b>							
F2 (C10-C16)			110.1		%		80-120	27-AUG-18
F3 (C16-C34)			109.9		%		80-120	27-AUG-18
F4 (C34-C50)			106.6		%		80-120	27-AUG-18
<b>WG2859246-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	27-AUG-18
F3 (C16-C34)			<50		ug/g		50	27-AUG-18
F4 (C34-C50)			<50		ug/g		50	27-AUG-18
Surrogate: 2-Bromobenzotrifluoride			85.8		%		60-140	27-AUG-18
<b>WG2859246-4</b>	<b>MS</b>	<b>L2152550-4</b>						
F2 (C10-C16)			90.3		%		60-140	27-AUG-18
F3 (C16-C34)			89.5		%		60-140	27-AUG-18
F4 (C34-C50)			90.9		%		60-140	27-AUG-18
<b>Batch</b>	<b>R4190833</b>							
<b>WG2860932-3</b>	<b>DUP</b>	<b>WG2860932-5</b>						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	29-AUG-18



## Quality Control Report

Workorder: L2152974

Report Date: 30-AUG-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F2-F4-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4190833</b>							
<b>WG2860932-3</b>	<b>DUP</b>	<b>WG2860932-5</b>						
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	29-AUG-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	29-AUG-18
<b>WG2860932-2</b>	<b>LCS</b>							
F2 (C10-C16)			105.5		%		80-120	29-AUG-18
F3 (C16-C34)			102.3		%		80-120	29-AUG-18
F4 (C34-C50)			110.1		%		80-120	29-AUG-18
<b>WG2860932-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	29-AUG-18
F3 (C16-C34)			<50		ug/g		50	29-AUG-18
F4 (C34-C50)			<50		ug/g		50	29-AUG-18
Surrogate: 2-Bromobenzotrifluoride			94.6		%		60-140	29-AUG-18
<b>WG2860932-4</b>	<b>MS</b>	<b>WG2860932-5</b>						
F2 (C10-C16)			103.9		%		60-140	29-AUG-18
F3 (C16-C34)			99.3		%		60-140	29-AUG-18
F4 (C34-C50)			106.8		%		60-140	29-AUG-18
<b>HG-200.2-CVAA-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4188098</b>							
<b>WG2861345-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Mercury (Hg)			106.1		%		70-130	28-AUG-18
<b>WG2861345-6</b>	<b>DUP</b>	<b>WG2861345-5</b>						
Mercury (Hg)		0.0346	0.0374		ug/g	8.0	40	28-AUG-18
<b>WG2861345-3</b>	<b>LCS</b>							
Mercury (Hg)			109.0		%		80-120	28-AUG-18
<b>WG2861345-1</b>	<b>MB</b>							
Mercury (Hg)			<0.0050		mg/kg		0.005	28-AUG-18
<b>MET-200.2-CCMS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4191441</b>							
<b>WG2861345-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Antimony (Sb)			92.9		%		70-130	28-AUG-18
Arsenic (As)			109.9		%		70-130	28-AUG-18
Barium (Ba)			126.4		%		70-130	28-AUG-18
Beryllium (Be)			102.0		%		70-130	28-AUG-18
Boron (B)			2.9		mg/kg		0-8.2	28-AUG-18
Cadmium (Cd)			109.4		%		70-130	28-AUG-18
Chromium (Cr)			107.2		%		70-130	28-AUG-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
<b>Soil</b>								
<b>Batch</b>	<b>R4191441</b>							
<b>WG2861345-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Cobalt (Co)			105.3		%		70-130	28-AUG-18
Copper (Cu)			106.4		%		70-130	28-AUG-18
Lead (Pb)			111.5		%		70-130	28-AUG-18
Molybdenum (Mo)			100.8		%		70-130	28-AUG-18
Nickel (Ni)			105.5		%		70-130	28-AUG-18
Selenium (Se)			0.35		mg/kg		0.11-0.51	28-AUG-18
Silver (Ag)			0.26		mg/kg		0.13-0.33	28-AUG-18
Thallium (Tl)			0.118		mg/kg		0.077-0.18	28-AUG-18
Uranium (U)			101.4		%		70-130	28-AUG-18
Vanadium (V)			105.4		%		70-130	28-AUG-18
Zinc (Zn)			101.5		%		70-130	28-AUG-18
<b>WG2861345-6</b>	<b>DUP</b>	<b>WG2861345-5</b>						
Antimony (Sb)		0.24	0.25		ug/g	3.6	30	28-AUG-18
Arsenic (As)		5.69	5.95		ug/g	4.5	30	28-AUG-18
Barium (Ba)		79.3	88.7		ug/g	11	40	28-AUG-18
Beryllium (Be)		0.60	0.63		ug/g	5.7	30	28-AUG-18
Boron (B)		7.0	7.2		ug/g	2.8	30	28-AUG-18
Cadmium (Cd)		0.240	0.258		ug/g	6.9	30	28-AUG-18
Chromium (Cr)		17.0	17.5		ug/g	2.7	30	28-AUG-18
Cobalt (Co)		7.73	8.33		ug/g	7.5	30	28-AUG-18
Copper (Cu)		25.6	28.3		ug/g	10	30	28-AUG-18
Lead (Pb)		15.1	16.5		ug/g	9.0	40	28-AUG-18
Molybdenum (Mo)		0.50	0.49		ug/g	2.5	40	28-AUG-18
Nickel (Ni)		16.1	17.4		ug/g	8.1	30	28-AUG-18
Selenium (Se)		0.45	0.52		ug/g	15	30	28-AUG-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	28-AUG-18
Thallium (Tl)		0.092	0.101		ug/g	9.4	30	28-AUG-18
Uranium (U)		0.703	0.816		ug/g	15	30	28-AUG-18
Vanadium (V)		27.6	28.8		ug/g	4.3	30	28-AUG-18
Zinc (Zn)		98.6	102		ug/g	3.8	30	28-AUG-18
<b>WG2861345-4</b>	<b>LCS</b>							
Antimony (Sb)			87.4		%		80-120	28-AUG-18
Arsenic (As)			94.9		%		80-120	28-AUG-18



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191441</b>							
<b>WG2861345-4</b>	<b>LCS</b>							
Barium (Ba)			109.7		%		80-120	28-AUG-18
Beryllium (Be)			100.6		%		80-120	28-AUG-18
Boron (B)			86.4		%		80-120	28-AUG-18
Cadmium (Cd)			101.6		%		80-120	28-AUG-18
Chromium (Cr)			100.8		%		80-120	28-AUG-18
Cobalt (Co)			99.1		%		80-120	28-AUG-18
Copper (Cu)			97.6		%		80-120	28-AUG-18
Lead (Pb)			102.8		%		80-120	28-AUG-18
Molybdenum (Mo)			93.1		%		80-120	28-AUG-18
Nickel (Ni)			98.9		%		80-120	28-AUG-18
Selenium (Se)			92.4		%		80-120	28-AUG-18
Silver (Ag)			105.8		%		80-120	28-AUG-18
Thallium (Tl)			93.1		%		80-120	28-AUG-18
Uranium (U)			98.6		%		80-120	28-AUG-18
Vanadium (V)			103.9		%		80-120	28-AUG-18
Zinc (Zn)			94.7		%		80-120	28-AUG-18
<b>WG2861345-1</b>	<b>MB</b>							
Antimony (Sb)			<0.10		mg/kg		0.1	28-AUG-18
Arsenic (As)			<0.10		mg/kg		0.1	28-AUG-18
Barium (Ba)			<0.50		mg/kg		0.5	28-AUG-18
Beryllium (Be)			<0.10		mg/kg		0.1	28-AUG-18
Boron (B)			<5.0		mg/kg		5	28-AUG-18
Cadmium (Cd)			<0.020		mg/kg		0.02	28-AUG-18
Chromium (Cr)			<0.50		mg/kg		0.5	28-AUG-18
Cobalt (Co)			<0.10		mg/kg		0.1	28-AUG-18
Copper (Cu)			<0.50		mg/kg		0.5	28-AUG-18
Lead (Pb)			<0.50		mg/kg		0.5	28-AUG-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	28-AUG-18
Nickel (Ni)			<0.50		mg/kg		0.5	28-AUG-18
Selenium (Se)			<0.20		mg/kg		0.2	28-AUG-18
Silver (Ag)			<0.10		mg/kg		0.1	28-AUG-18
Thallium (Tl)			<0.050		mg/kg		0.05	28-AUG-18
Uranium (U)			<0.050		mg/kg		0.05	28-AUG-18
Vanadium (V)			<0.20		mg/kg		0.2	28-AUG-18





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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
<b>Soil</b>								
Batch R4191441								
WG2861345-1 MB								
Zinc (Zn)			<2.0		mg/kg		2	28-AUG-18
<b>MOISTURE-WT</b>								
<b>Soil</b>								
Batch R4182921								
WG2859445-3 DUP								
% Moisture		L2152963-11 9.26	9.78		%	5.4	20	25-AUG-18
WG2859445-2 LCS								
% Moisture			98.9		%		90-110	25-AUG-18
WG2859445-1 MB								
% Moisture			<0.10		%		0.1	25-AUG-18
<b>PH-WT</b>								
<b>Soil</b>								
Batch R4185088								
WG2859490-1 DUP								
pH		L2147619-5 7.96	8.00	J	pH units	0.04	0.3	27-AUG-18
WG2860744-1 LCS								
pH			6.96		pH units		6.9-7.1	27-AUG-18
<b>SAR-R511-WT</b>								
<b>Soil</b>								
Batch R4190318								
WG2861362-4 DUP								
Calcium (Ca)		WG2861362-3 11.8	10.6		mg/L	11	30	28-AUG-18
Sodium (Na)		68.2	64.6		mg/L	5.5	30	28-AUG-18
Magnesium (Mg)		5.6	4.6		mg/L	18	30	28-AUG-18
WG2861362-2 IRM								
WT SAR2								
Calcium (Ca)			110.0		%		70-130	28-AUG-18
Sodium (Na)			106.2		%		70-130	28-AUG-18
Magnesium (Mg)			102.7		%		70-130	28-AUG-18
WG2861362-1 MB								
Calcium (Ca)			<1.0		mg/L		1	28-AUG-18
Sodium (Na)			<1.0		mg/L		1	28-AUG-18
Magnesium (Mg)			<1.0		mg/L		1	28-AUG-18
<b>VOC-511-HS-WT</b>								
<b>Soil</b>								
Batch R4185147								
WG2859480-4 DUP								
1,1,1,2-Tetrachloroethane		WG2859480-3 <0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4185147</b>							
<b>WG2859480-4</b>	<b>DUP</b>	<b>WG2859480-3</b>						
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-AUG-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	27-AUG-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-AUG-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	27-AUG-18
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-AUG-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-AUG-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-AUG-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-AUG-18
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Toluene		<0.080	<0.080		ug/g			27-AUG-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4185147</b>							
<b>WG2859480-4</b>	<b>DUP</b>	<b>WG2859480-3</b>						
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	27-AUG-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-AUG-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	27-AUG-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-AUG-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-AUG-18
<b>WG2859480-2</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			101.5		%		60-130	27-AUG-18
1,1,2,2-Tetrachloroethane			105.0		%		60-130	27-AUG-18
1,1,1-Trichloroethane			104.0		%		60-130	27-AUG-18
1,1,2-Trichloroethane			104.6		%		60-130	27-AUG-18
1,1-Dichloroethane			178.3	LCS-H	%		60-130	27-AUG-18
1,1-Dichloroethylene			95.7		%		60-130	27-AUG-18
1,2-Dibromoethane			103.5		%		70-130	27-AUG-18
1,2-Dichlorobenzene			107.4		%		70-130	27-AUG-18
1,2-Dichloroethane			108.0		%		60-130	27-AUG-18
1,2-Dichloropropane			104.8		%		70-130	27-AUG-18
1,3-Dichlorobenzene			107.1		%		70-130	27-AUG-18
1,4-Dichlorobenzene			106.9		%		70-130	27-AUG-18
Acetone			115.8		%		60-140	27-AUG-18
Benzene			105.3		%		70-130	27-AUG-18
Bromodichloromethane			108.7		%		50-140	27-AUG-18
Bromoform			105.2		%		70-130	27-AUG-18
Bromomethane			79.9		%		50-140	27-AUG-18
Carbon tetrachloride			103.9		%		70-130	27-AUG-18
Chlorobenzene			106.0		%		70-130	27-AUG-18
Chloroform			107.3		%		70-130	27-AUG-18
cis-1,2-Dichloroethylene			105.8		%		70-130	27-AUG-18
cis-1,3-Dichloropropene			108.4		%		70-130	27-AUG-18
Dibromochloromethane			105.5		%		60-130	27-AUG-18
Dichlorodifluoromethane			84.0		%		50-140	27-AUG-18
Ethylbenzene			101.5		%		70-130	27-AUG-18
n-Hexane			116.8		%		70-130	27-AUG-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4185147</b>							
<b>WG2859480-2</b>	<b>LCS</b>							
Methylene Chloride			105.1		%		70-130	27-AUG-18
MTBE			106.3		%		70-130	27-AUG-18
m+p-Xylenes			104.6		%		70-130	27-AUG-18
Methyl Ethyl Ketone			145.8	MES	%		60-140	27-AUG-18
Methyl Isobutyl Ketone			102.0		%		60-140	27-AUG-18
o-Xylene			101.0		%		70-130	27-AUG-18
Styrene			101.3		%		70-130	27-AUG-18
Tetrachloroethylene			104.2		%		60-130	27-AUG-18
Toluene			103.1		%		70-130	27-AUG-18
trans-1,2-Dichloroethylene			102.1		%		60-130	27-AUG-18
trans-1,3-Dichloropropene			103.2		%		70-130	27-AUG-18
Trichloroethylene			108.5		%		60-130	27-AUG-18
Trichlorofluoromethane			107.0		%		50-140	27-AUG-18
Vinyl chloride			90.8		%		60-140	27-AUG-18
<b>WG2859480-1</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	27-AUG-18
1,1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	27-AUG-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	27-AUG-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	27-AUG-18
1,1-Dichloroethane			<0.050		ug/g		0.05	27-AUG-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	27-AUG-18
1,2-Dibromoethane			<0.050		ug/g		0.05	27-AUG-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	27-AUG-18
1,2-Dichloroethane			<0.050		ug/g		0.05	27-AUG-18
1,2-Dichloropropane			<0.050		ug/g		0.05	27-AUG-18
1,3-Dichlorobenzene			<0.050		ug/g		0.05	27-AUG-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	27-AUG-18
Acetone			<0.50		ug/g		0.5	27-AUG-18
Benzene			<0.0068		ug/g		0.0068	27-AUG-18
Bromodichloromethane			<0.050		ug/g		0.05	27-AUG-18
Bromoform			<0.050		ug/g		0.05	27-AUG-18
Bromomethane			<0.050		ug/g		0.05	27-AUG-18
Carbon tetrachloride			<0.050		ug/g		0.05	27-AUG-18
Chlorobenzene			<0.050		ug/g		0.05	27-AUG-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4185147</b>							
<b>WG2859480-1</b>	<b>MB</b>							
Chloroform			<0.050		ug/g		0.05	27-AUG-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-AUG-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	27-AUG-18
Dibromochloromethane			<0.050		ug/g		0.05	27-AUG-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	27-AUG-18
Ethylbenzene			<0.018		ug/g		0.018	27-AUG-18
n-Hexane			<0.050		ug/g		0.05	27-AUG-18
Methylene Chloride			<0.050		ug/g		0.05	27-AUG-18
MTBE			<0.050		ug/g		0.05	27-AUG-18
m+p-Xylenes			<0.030		ug/g		0.03	27-AUG-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	27-AUG-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	27-AUG-18
o-Xylene			<0.020		ug/g		0.02	27-AUG-18
Styrene			<0.050		ug/g		0.05	27-AUG-18
Tetrachloroethylene			<0.050		ug/g		0.05	27-AUG-18
Toluene			<0.080		ug/g		0.08	27-AUG-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-AUG-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	27-AUG-18
Trichloroethylene			<0.010		ug/g		0.01	27-AUG-18
Trichlorofluoromethane			<0.050		ug/g		0.05	27-AUG-18
Vinyl chloride			<0.020		ug/g		0.02	27-AUG-18
Surrogate: 1,4-Difluorobenzene			105.9		%		50-140	27-AUG-18
Surrogate: 4-Bromofluorobenzene			100.7		%		50-140	27-AUG-18
<b>WG2859480-5</b>	<b>MS</b>	<b>L2152963-7</b>						
1,1,1,2-Tetrachloroethane			103.3		%		50-140	27-AUG-18
1,1,1,2-Tetrachloroethane			105.3		%		50-140	27-AUG-18
1,1,1-Trichloroethane			107.2		%		50-140	27-AUG-18
1,1,2-Trichloroethane			105.8		%		50-140	27-AUG-18
1,1-Dichloroethane			187.0	RRQC	%		50-140	27-AUG-18
1,1-Dichloroethylene			99.0		%		50-140	27-AUG-18
1,2-Dibromoethane			103.6		%		50-140	27-AUG-18
1,2-Dichlorobenzene			108.5		%		50-140	27-AUG-18
1,2-Dichloroethane			108.1		%		50-140	27-AUG-18
1,2-Dichloropropane			106.3		%		50-140	27-AUG-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4185147</b>							
<b>WG2859480-5 MS</b>		<b>L2152963-7</b>						
1,3-Dichlorobenzene			107.4		%		50-140	27-AUG-18
1,4-Dichlorobenzene			107.8		%		50-140	27-AUG-18
Acetone			114.9		%		50-140	27-AUG-18
Benzene			107.5		%		50-140	27-AUG-18
Bromodichloromethane			110.2		%		50-140	27-AUG-18
Bromoform			105.0		%		50-140	27-AUG-18
Bromomethane			81.5		%		50-140	27-AUG-18
Carbon tetrachloride			107.4		%		50-140	27-AUG-18
Chlorobenzene			107.8		%		50-140	27-AUG-18
Chloroform			109.9		%		50-140	27-AUG-18
cis-1,2-Dichloroethylene			107.6		%		50-140	27-AUG-18
cis-1,3-Dichloropropene			109.0		%		50-140	27-AUG-18
Dibromochloromethane			107.0		%		50-140	27-AUG-18
Dichlorodifluoromethane			86.8		%		50-140	27-AUG-18
Ethylbenzene			103.6		%		50-140	27-AUG-18
n-Hexane			120.6		%		50-140	27-AUG-18
Methylene Chloride			106.5		%		50-140	27-AUG-18
MTBE			109.6		%		50-140	27-AUG-18
m+p-Xylenes			106.2		%		50-140	27-AUG-18
Methyl Ethyl Ketone			105.8		%		50-140	27-AUG-18
Methyl Isobutyl Ketone			98.8		%		50-140	27-AUG-18
o-Xylene			101.9		%		50-140	27-AUG-18
Styrene			99.8		%		50-140	27-AUG-18
Tetrachloroethylene			106.5		%		50-140	27-AUG-18
Toluene			105.8		%		50-140	27-AUG-18
trans-1,2-Dichloroethylene			103.8		%		50-140	27-AUG-18
trans-1,3-Dichloropropene			102.1		%		50-140	27-AUG-18
Trichloroethylene			110.3		%		50-140	27-AUG-18
Trichlorofluoromethane			111.2		%		50-140	27-AUG-18
Vinyl chloride			93.8		%		50-140	27-AUG-18

COMMENTS: RRQC-Matrix Spike Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.

# Quality Control Report

Workorder: L2152974

Report Date: 30-AUG-18

Client: Sirati & Partners Consultants Ltd. (Concord)  
12700 Keele St  
King City ON L7B 1H5  
Contact: CHAORAN LI

Page 12 of 12

## Legend:

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Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

---

## Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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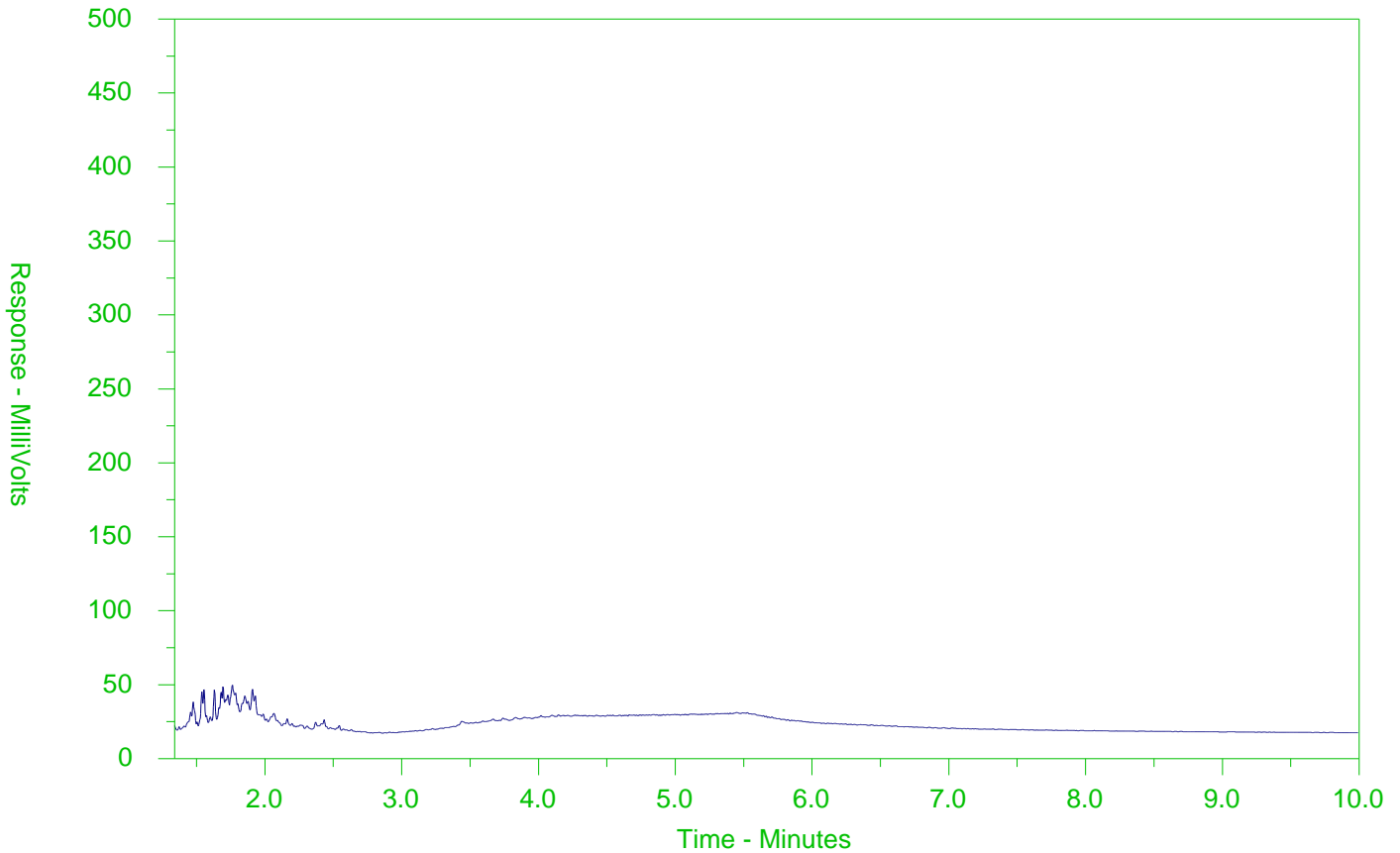
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2152974-2  
 Client Sample ID: BH202-SS5



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

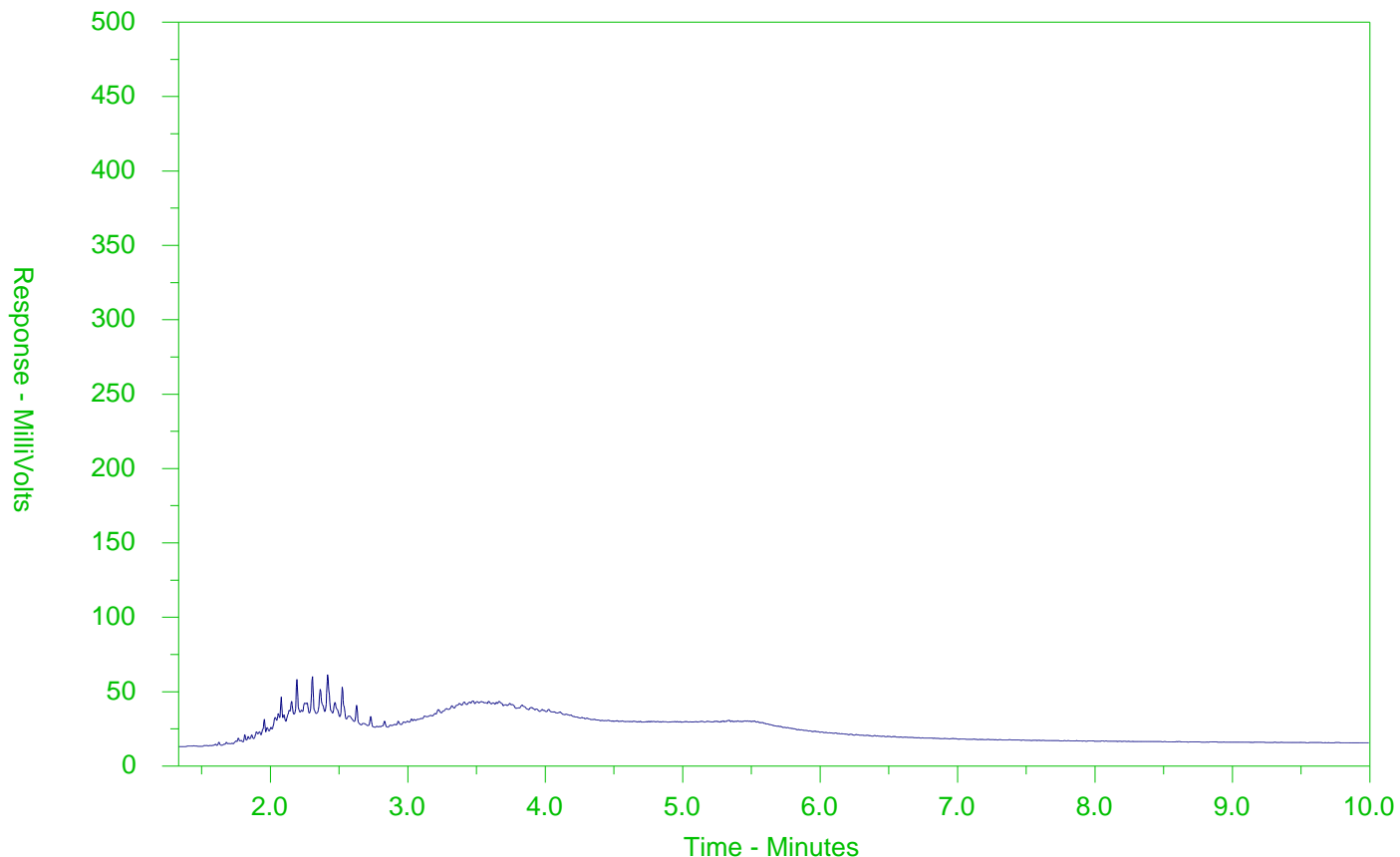
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2152974-6  
 Client Sample ID: BH201-SS4



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

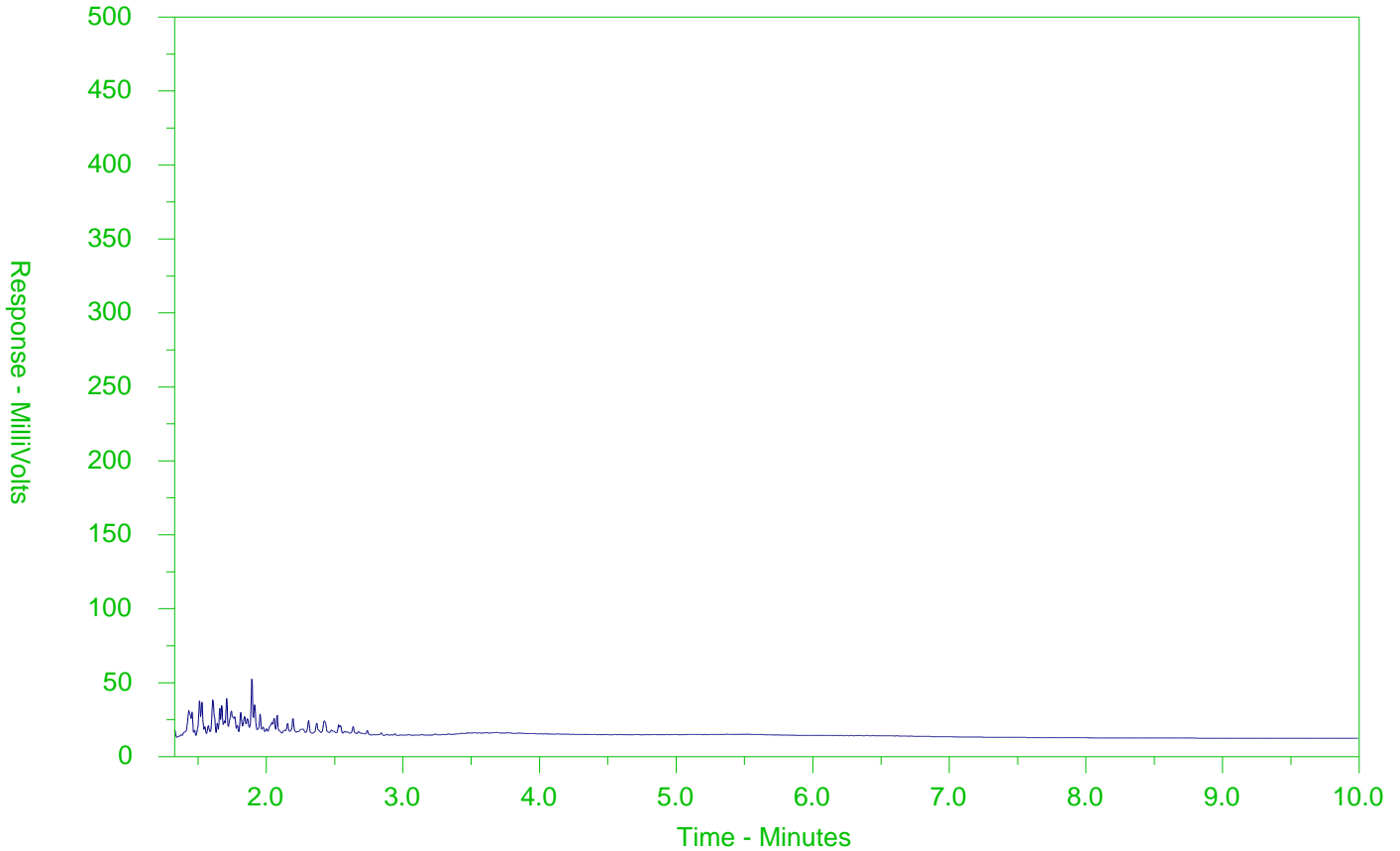
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2152974-7  
 Client Sample ID: BH204-SS4



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

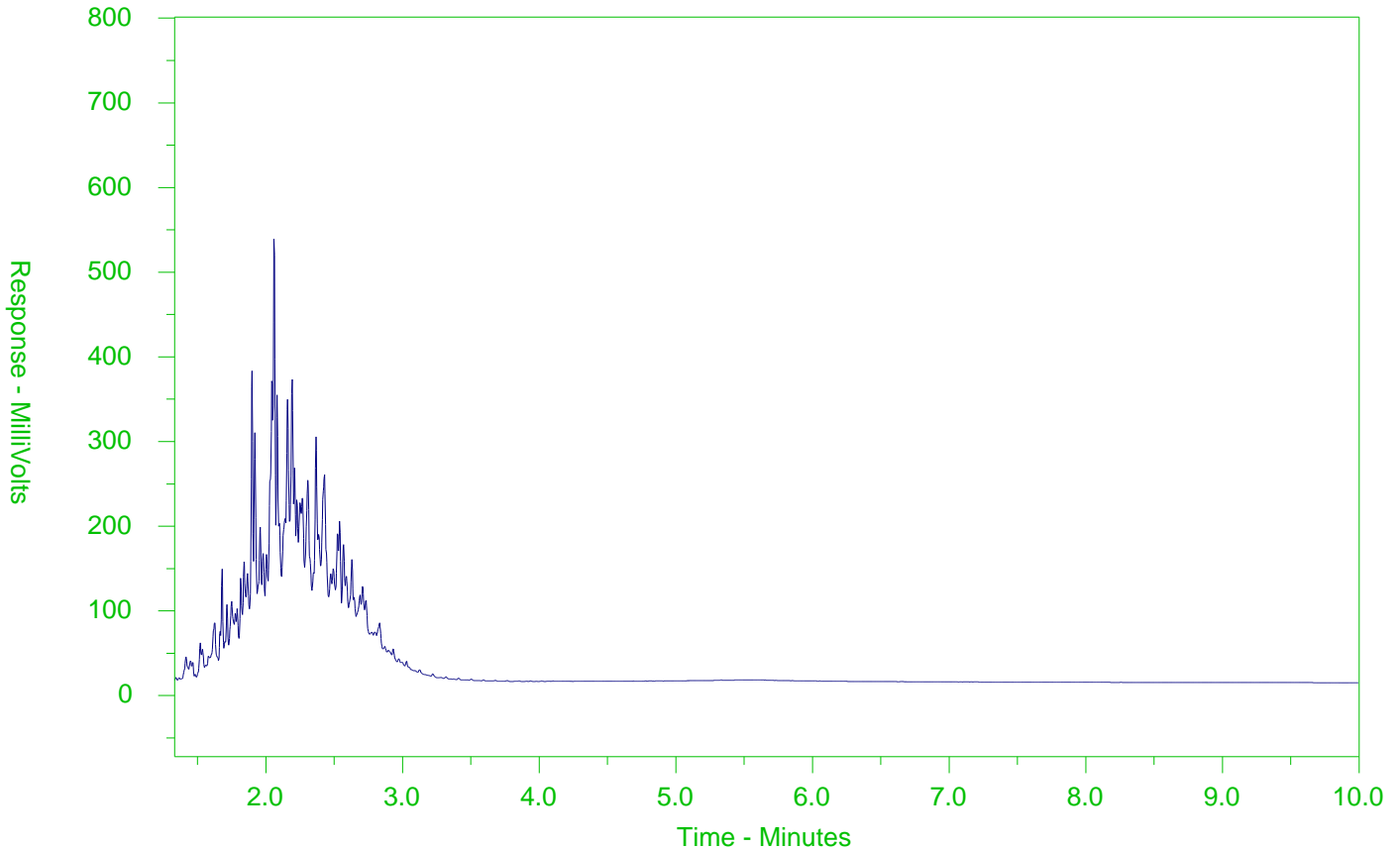
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2152974-8  
 Client Sample ID: BH205-SS3



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

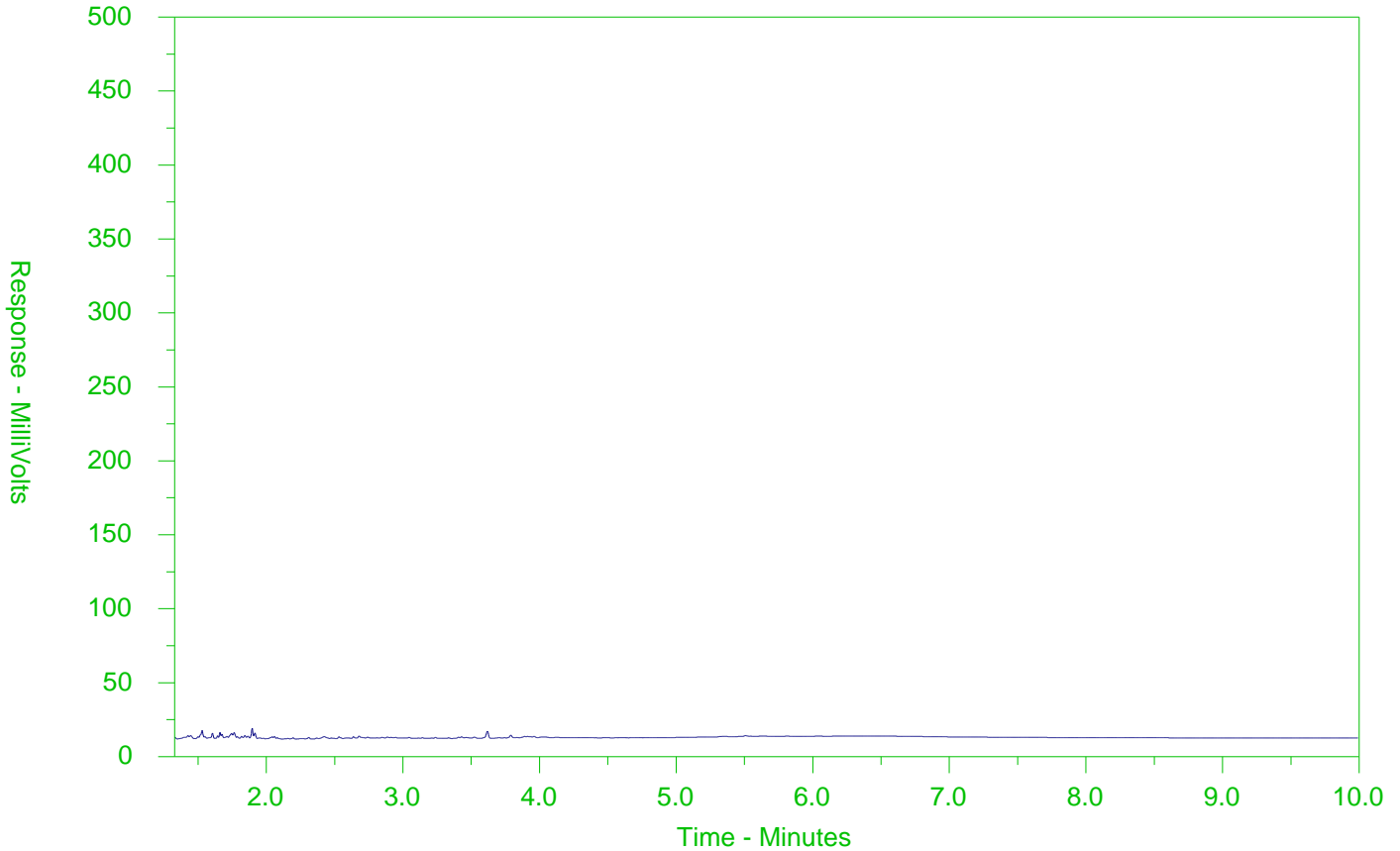
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

**Note:** This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2152974-9  
 Client Sample ID: BH207-SS4



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

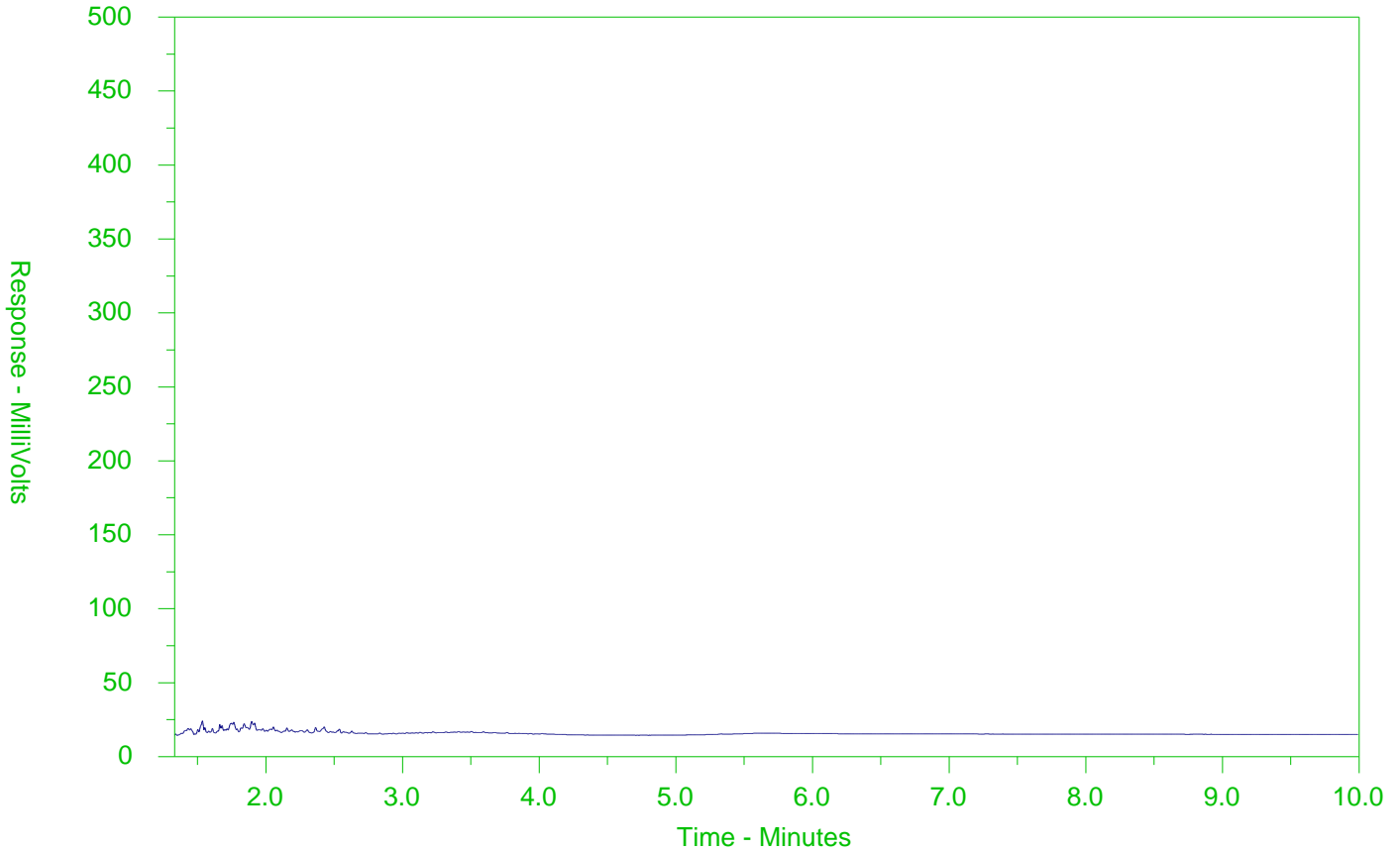
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2152974-10  
 Client Sample ID: BH208-SS5



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

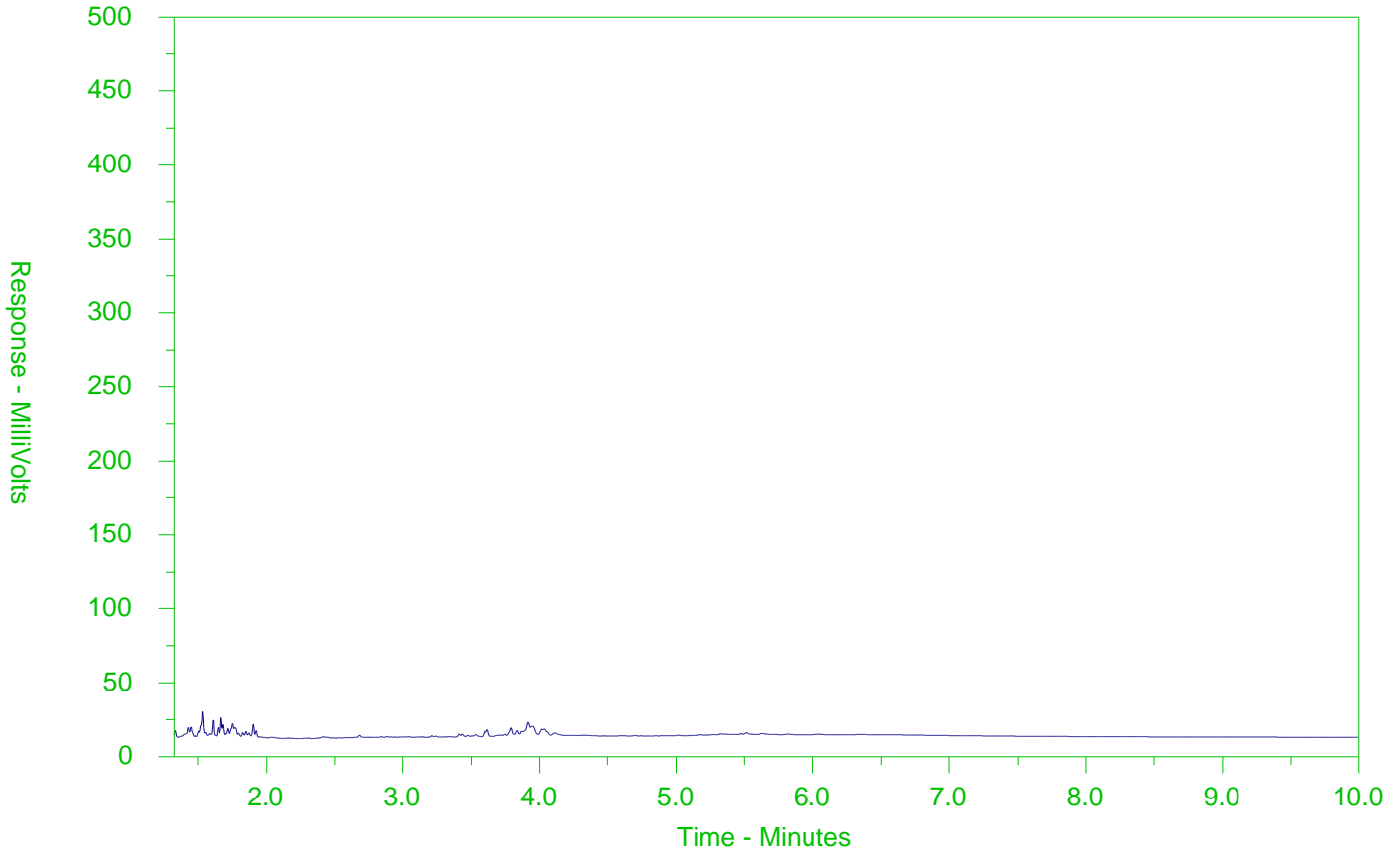
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2152974-11  
 Client Sample ID: DUP-S202



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

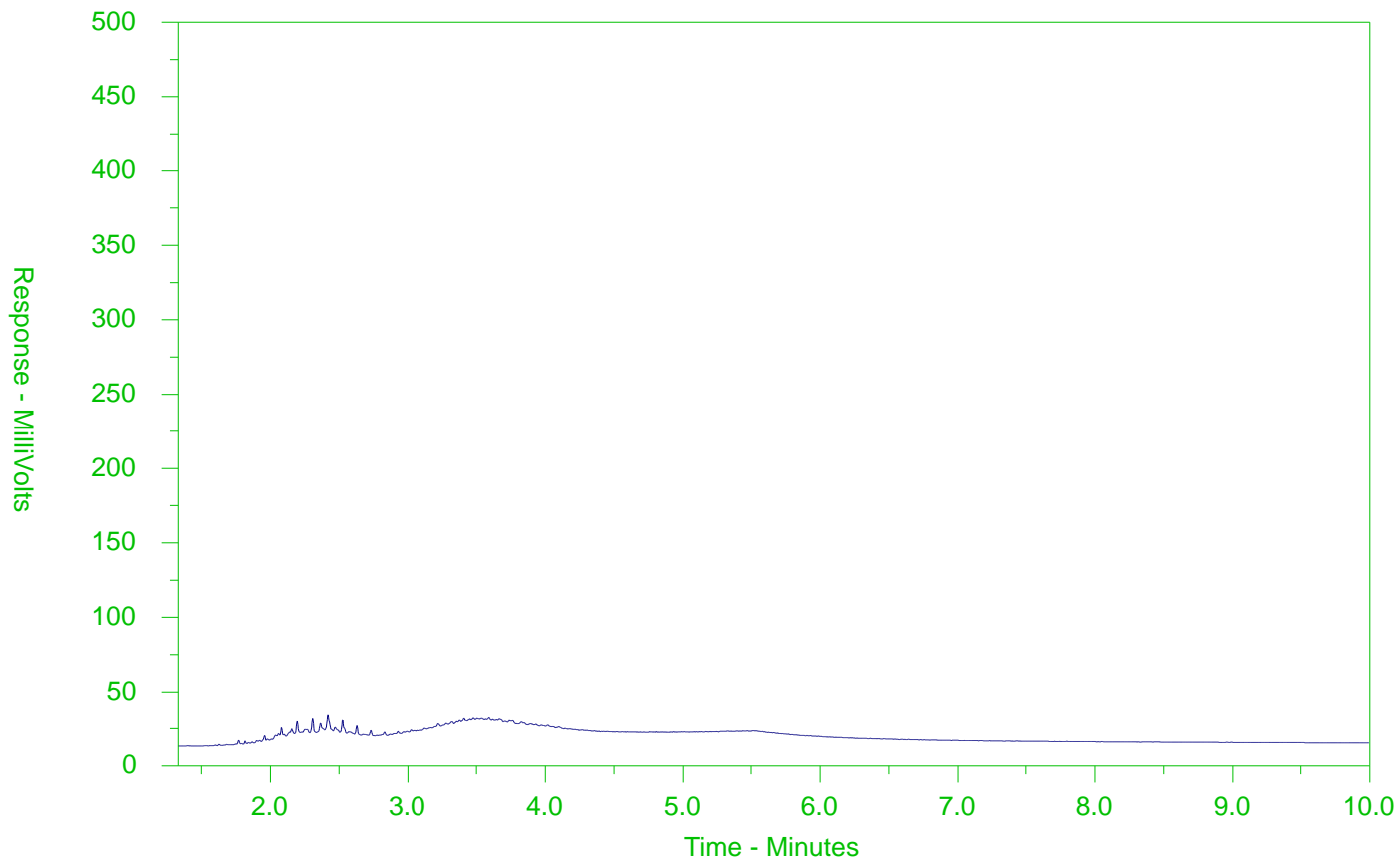
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2152974-12  
 Client Sample ID: DUP-S203



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).







Sirati & Partners Consultants Ltd.  
(Concord)  
ATTN: Dr. Giorgio Garofalo  
12700 Keele St  
King City ON L7B 1H5

Date Received: 24-AUG-18  
Report Date: 06-SEP-18 09:01 (MT)  
Version: FINAL

Client Phone: 905-833-1582

## Certificate of Analysis

Lab Work Order #: L2153058  
Project P.O. #: SP18-306-20  
Job Reference: SP18-306-20  
C of C Numbers:  
Legal Site Desc:

Rick Hawthorne  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927  
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

## Summary of Guideline Exceedances

Guideline	ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use</b>							
	L2153058-2	BH218-SS4	Volatile Organic Compounds	Xylenes (Total)	0.136	0.05	ug/g
	L2153058-4	BH209-SS7	Volatile Organic Compounds	Benzene	0.0886	0.02	ug/g
				Bromodichloromethane	0.608	0.05	ug/g
				Chloroform	0.626	0.05	ug/g
				1,2-Dibromoethane	<0.24	0.05	ug/g
				1,2-Dichloroethane	<0.070	0.05	ug/g
				Ethylbenzene	0.086	0.05	ug/g
				n-Hexane	8.18	0.05	ug/g
				1,1,2,2-Tetrachloroethane	<0.25	0.05	ug/g
				1,1,2-Trichloroethane	<0.32	0.05	ug/g
			Hydrocarbons	F1 (C6-C10)	208	25	ug/g
				F1-BTEX	208	25	ug/g
				F2 (C10-C16)	81	10	ug/g
	L2153058-5	BH210-SS5	Volatile Organic Compounds	Benzene	0.0326	0.02	ug/g
				Bromodichloromethane	0.137	0.05	ug/g
				Chloroform	<0.065	0.05	ug/g
				n-Hexane	0.207	0.05	ug/g
				Xylenes (Total)	0.094	0.05	ug/g
			Hydrocarbons	F2 (C10-C16)	24	10	ug/g
				F3 (C16-C34)	340	240	ug/g
				F4 (C34-C50)	890	120	ug/g
				F4G-SG (GHH-Silica)	2430	120	ug/g
	L2153058-6	BH211-SS3	Physical Tests	Conductivity	1.72	0.57	mS/cm
			Saturated Paste Extractables	SAR	25.5	2.4	SAR
	L2153058-7	BH212-SS3	Physical Tests	Conductivity	1.59	0.57	mS/cm
			Saturated Paste Extractables	SAR	13.0	2.4	SAR
	L2153058-8	BH213-SS3	Physical Tests	Conductivity	0.672	0.57	mS/cm
			Saturated Paste Extractables	SAR	5.16	2.4	SAR
	L2153058-9	DUP-S201	Physical Tests	Conductivity	0.684	0.57	mS/cm
			Saturated Paste Extractables	SAR	5.11	2.4	SAR
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Res/Park/Inst. Property Use (Coarse)</b>							
	L2153058-4	BH209-SS7	Volatile Organic Compounds	Chloroform	0.626	0.05	ug/g
				1,2-Dibromoethane	<0.24	0.05	ug/g
				1,2-Dichloroethane	<0.070	0.05	ug/g

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit	
ALS ID	Client ID						
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Res/Park/Inst. Property Use (Coarse)</b>							
L2153058-4	BH209-SS7	Volatile Organic Compounds	n-Hexane	8.18	2.8	ug/g	
			1,1,2,2-Tetrachloroethane	<0.25	0.05	ug/g	
			1,1,2-Trichloroethane	<0.32	0.05	ug/g	
			Hydrocarbons	F1 (C6-C10)	208	55	ug/g
				F1-BTEX	208	55	ug/g
L2153058-5	BH210-SS5	Volatile Organic Compounds	Chloroform	<0.065	0.05	ug/g	
		Hydrocarbons	F3 (C16-C34)	340	300	ug/g	
L2153058-6	BH211-SS3	Physical Tests	Conductivity	1.72	0.7	mS/cm	
		Saturated Paste Extractables	SAR	25.5	5	SAR	
L2153058-7	BH212-SS3	Physical Tests	Conductivity	1.59	0.7	mS/cm	
		Saturated Paste Extractables	SAR	13.0	5	SAR	
L2153058-8	BH213-SS3	Saturated Paste Extractables	SAR	5.16	5	SAR	
L2153058-9	DUP-S201	Saturated Paste Extractables	SAR	5.11	5	SAR	

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT


## Physical Tests - SOIL


Lab ID	L2153058-1	L2153058-2	L2153058-3	L2153058-4	L2153058-5	L2153058-6	L2153058-7	L2153058-8	L2153058-9
Sample Date	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18
Sample ID	BH217-SS4	BH218-SS4	BH206-SS5	BH209-SS7	BH210-SS5	BH211-SS3	BH212-SS3	BH213-SS3	DUP-S201

Analyte	Unit	Guide Limits										
		#1	#2									
Conductivity	mS/cm	0.57	0.7						1.72	1.59	0.672	0.684
% Moisture	%	-	-	16.3	17.1	8.06	13.8	20.6	17.4	14.7	15.6	17.3
pH	pH units	-	-						6.98	7.33	7.12	7.18

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

# ANALYTICAL REPORT

## Cyanides - SOIL

Lab ID	L2153058-6	L2153058-7	L2153058-8	L2153058-9
Sample Date	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18
Sample ID	BH211-SS3	BH212-SS3	BH213-SS3	DUP-S201

Analyte	Unit	Guide Limits					
		#1	#2				
Cyanide, Weak Acid Diss	ug/g	0.051	0.051	<0.050	<0.050	<0.050	<0.050

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Saturated Paste Extractables - SOIL

Lab ID	L2153058-6	L2153058-7	L2153058-8	L2153058-9
Sample Date	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18
Sample ID	BH211-SS3	BH212-SS3	BH213-SS3	DUP-S201

Analyte	Unit	Guide Limits					
		#1	#2				
SAR	SAR	2.4	5	25.5	13.0	5.16	5.11
Calcium (Ca)	mg/L	-	-	12.7	28.4	17.1	17.8
Magnesium (Mg)	mg/L	-	-	1.1	2.4	1.6	1.6
Sodium (Na)	mg/L	-	-	352	269	83.4	83.8

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Metals - SOIL

Analyte	Unit	Guide Limits					
		#1	#2				
		<b>Lab ID</b>	L2153058-6	L2153058-7	L2153058-8	L2153058-9	
		<b>Sample Date</b>	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18	
		<b>Sample ID</b>	BH211-SS3	BH212-SS3	BH213-SS3	DUP-S201	
Antimony (Sb)	ug/g	1.3	7.5	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	18	6.2	4.9	4.3	5.2
Barium (Ba)	ug/g	220	390	95.6	61.4	51.6	60.8
Beryllium (Be)	ug/g	2.5	4	0.83	0.59	0.52	0.58
Boron (B)	ug/g	36	120	7.5	5.2	5.1	5.9
Boron (B), Hot Water Ext.	ug/g	36	1.5	0.89	0.30	0.35	0.27
Cadmium (Cd)	ug/g	1.2	1.2	0.52	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	70	160	27.3	21.2	17.7	21.0
Cobalt (Co)	ug/g	21	22	12.9	10.0	8.6	10.2
Copper (Cu)	ug/g	92	140	39.2	22.4	25.3	27.4
Lead (Pb)	ug/g	120	120	20.3	8.8	9.0	9.1
Mercury (Hg)	ug/g	0.27	0.27	0.0390	0.0239	0.0255	0.0244
Molybdenum (Mo)	ug/g	2	6.9	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	82	100	29.2	21.3	19.8	22.7
Selenium (Se)	ug/g	1.5	2.4	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.5	20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	1	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	2.5	23	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	86	39.9	30.6	29.2	33.1
Zinc (Zn)	ug/g	290	340	80.7	49.3	41.7	49.1

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

# ANALYTICAL REPORT

## Speciated Metals - SOIL

		Lab ID	L2153058-6	L2153058-7	L2153058-8	L2153058-9
	Sample Date	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18	21-AUG-18
	Sample ID	BH211-SS3	BH212-SS3	BH213-SS3	DUP-S201	
Guide Limits						
Analyte	Unit	Guide Limits				
		#1	#2			
Chromium, Hexavalent	ug/g	0.66	8	<0.20	0.50	<0.20

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## Volatile Organic Compounds - SOIL

Analyte	Unit	Guide Limits		Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	
		#1	#2	L2153058-1	21-AUG-18	BH217-SS4	L2153058-2	21-AUG-18	BH218-SS4	L2153058-3	21-AUG-18	BH206-SS5	L2153058-4	21-AUG-18	BH209-SS7	L2153058-5
Acetone	ug/g	0.5	16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Benzene	ug/g	0.02	0.21	<0.0068	0.0104	<0.0068	0.0886	0.0326								
Bromodichloromethane	ug/g	0.05	1.5	<0.050	<0.050	<0.050	0.608	0.137								
Bromoform	ug/g	0.05	0.27	<0.050	<0.050	<0.050	<0.050	<0.050								
Bromomethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050								
Carbon tetrachloride	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050								
Chlorobenzene	ug/g	0.05	2.4	<0.050	<0.050	<0.050	<0.050	<0.050								
Dibromochloromethane	ug/g	0.05	2.3	<0.050	<0.050	<0.050	<0.050	<0.050								
Chloroform	ug/g	0.05	0.05	<0.050	<0.050	<0.050	0.626	<0.065 <sup>DLVH</sup>								
1,2-Dibromoethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.24 <sup>DLVH</sup>	<0.050								
1,2-Dichlorobenzene	ug/g	0.05	1.2	<0.050	<0.050	<0.050	<0.050	<0.050								
1,3-Dichlorobenzene	ug/g	0.05	4.8	<0.050	<0.050	<0.050	<0.050	<0.050								
1,4-Dichlorobenzene	ug/g	0.05	0.083	<0.050	<0.050	<0.050	<0.050	<0.050								
Dichlorodifluoromethane	ug/g	0.05	16	<0.050	<0.050	<0.050	<0.050	<0.050								
1,1-Dichloroethane	ug/g	0.05	0.47	<0.050	<0.050	<0.050	<0.050	<0.050								
1,2-Dichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.070 <sup>DLVH</sup>	<0.050								
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050								
cis-1,2-Dichloroethylene	ug/g	0.05	1.9	<0.050	<0.050	<0.050	<0.050	<0.050								
trans-1,2-Dichloroethylene	ug/g	0.05	0.084	<0.050	<0.050	<0.050	<0.050	<0.050								
Methylene Chloride	ug/g	0.05	0.1	<0.050	<0.050	<0.050	<0.050	<0.050								
1,2-Dichloropropane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050								
cis-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030	<0.030								
trans-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030	<0.030								
1,3-Dichloropropene (cis & trans)	ug/g	0.05	0.05	<0.042	<0.042	<0.042	<0.042	<0.042								
Ethylbenzene	ug/g	0.05	1.1	<0.018	0.034	<0.018	0.086	<0.018								
n-Hexane	ug/g	0.05	2.8	<0.050	<0.050	<0.050	8.18	0.207								
Methyl Ethyl Ketone	ug/g	0.5	16	<0.50	<0.50	<0.50	<0.50	<0.50								
Methyl Isobutyl Ketone	ug/g	0.5	1.7	<0.50	<0.50	<0.50	<0.50	<0.50								
MTBE	ug/g	0.05	0.75	<0.050	<0.050	<0.050	<0.050	<0.050								
Styrene	ug/g	0.05	0.7	<0.050	<0.050	<0.050	<0.050	<0.050								

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use  
 Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Volatile Organic Compounds - SOIL

Analyte	Unit	Guide Limits		Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	Lab ID	Sample Date	Sample ID	
		#1	#2	L2153058-1	21-AUG-18	BH217-SS4	L2153058-2	21-AUG-18	BH218-SS4	L2153058-3	21-AUG-18	BH206-SS5	L2153058-4	21-AUG-18	BH209-SS7	L2153058-5
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.058	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25 <sup>DLVH</sup>	<0.050	<0.050	<0.050	<0.050	
Tetrachloroethylene	ug/g	0.05	0.28	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Toluene	ug/g	0.2	2.3	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	
1,1,1-Trichloroethane	ug/g	0.05	0.38	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.32 <sup>DLVH</sup>	<0.050	<0.050	<0.050	<0.050	
Trichloroethylene	ug/g	0.05	0.061	0.027	0.014	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Trichlorofluoromethane	ug/g	0.25	4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Vinyl chloride	ug/g	0.02	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
m+p-Xylenes	ug/g	-	-	<0.030	0.136	<0.030	0.036	0.094	<0.030	0.036	0.094	<0.030	0.036	0.094	<0.030	
Xylenes (Total)	ug/g	0.05	3.1	<0.050	0.136	<0.050	<0.050	0.094	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Surrogate: 4-Bromofluorobenzene	%	-	-	92.5	100.7	107.9	119.0	114.2	92.5	100.7	107.9	119.0	114.2	92.5	114.2	
Surrogate: 1,4-Difluorobenzene	%	-	-	102.4	105.7	106.2	100.2	110.5	102.4	105.7	106.2	100.2	110.5	102.4	110.5	

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## ANALYTICAL REPORT

## Hydrocarbons - SOIL

Lab ID	L2153058-3	L2153058-4	L2153058-5
Sample Date	21-AUG-18	21-AUG-18	21-AUG-18
Sample ID	BH206-SS5	BH209-SS7	BH210-SS5

Analyte	Unit	Guide Limits				
		#1	#2			
F1 (C6-C10)	ug/g	25	55	<5.0	208	12.1
F1-BTEX	ug/g	25	55	<5.0	208	12.0
F2 (C10-C16)	ug/g	10	98	<10	81	24 <sup>DLM</sup>
F3 (C16-C34)	ug/g	240	300	<50	<50	340 <sup>DLM</sup>
F4 (C34-C50)	ug/g	120	2800	<50	<50	890 <sup>DLM</sup>
F4G-SG (GHH-Silica)	ug/g	120	2800			2430
Total Hydrocarbons (C6-C50)	ug/g	-	-	<72	289	1270
Chrom. to baseline at nC50		-	-	YES	YES	NO
Surrogate: 2-Bromobenzotrifluoride	%	-	-	88.7	94.9	97.1
Surrogate: 3,4-Dichlorotoluene	%	-	-	79.3	80.3	73.1

**Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

**Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Coarse)**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

# Reference Information

## Qualifiers for Individual Parameters Listed:

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Qualifier	Description
DLVH	Detection Limit raised due to interference from Volatile Hydrocarbons on VOC method. Chromatographic elution of interfering peaks in the same region as test analytes prevents a

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# Reference Information

determination of whether VOC analyte is present or absent (above/below regular detection limits).

DLM Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
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<b>B-HWS-R511-WT</b>	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B
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A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>CN-WAD-R511-WT</b>	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD
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The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>CR-CR6-IC-WT</b>	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199
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This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>EC-WT</b>	Soil	Conductivity (EC)	MOEE E3138
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A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

<b>F1-F4-511-CALC-WT</b>	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S
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Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

# Reference Information

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

**F1-HS-511-WT**      Soil      F1-O.Reg 153/04 (July 2011)      E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

**F2-F4-511-WT**      Soil      F2-F4-O.Reg 153/04 (July 2011)      CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

### Notes:

1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

**F4G-ADD-511-WT**      Soil      F4G SG-O.Reg 153/04 (July 2011)      MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**HG-200.2-CVAA-WT**      Soil      Mercury in Soil by CVAAS      EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**MET-200.2-CCMS-WT**      Soil      Metals in Soil by CRC ICPMS      EPA 200.2/6020A (mod)

This method uses a heated strong acid digestion with HNO<sub>3</sub> and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
<b>MOISTURE-WT</b>	Soil	% Moisture	Gravimetric: Oven Dried
<b>PH-WT</b>	Soil	pH	MOEE E3137A
<p>A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
<b>SAR-R511-WT</b>	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C
<p>A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
<b>VOC-1,3-DCP-CALC-WT</b>	Soil	Regulation 153 VOCs	SW8260B/SW8270C
<b>VOC-511-HS-WT</b>	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)
<p>Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>XYLENES-SUM-CALC-WT</b>	Soil	Sum of Xylene Isomer Concentrations	CALCULATION
<p>Total xylenes represents the sum of o-xylene and m&amp;p-xylene.</p>			

\*\*ALS test methods may incorporate modifications from specified reference methods to improve performance.

**Chain of Custody Numbers:**

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

# Reference Information

## GLOSSARY OF REPORT TERMS

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*

*mg/kg - milligrams per kilogram based on dry weight of sample*

*mg/kg wwt - milligrams per kilogram based on wet weight of sample*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*

*mg/L - unit of concentration based on volume, parts per million.*

*< - Less than.*

*D.L. - The reporting limit.*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

*Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.*





## Quality Control Report

Workorder: L2153058

Report Date: 06-SEP-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>B-HWS-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191634</b>							
<b>WG2862085-4</b>	<b>DUP</b>	<b>L2153109-4</b>						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	29-AUG-18
<b>WG2862085-2</b>	<b>IRM</b>	<b>HOTB-SAL_SOIL5</b>						
Boron (B), Hot Water Ext.			87.1		%		70-130	29-AUG-18
<b>WG2862085-3</b>	<b>LCS</b>							
Boron (B), Hot Water Ext.			110.6		%		70-130	29-AUG-18
<b>WG2862085-1</b>	<b>MB</b>							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	29-AUG-18
<b>CN-WAD-R511-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191347</b>							
<b>WG2859341-3</b>	<b>DUP</b>	<b>L2147619-5</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	28-AUG-18
<b>WG2859341-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			96.1		%		80-120	28-AUG-18
<b>WG2859341-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	28-AUG-18
<b>WG2859341-4</b>	<b>MS</b>	<b>L2147619-5</b>						
Cyanide, Weak Acid Diss			99.9		%		70-130	28-AUG-18
<b>Batch</b>	<b>R4192253</b>							
<b>WG2861940-3</b>	<b>DUP</b>	<b>L2153109-21</b>						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	29-AUG-18
<b>WG2861940-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			93.6		%		80-120	29-AUG-18
<b>WG2861940-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	29-AUG-18
<b>WG2861940-4</b>	<b>MS</b>	<b>L2153109-21</b>						
Cyanide, Weak Acid Diss			98.7		%		70-130	29-AUG-18
<b>CR-CR6-IC-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4188251</b>							
<b>WG2860950-4</b>	<b>CRM</b>	<b>WT-SQC012</b>						
Chromium, Hexavalent			88.5		%		70-130	28-AUG-18
<b>WG2860950-3</b>	<b>DUP</b>	<b>L2153244-4</b>						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	28-AUG-18
<b>WG2860950-2</b>	<b>LCS</b>							
Chromium, Hexavalent			96.1		%		80-120	28-AUG-18
<b>WG2860950-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.20		ug/g		0.2	28-AUG-18



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 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>EC-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4193609</b>							
<b>WG2862141-4</b>	<b>DUP</b>	<b>WG2862141-3</b>						
Conductivity		2.40	2.47		mS/cm	2.9	20	29-AUG-18
<b>WG2862141-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Conductivity			107.4		%		70-130	29-AUG-18
<b>WG2862819-1</b>	<b>LCS</b>							
Conductivity			93.1		%		90-110	29-AUG-18
<b>WG2862141-1</b>	<b>MB</b>							
Conductivity			<0.0040		mS/cm		0.004	29-AUG-18
<b>F1-HS-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4187612</b>							
<b>WG2860900-4</b>	<b>DUP</b>	<b>WG2860900-3</b>						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	28-AUG-18
<b>WG2860900-2</b>	<b>LCS</b>							
F1 (C6-C10)			88.6		%		80-120	28-AUG-18
<b>WG2860900-1</b>	<b>MB</b>							
F1 (C6-C10)			<5.0		ug/g		5	28-AUG-18
Surrogate: 3,4-Dichlorotoluene			82.8		%		60-140	28-AUG-18
<b>WG2860900-6</b>	<b>MS</b>	<b>L2153109-11</b>						
F1 (C6-C10)			86.6		%		60-140	28-AUG-18
<b>F2-F4-511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4190833</b>							
<b>WG2860932-3</b>	<b>DUP</b>	<b>WG2860932-5</b>						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	29-AUG-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	29-AUG-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	29-AUG-18
<b>WG2860932-2</b>	<b>LCS</b>							
F2 (C10-C16)			105.5		%		80-120	29-AUG-18
F3 (C16-C34)			102.3		%		80-120	29-AUG-18
F4 (C34-C50)			110.1		%		80-120	29-AUG-18
<b>WG2860932-1</b>	<b>MB</b>							
F2 (C10-C16)			<10		ug/g		10	29-AUG-18
F3 (C16-C34)			<50		ug/g		50	29-AUG-18
F4 (C34-C50)			<50		ug/g		50	29-AUG-18
Surrogate: 2-Bromobenzotrifluoride			94.6		%		60-140	29-AUG-18
<b>WG2860932-4</b>	<b>MS</b>	<b>WG2860932-5</b>						
F2 (C10-C16)			103.9		%		60-140	29-AUG-18
F3 (C16-C34)			99.3		%		60-140	29-AUG-18



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 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F2-F4-511-WT</b>	<b>Soil</b>							
Batch	R4190833							
<b>WG2860932-4</b>	<b>MS</b>	<b>WG2860932-5</b>						
F3 (C16-C34)			99.3		%		60-140	29-AUG-18
F4 (C34-C50)			106.8		%		60-140	29-AUG-18
<b>F4G-ADD-511-WT</b>	<b>Soil</b>							
Batch	R4191712							
<b>WG2863068-2</b>	<b>LCS</b>							
F4G-SG (GHH-Silica)			77.6		%		60-140	28-AUG-18
<b>WG2863068-1</b>	<b>MB</b>							
F4G-SG (GHH-Silica)			<250		ug/g		250	28-AUG-18
<b>HG-200.2-CVAA-WT</b>	<b>Soil</b>							
Batch	R4191447							
<b>WG2862015-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Mercury (Hg)			106.2		%		70-130	29-AUG-18
<b>WG2862015-6</b>	<b>DUP</b>	<b>WG2862015-5</b>						
Mercury (Hg)		0.0061	0.0055		ug/g	10	40	29-AUG-18
<b>WG2862015-3</b>	<b>LCS</b>							
Mercury (Hg)			111.5		%		80-120	29-AUG-18
<b>WG2862015-1</b>	<b>MB</b>							
Mercury (Hg)			<0.0050		mg/kg		0.005	29-AUG-18
<b>MET-200.2-CCMS-WT</b>	<b>Soil</b>							
Batch	R4194157							
<b>WG2862015-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Antimony (Sb)			115.5		%		70-130	29-AUG-18
Arsenic (As)			118.6		%		70-130	29-AUG-18
Barium (Ba)			119.5		%		70-130	29-AUG-18
Beryllium (Be)			128.1		%		70-130	29-AUG-18
Boron (B)			3.6		mg/kg		0-8.2	29-AUG-18
Cadmium (Cd)			114.6		%		70-130	29-AUG-18
Chromium (Cr)			112.0		%		70-130	29-AUG-18
Cobalt (Co)			116.5		%		70-130	29-AUG-18
Copper (Cu)			117.4		%		70-130	29-AUG-18
Lead (Pb)			107.8		%		70-130	29-AUG-18
Molybdenum (Mo)			124.6		%		70-130	29-AUG-18
Nickel (Ni)			113.6		%		70-130	29-AUG-18
Selenium (Se)			0.38		mg/kg		0.11-0.51	29-AUG-18
Silver (Ag)			0.25		mg/kg		0.13-0.33	29-AUG-18



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Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
<b>Soil</b>								
<b>Batch</b>	<b>R4194157</b>							
<b>WG2862015-2</b>	<b>CRM</b>	<b>WT-CANMET-TILL1</b>						
Thallium (Tl)			0.125		mg/kg		0.077-0.18	29-AUG-18
Uranium (U)			104.1		%		70-130	29-AUG-18
Vanadium (V)			111.8		%		70-130	29-AUG-18
Zinc (Zn)			112.0		%		70-130	29-AUG-18
<b>WG2862015-6</b>	<b>DUP</b>	<b>WG2862015-5</b>						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	29-AUG-18
Arsenic (As)		2.07	2.09		ug/g	1.0	30	29-AUG-18
Barium (Ba)		31.1	30.8		ug/g	1.2	40	29-AUG-18
Beryllium (Be)		0.23	0.23		ug/g	0.2	30	29-AUG-18
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	29-AUG-18
Cadmium (Cd)		0.076	0.068		ug/g	11	30	29-AUG-18
Chromium (Cr)		10.0	10.3		ug/g	2.9	30	29-AUG-18
Cobalt (Co)		4.81	4.56		ug/g	5.4	30	29-AUG-18
Copper (Cu)		7.54	7.55		ug/g	0.2	30	29-AUG-18
Lead (Pb)		4.22	4.55		ug/g	7.6	40	29-AUG-18
Molybdenum (Mo)		0.21	0.20		ug/g	1.6	40	29-AUG-18
Nickel (Ni)		7.68	7.78		ug/g	1.3	30	29-AUG-18
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	29-AUG-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	29-AUG-18
Thallium (Tl)		0.059	0.062		ug/g	5.5	30	29-AUG-18
Uranium (U)		0.412	0.427		ug/g	3.5	30	29-AUG-18
Vanadium (V)		22.1	21.8		ug/g	1.1	30	29-AUG-18
Zinc (Zn)		28.3	24.6		ug/g	14	30	29-AUG-18
<b>WG2862015-4</b>	<b>LCS</b>							
Antimony (Sb)			100.9		%		80-120	29-AUG-18
Arsenic (As)			115.1		%		80-120	29-AUG-18
Barium (Ba)			110.3		%		80-120	29-AUG-18
Beryllium (Be)			95.0		%		80-120	29-AUG-18
Boron (B)			113.8		%		80-120	29-AUG-18
Cadmium (Cd)			115.3		%		80-120	29-AUG-18
Chromium (Cr)			114.0		%		80-120	29-AUG-18
Cobalt (Co)			112.0		%		80-120	29-AUG-18
Copper (Cu)			111.5		%		80-120	29-AUG-18



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 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-200.2-CCMS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4194157</b>							
<b>WG2862015-4</b>	<b>LCS</b>							
Lead (Pb)			108.6		%		80-120	29-AUG-18
Molybdenum (Mo)			116.9		%		80-120	29-AUG-18
Nickel (Ni)			111.3		%		80-120	29-AUG-18
Selenium (Se)			116.9		%		80-120	29-AUG-18
Silver (Ag)			115.3		%		80-120	29-AUG-18
Thallium (Tl)			108.2		%		80-120	29-AUG-18
Uranium (U)			110.7		%		80-120	29-AUG-18
Vanadium (V)			115.7		%		80-120	29-AUG-18
Zinc (Zn)			103.4		%		80-120	29-AUG-18
<b>WG2862015-1</b>	<b>MB</b>							
Antimony (Sb)			<0.10		mg/kg		0.1	29-AUG-18
Arsenic (As)			<0.10		mg/kg		0.1	29-AUG-18
Barium (Ba)			<0.50		mg/kg		0.5	29-AUG-18
Beryllium (Be)			<0.10		mg/kg		0.1	29-AUG-18
Boron (B)			<5.0		mg/kg		5	29-AUG-18
Cadmium (Cd)			<0.020		mg/kg		0.02	29-AUG-18
Chromium (Cr)			<0.50		mg/kg		0.5	29-AUG-18
Cobalt (Co)			<0.10		mg/kg		0.1	29-AUG-18
Copper (Cu)			<0.50		mg/kg		0.5	29-AUG-18
Lead (Pb)			<0.50		mg/kg		0.5	29-AUG-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	29-AUG-18
Nickel (Ni)			<0.50		mg/kg		0.5	29-AUG-18
Selenium (Se)			<0.20		mg/kg		0.2	29-AUG-18
Silver (Ag)			<0.10		mg/kg		0.1	29-AUG-18
Thallium (Tl)			<0.050		mg/kg		0.05	29-AUG-18
Uranium (U)			<0.050		mg/kg		0.05	29-AUG-18
Vanadium (V)			<0.20		mg/kg		0.2	29-AUG-18
Zinc (Zn)			<2.0		mg/kg		2	29-AUG-18
<b>MOISTURE-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4182921</b>							
<b>WG2859445-3</b>	<b>DUP</b>	<b>L2152963-11</b>						
% Moisture		9.26	9.78		%	5.4	20	25-AUG-18
<b>WG2859445-2</b>	<b>LCS</b>							
% Moisture			98.9		%		90-110	25-AUG-18



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 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MOISTURE-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4182921</b>							
<b>WG2859445-1</b>	<b>MB</b>							
% Moisture			<0.10		%		0.1	25-AUG-18
<b>Batch</b>	<b>R4186770</b>							
<b>WG2861268-3</b>	<b>DUP</b>	<b>L2153794-5</b>						
% Moisture		5.16	5.59		%	8.0	20	28-AUG-18
<b>WG2861268-2</b>	<b>LCS</b>							
% Moisture			100.9		%		90-110	28-AUG-18
<b>WG2861268-1</b>	<b>MB</b>							
% Moisture			<0.10		%		0.1	28-AUG-18
<b>Batch</b>	<b>R4186771</b>							
<b>WG2861022-3</b>	<b>DUP</b>	<b>L2153272-1</b>						
% Moisture		29.9	30.3		%	1.3	20	28-AUG-18
<b>WG2861022-2</b>	<b>LCS</b>							
% Moisture			98.2		%		90-110	28-AUG-18
<b>WG2861022-1</b>	<b>MB</b>							
% Moisture			<0.10		%		0.1	28-AUG-18
<b>PH-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4185088</b>							
<b>WG2859490-1</b>	<b>DUP</b>	<b>L2147619-5</b>						
pH		7.96	8.00	J	pH units	0.04	0.3	27-AUG-18
<b>WG2860744-1</b>	<b>LCS</b>							
pH			6.96		pH units		6.9-7.1	27-AUG-18
<b>Batch</b>	<b>R4185829</b>							
<b>WG2859552-1</b>	<b>DUP</b>	<b>L2153109-10</b>						
pH		7.72	7.59	J	pH units	0.13	0.3	27-AUG-18
<b>WG2860747-1</b>	<b>LCS</b>							
pH			6.97		pH units		6.9-7.1	27-AUG-18
<b>SAR-R511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4192323</b>							
<b>WG2862141-4</b>	<b>DUP</b>	<b>WG2862141-3</b>						
Calcium (Ca)		1.3	1.3		mg/L	1.4	30	29-AUG-18
Sodium (Na)		490	502		mg/L	2.4	30	29-AUG-18
Magnesium (Mg)		<1.0	<1.0	RPD-NA	mg/L	N/A	30	29-AUG-18
<b>WG2862141-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Calcium (Ca)			100.1		%		70-130	29-AUG-18
Calcium (Ca)			100.1		%		70-130	29-AUG-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
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 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>SAR-R511-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4192323</b>							
<b>WG2862141-2</b>	<b>IRM</b>	<b>WT SAR2</b>						
Sodium (Na)			97.1		%		70-130	29-AUG-18
Magnesium (Mg)			93.7		%		70-130	29-AUG-18
<b>WG2862141-1</b>	<b>MB</b>							
Calcium (Ca)			<1.0		mg/L		1	29-AUG-18
Sodium (Na)			<1.0		mg/L		1	29-AUG-18
Magnesium (Mg)			<1.0		mg/L		1	29-AUG-18
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4187612</b>							
<b>WG2860900-4</b>	<b>DUP</b>	<b>WG2860900-3</b>						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	28-AUG-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	28-AUG-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18



## Quality Control Report

Workorder: L2153058

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4187612</b>							
<b>WG2860900-4</b>	<b>DUP</b>	<b>WG2860900-3</b>						
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	28-AUG-18
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	28-AUG-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	28-AUG-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	28-AUG-18
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	28-AUG-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	28-AUG-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	28-AUG-18
<b>WG2860900-2</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			111.9		%		60-130	28-AUG-18
1,1,1,2-Tetrachloroethane			93.0		%		60-130	28-AUG-18
1,1,1-Trichloroethane			115.3		%		60-130	28-AUG-18
1,1,2-Trichloroethane			106.0		%		60-130	28-AUG-18
1,1-Dichloroethane			103.4		%		60-130	28-AUG-18
1,1-Dichloroethylene			98.1		%		60-130	28-AUG-18
1,2-Dibromoethane			107.0		%		70-130	28-AUG-18
1,2-Dichlorobenzene			111.3		%		70-130	28-AUG-18
1,2-Dichloroethane			114.0		%		60-130	28-AUG-18
1,2-Dichloropropane			100.2		%		70-130	28-AUG-18
1,3-Dichlorobenzene			113.2		%		70-130	28-AUG-18
1,4-Dichlorobenzene			112.4		%		70-130	28-AUG-18
Acetone			96.1		%		60-140	28-AUG-18
Benzene			106.0		%		70-130	28-AUG-18
Bromodichloromethane			112.0		%		50-140	28-AUG-18
Bromoform			108.0		%		70-130	28-AUG-18





## Quality Control Report

Workorder: L2153058

Report Date: 06-SEP-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4187612</b>							
<b>WG2860900-2</b>	<b>LCS</b>							
Bromomethane			80.0		%		50-140	28-AUG-18
Carbon tetrachloride			116.0		%		70-130	28-AUG-18
Chlorobenzene			108.3		%		70-130	28-AUG-18
Chloroform			113.8		%		70-130	28-AUG-18
cis-1,2-Dichloroethylene			109.0		%		70-130	28-AUG-18
cis-1,3-Dichloropropene			107.9		%		70-130	28-AUG-18
Dibromochloromethane			110.8		%		60-130	28-AUG-18
Dichlorodifluoromethane			82.8		%		50-140	28-AUG-18
Ethylbenzene			101.8		%		70-130	28-AUG-18
n-Hexane			112.5		%		70-130	28-AUG-18
Methylene Chloride			107.7		%		70-130	28-AUG-18
MTBE			108.8		%		70-130	28-AUG-18
m+p-Xylenes			106.8		%		70-130	28-AUG-18
Methyl Ethyl Ketone			87.4		%		60-140	28-AUG-18
Methyl Isobutyl Ketone			91.0		%		60-140	28-AUG-18
o-Xylene			101.2		%		70-130	28-AUG-18
Styrene			102.1		%		70-130	28-AUG-18
Tetrachloroethylene			113.1		%		60-130	28-AUG-18
Toluene			104.2		%		70-130	28-AUG-18
trans-1,2-Dichloroethylene			103.9		%		60-130	28-AUG-18
trans-1,3-Dichloropropene			105.8		%		70-130	28-AUG-18
Trichloroethylene			117.0		%		60-130	28-AUG-18
Trichlorofluoromethane			113.2		%		50-140	28-AUG-18
Vinyl chloride			85.7		%		60-140	28-AUG-18
<b>WG2860900-1</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	28-AUG-18
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	28-AUG-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	28-AUG-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	28-AUG-18
1,1-Dichloroethane			<0.050		ug/g		0.05	28-AUG-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	28-AUG-18
1,2-Dibromoethane			<0.050		ug/g		0.05	28-AUG-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	28-AUG-18
1,2-Dichloroethane			<0.050		ug/g		0.05	28-AUG-18



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4187612</b>							
<b>WG2860900-1 MB</b>								
1,2-Dichloropropane			<0.050		ug/g		0.05	28-AUG-18
1,3-Dichlorobenzene			<0.050		ug/g		0.05	28-AUG-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	28-AUG-18
Acetone			<0.50		ug/g		0.5	28-AUG-18
Benzene			<0.0068		ug/g		0.0068	28-AUG-18
Bromodichloromethane			<0.050		ug/g		0.05	28-AUG-18
Bromoform			<0.050		ug/g		0.05	28-AUG-18
Bromomethane			<0.050		ug/g		0.05	28-AUG-18
Carbon tetrachloride			<0.050		ug/g		0.05	28-AUG-18
Chlorobenzene			<0.050		ug/g		0.05	28-AUG-18
Chloroform			<0.050		ug/g		0.05	28-AUG-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	28-AUG-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	28-AUG-18
Dibromochloromethane			<0.050		ug/g		0.05	28-AUG-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	28-AUG-18
Ethylbenzene			<0.018		ug/g		0.018	28-AUG-18
n-Hexane			<0.050		ug/g		0.05	28-AUG-18
Methylene Chloride			<0.050		ug/g		0.05	28-AUG-18
MTBE			<0.050		ug/g		0.05	28-AUG-18
m+p-Xylenes			<0.030		ug/g		0.03	28-AUG-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	28-AUG-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	28-AUG-18
o-Xylene			<0.020		ug/g		0.02	28-AUG-18
Styrene			<0.050		ug/g		0.05	28-AUG-18
Tetrachloroethylene			<0.050		ug/g		0.05	28-AUG-18
Toluene			<0.080		ug/g		0.08	28-AUG-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	28-AUG-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	28-AUG-18
Trichloroethylene			<0.010		ug/g		0.01	28-AUG-18
Trichlorofluoromethane			<0.050		ug/g		0.05	28-AUG-18
Vinyl chloride			<0.020		ug/g		0.02	28-AUG-18
Surrogate: 1,4-Difluorobenzene			104.6		%		50-140	28-AUG-18
Surrogate: 4-Bromofluorobenzene			106.7		%		50-140	28-AUG-18
<b>WG2860900-5 MS</b>		<b>L2153034-1</b>						



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>	<b>Soil</b>							
<b>Batch</b>	<b>R4187612</b>							
<b>WG2860900-5 MS</b>		<b>L2153034-1</b>						
1,1,1,2-Tetrachloroethane			133.0		%		50-140	28-AUG-18
1,1,2,2-Tetrachloroethane			112.3		%		50-140	28-AUG-18
1,1,1-Trichloroethane			136.6		%		50-140	28-AUG-18
1,1,2-Trichloroethane			124.5		%		50-140	28-AUG-18
1,1-Dichloroethane			121.2		%		50-140	28-AUG-18
1,1-Dichloroethylene			114.4		%		50-140	28-AUG-18
1,2-Dibromoethane			126.5		%		50-140	28-AUG-18
1,2-Dichlorobenzene			125.4		%		50-140	28-AUG-18
1,2-Dichloroethane			134.9		%		50-140	28-AUG-18
1,2-Dichloropropane			117.7		%		50-140	28-AUG-18
1,3-Dichlorobenzene			126.8		%		50-140	28-AUG-18
1,4-Dichlorobenzene			126.1		%		50-140	28-AUG-18
Acetone			115.2		%		50-140	28-AUG-18
Benzene			125.2		%		50-140	28-AUG-18
Bromodichloromethane			134.0		%		50-140	28-AUG-18
Bromoform			129.4		%		50-140	28-AUG-18
Bromomethane			91.3		%		50-140	28-AUG-18
Carbon tetrachloride			138.0		%		50-140	28-AUG-18
Chlorobenzene			127.9		%		50-140	28-AUG-18
Chloroform			135.2		%		50-140	28-AUG-18
cis-1,2-Dichloroethylene			128.2		%		50-140	28-AUG-18
cis-1,3-Dichloropropene			126.4		%		50-140	28-AUG-18
Dibromochloromethane			132.4		%		50-140	28-AUG-18
Dichlorodifluoromethane			76.8		%		50-140	28-AUG-18
Ethylbenzene			121.1		%		50-140	28-AUG-18
n-Hexane			126.3		%		50-140	28-AUG-18
Methylene Chloride			124.4		%		50-140	28-AUG-18
MTBE			128.8		%		50-140	28-AUG-18
m+p-Xylenes			126.6		%		50-140	28-AUG-18
Methyl Ethyl Ketone			102.2		%		50-140	28-AUG-18
Methyl Isobutyl Ketone			108.5		%		50-140	28-AUG-18
o-Xylene			120.3		%		50-140	28-AUG-18
Styrene			120.9		%		50-140	28-AUG-18



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4187612</b>							
<b>WG2860900-5 MS</b>		<b>L2153034-1</b>						
Tetrachloroethylene			133.4		%		50-140	28-AUG-18
Toluene			122.8		%		50-140	28-AUG-18
trans-1,2-Dichloroethylene			120.2		%		50-140	28-AUG-18
trans-1,3-Dichloropropene			123.3		%		50-140	28-AUG-18
Trichloroethylene			138.8		%		50-140	28-AUG-18
Trichlorofluoromethane			131.0		%		50-140	28-AUG-18
Vinyl chloride			95.4		%		50-140	28-AUG-18
<b>Batch</b>	<b>R4191547</b>							
<b>WG2860944-4 DUP</b>		<b>WG2860944-3</b>						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-AUG-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	29-AUG-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18



## Quality Control Report

Workorder: L2153058

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191547</b>							
<b>WG2860944-4</b>	<b>DUP</b>	<b>WG2860944-3</b>						
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	29-AUG-18
n-Hexane		0.095	0.089		ug/g	7.0	40	30-AUG-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-AUG-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-AUG-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	29-AUG-18
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	29-AUG-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	29-AUG-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	29-AUG-18
<b>WG2860944-2</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			107.7		%		60-130	29-AUG-18
1,1,1,2-Tetrachloroethane			97.2		%		60-130	29-AUG-18
1,1,1-Trichloroethane			109.2		%		60-130	29-AUG-18
1,1,2-Trichloroethane			103.8		%		60-130	29-AUG-18
1,1-Dichloroethane			108.6		%		60-130	29-AUG-18
1,1-Dichloroethylene			102.7		%		60-130	29-AUG-18
1,2-Dibromoethane			99.5		%		70-130	29-AUG-18
1,2-Dichlorobenzene			111.2		%		70-130	29-AUG-18
1,2-Dichloroethane			101.3		%		60-130	29-AUG-18
1,2-Dichloropropane			107.1		%		70-130	29-AUG-18
1,3-Dichlorobenzene			117.3		%		70-130	29-AUG-18
1,4-Dichlorobenzene			115.7		%		70-130	29-AUG-18
Acetone			100.8		%		60-140	29-AUG-18
Benzene			108.4		%		70-130	29-AUG-18
Bromodichloromethane			105.5		%		50-140	29-AUG-18
Bromoform			99.9		%		70-130	29-AUG-18



## Quality Control Report

Workorder: L2153058

Report Date: 06-SEP-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191547</b>							
<b>WG2860944-2</b>	<b>LCS</b>							
Bromomethane			84.6		%		50-140	29-AUG-18
Carbon tetrachloride			110.1		%		70-130	29-AUG-18
Chlorobenzene			111.2		%		70-130	29-AUG-18
Chloroform			109.7		%		70-130	29-AUG-18
cis-1,2-Dichloroethylene			106.7		%		70-130	29-AUG-18
cis-1,3-Dichloropropene			109.6		%		70-130	29-AUG-18
Dibromochloromethane			105.2		%		60-130	29-AUG-18
Dichlorodifluoromethane			89.5		%		50-140	29-AUG-18
Ethylbenzene			114.2		%		70-130	29-AUG-18
n-Hexane			125.8		%		70-130	29-AUG-18
Methylene Chloride			102.8		%		70-130	29-AUG-18
MTBE			110.1		%		70-130	29-AUG-18
m+p-Xylenes			115.9		%		70-130	29-AUG-18
Methyl Ethyl Ketone			93.0		%		60-140	29-AUG-18
Methyl Isobutyl Ketone			88.6		%		60-140	29-AUG-18
o-Xylene			118.6		%		70-130	29-AUG-18
Styrene			116.5		%		70-130	29-AUG-18
Tetrachloroethylene			120.5		%		60-130	29-AUG-18
Toluene			110.9		%		70-130	29-AUG-18
trans-1,2-Dichloroethylene			110.8		%		60-130	29-AUG-18
trans-1,3-Dichloropropene			109.8		%		70-130	29-AUG-18
Trichloroethylene			115.5		%		60-130	29-AUG-18
Trichlorofluoromethane			113.8		%		50-140	29-AUG-18
Vinyl chloride			101.1		%		60-140	29-AUG-18
<b>WG2860944-1</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1-Dichloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	29-AUG-18
1,2-Dibromoethane			<0.050		ug/g		0.05	29-AUG-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	29-AUG-18
1,2-Dichloroethane			<0.050		ug/g		0.05	29-AUG-18



## Quality Control Report

Workorder: L2153058

Report Date: 06-SEP-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191547</b>							
<b>WG2860944-1 MB</b>								
1,2-Dichloropropane			<0.050		ug/g		0.05	29-AUG-18
1,3-Dichlorobenzene			<0.050		ug/g		0.05	29-AUG-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	29-AUG-18
Acetone			<0.50		ug/g		0.5	29-AUG-18
Benzene			<0.0068		ug/g		0.0068	29-AUG-18
Bromodichloromethane			<0.050		ug/g		0.05	29-AUG-18
Bromoform			<0.050		ug/g		0.05	29-AUG-18
Bromomethane			<0.050		ug/g		0.05	29-AUG-18
Carbon tetrachloride			<0.050		ug/g		0.05	29-AUG-18
Chlorobenzene			<0.050		ug/g		0.05	29-AUG-18
Chloroform			<0.050		ug/g		0.05	29-AUG-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	29-AUG-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	29-AUG-18
Dibromochloromethane			<0.050		ug/g		0.05	29-AUG-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	29-AUG-18
Ethylbenzene			<0.018		ug/g		0.018	29-AUG-18
n-Hexane			<0.050		ug/g		0.05	29-AUG-18
Methylene Chloride			<0.050		ug/g		0.05	29-AUG-18
MTBE			<0.050		ug/g		0.05	29-AUG-18
m+p-Xylenes			<0.030		ug/g		0.03	29-AUG-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	29-AUG-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	29-AUG-18
o-Xylene			<0.020		ug/g		0.02	29-AUG-18
Styrene			<0.050		ug/g		0.05	29-AUG-18
Tetrachloroethylene			<0.050		ug/g		0.05	29-AUG-18
Toluene			<0.080		ug/g		0.08	29-AUG-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	29-AUG-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	29-AUG-18
Trichloroethylene			<0.010		ug/g		0.01	29-AUG-18
Trichlorofluoromethane			<0.050		ug/g		0.05	29-AUG-18
Vinyl chloride			<0.020		ug/g		0.02	29-AUG-18
Surrogate: 1,4-Difluorobenzene			108.4		%		50-140	29-AUG-18
Surrogate: 4-Bromofluorobenzene			104.4		%		50-140	29-AUG-18
<b>WG2860944-5 MS</b>		<b>L2153109-21</b>						



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191547</b>							
<b>WG2860944-5 MS</b>		<b>L2153109-21</b>						
1,1,1,2-Tetrachloroethane			119.2		%		50-140	29-AUG-18
1,1,2,2-Tetrachloroethane			115.2		%		50-140	29-AUG-18
1,1,1-Trichloroethane			118.3		%		50-140	29-AUG-18
1,1,2-Trichloroethane			117.8		%		50-140	29-AUG-18
1,1-Dichloroethane			119.6		%		50-140	29-AUG-18
1,1-Dichloroethylene			107.3		%		50-140	29-AUG-18
1,2-Dibromoethane			114.7		%		50-140	29-AUG-18
1,2-Dichlorobenzene			119.7		%		50-140	29-AUG-18
1,2-Dichloroethane			116.7		%		50-140	29-AUG-18
1,2-Dichloropropane			120.8		%		50-140	29-AUG-18
1,3-Dichlorobenzene			123.3		%		50-140	29-AUG-18
1,4-Dichlorobenzene			121.8		%		50-140	29-AUG-18
Acetone			125.4		%		50-140	29-AUG-18
Benzene			119.4		%		50-140	29-AUG-18
Bromodichloromethane			119.6		%		50-140	29-AUG-18
Bromoform			115.7		%		50-140	29-AUG-18
Bromomethane			87.9		%		50-140	29-AUG-18
Carbon tetrachloride			118.1		%		50-140	29-AUG-18
Chlorobenzene			121.9		%		50-140	29-AUG-18
Chloroform			121.5		%		50-140	29-AUG-18
cis-1,2-Dichloroethylene			117.5		%		50-140	29-AUG-18
cis-1,3-Dichloropropene			121.1		%		50-140	29-AUG-18
Dibromochloromethane			119.9		%		50-140	29-AUG-18
Dichlorodifluoromethane			75.9		%		50-140	29-AUG-18
Ethylbenzene			122.4		%		50-140	29-AUG-18
n-Hexane			129.4		%		50-140	29-AUG-18
Methylene Chloride			114.4		%		50-140	29-AUG-18
MTBE			119.8		%		50-140	29-AUG-18
m+p-Xylenes			123.8		%		50-140	29-AUG-18
Methyl Ethyl Ketone			121.3		%		50-140	29-AUG-18
Methyl Isobutyl Ketone			107.6		%		50-140	29-AUG-18
o-Xylene			128.6		%		50-140	29-AUG-18
Styrene			128.0		%		50-140	29-AUG-18





## Quality Control Report

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Report Date: 06-SEP-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191547</b>							
<b>WG2860944-5 MS</b>		<b>L2153109-21</b>						
Tetrachloroethylene			126.6		%		50-140	29-AUG-18
Toluene			120.0		%		50-140	29-AUG-18
trans-1,2-Dichloroethylene			118.0		%		50-140	29-AUG-18
trans-1,3-Dichloropropene			121.1		%		50-140	29-AUG-18
Trichloroethylene			124.0		%		50-140	29-AUG-18
Trichlorofluoromethane			116.8		%		50-140	29-AUG-18
Vinyl chloride			100.8		%		50-140	29-AUG-18
<b>Batch</b>	<b>R4191754</b>							
<b>WG2861064-4 DUP</b>		<b>WG2861064-3</b>						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-AUG-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	29-AUG-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Soil</b>						
<b>Batch</b>	<b>R4191754</b>							
<b>WG2861064-4</b>	<b>DUP</b>	<b>WG2861064-3</b>						
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	29-AUG-18
n-Hexane		0.099	0.109		ug/g	9.4	40	29-AUG-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-AUG-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-AUG-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	29-AUG-18
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	29-AUG-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	29-AUG-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	29-AUG-18
<b>WG2861064-2</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			101.3		%		60-130	29-AUG-18
1,1,1,2-Tetrachloroethane			105.9		%		60-130	29-AUG-18
1,1,1-Trichloroethane			102.4		%		60-130	29-AUG-18
1,1,2-Trichloroethane			105.4		%		60-130	29-AUG-18
1,1-Dichloroethane			101.6		%		60-130	29-AUG-18
1,1-Dichloroethylene			83.5		%		60-130	29-AUG-18
1,2-Dibromoethane			107.8		%		70-130	29-AUG-18
1,2-Dichlorobenzene			108.6		%		70-130	29-AUG-18
1,2-Dichloroethane			112.4		%		60-130	29-AUG-18
1,2-Dichloropropane			104.3		%		70-130	29-AUG-18
1,3-Dichlorobenzene			106.1		%		70-130	29-AUG-18
1,4-Dichlorobenzene			107.6		%		70-130	29-AUG-18
Acetone			110.0		%		60-140	29-AUG-18
Benzene			107.3		%		70-130	29-AUG-18
Bromodichloromethane			110.8		%		50-140	29-AUG-18
Bromoform			107.4		%		70-130	29-AUG-18



## Quality Control Report

Workorder: L2153058

Report Date: 06-SEP-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191754</b>							
<b>WG2861064-2</b>	<b>LCS</b>							
Bromomethane			65.8		%		50-140	29-AUG-18
Carbon tetrachloride			104.1		%		70-130	29-AUG-18
Chlorobenzene			104.5		%		70-130	29-AUG-18
Chloroform			108.9		%		70-130	29-AUG-18
cis-1,2-Dichloroethylene			104.5		%		70-130	29-AUG-18
cis-1,3-Dichloropropene			111.1		%		70-130	29-AUG-18
Dibromochloromethane			109.5		%		60-130	29-AUG-18
Dichlorodifluoromethane			47.8	MES	%		50-140	29-AUG-18
Ethylbenzene			90.6		%		70-130	29-AUG-18
n-Hexane			92.0		%		70-130	29-AUG-18
Methylene Chloride			99.7		%		70-130	29-AUG-18
MTBE			101.4		%		70-130	29-AUG-18
m+p-Xylenes			95.9		%		70-130	29-AUG-18
Methyl Ethyl Ketone			115.8		%		60-140	29-AUG-18
Methyl Isobutyl Ketone			103.4		%		60-140	29-AUG-18
o-Xylene			90.7		%		70-130	29-AUG-18
Styrene			105.0		%		70-130	29-AUG-18
Tetrachloroethylene			96.4		%		60-130	29-AUG-18
Toluene			93.9		%		70-130	29-AUG-18
trans-1,2-Dichloroethylene			87.2		%		60-130	29-AUG-18
trans-1,3-Dichloropropene			102.0		%		70-130	29-AUG-18
Trichloroethylene			105.9		%		60-130	29-AUG-18
Trichlorofluoromethane			91.8		%		50-140	29-AUG-18
Vinyl chloride			57.8	MES	%		60-140	29-AUG-18
<b>WG2861064-1</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1-Dichloroethane			<0.050		ug/g		0.05	29-AUG-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	29-AUG-18
1,2-Dibromoethane			<0.050		ug/g		0.05	29-AUG-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	29-AUG-18
1,2-Dichloroethane			<0.050		ug/g		0.05	29-AUG-18



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191754</b>							
<b>WG2861064-1 MB</b>								
1,2-Dichloropropane			<0.050		ug/g		0.05	29-AUG-18
1,3-Dichlorobenzene			<0.050		ug/g		0.05	29-AUG-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	29-AUG-18
Acetone			<0.50		ug/g		0.5	29-AUG-18
Benzene			<0.0068		ug/g		0.0068	29-AUG-18
Bromodichloromethane			<0.050		ug/g		0.05	29-AUG-18
Bromoform			<0.050		ug/g		0.05	29-AUG-18
Bromomethane			<0.050		ug/g		0.05	29-AUG-18
Carbon tetrachloride			<0.050		ug/g		0.05	29-AUG-18
Chlorobenzene			<0.050		ug/g		0.05	29-AUG-18
Chloroform			<0.050		ug/g		0.05	29-AUG-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	29-AUG-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	29-AUG-18
Dibromochloromethane			<0.050		ug/g		0.05	29-AUG-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	29-AUG-18
Ethylbenzene			<0.018		ug/g		0.018	29-AUG-18
n-Hexane			<0.050		ug/g		0.05	29-AUG-18
Methylene Chloride			<0.050		ug/g		0.05	29-AUG-18
MTBE			<0.050		ug/g		0.05	29-AUG-18
m+p-Xylenes			<0.030		ug/g		0.03	29-AUG-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	29-AUG-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	29-AUG-18
o-Xylene			<0.020		ug/g		0.02	29-AUG-18
Styrene			<0.050		ug/g		0.05	29-AUG-18
Tetrachloroethylene			<0.050		ug/g		0.05	29-AUG-18
Toluene			<0.080		ug/g		0.08	29-AUG-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	29-AUG-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	29-AUG-18
Trichloroethylene			<0.010		ug/g		0.01	29-AUG-18
Trichlorofluoromethane			<0.050		ug/g		0.05	29-AUG-18
Vinyl chloride			<0.020		ug/g		0.02	29-AUG-18
Surrogate: 1,4-Difluorobenzene			108.9		%		50-140	29-AUG-18
Surrogate: 4-Bromofluorobenzene			97.9		%		50-140	29-AUG-18
<b>WG2861064-5 MS</b>		<b>L2148551-6</b>						



## Quality Control Report

Workorder: L2153058

Report Date: 06-SEP-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191754</b>							
<b>WG2861064-5 MS</b>		<b>L2148551-6</b>						
1,1,1,2-Tetrachloroethane			108.8		%		50-140	29-AUG-18
1,1,2,2-Tetrachloroethane			111.4		%		50-140	29-AUG-18
1,1,1-Trichloroethane			111.2		%		50-140	29-AUG-18
1,1,2-Trichloroethane			111.7		%		50-140	29-AUG-18
1,1-Dichloroethane			110.2		%		50-140	29-AUG-18
1,1-Dichloroethylene			75.1		%		50-140	29-AUG-18
1,2-Dibromoethane			113.7		%		50-140	29-AUG-18
1,2-Dichlorobenzene			115.4		%		50-140	29-AUG-18
1,2-Dichloroethane			118.5		%		50-140	29-AUG-18
1,2-Dichloropropane			111.3		%		50-140	29-AUG-18
1,3-Dichlorobenzene			112.4		%		50-140	29-AUG-18
1,4-Dichlorobenzene			113.4		%		50-140	29-AUG-18
Acetone			87.3		%		50-140	29-AUG-18
Benzene			114.7		%		50-140	29-AUG-18
Bromodichloromethane			117.5		%		50-140	29-AUG-18
Bromoform			113.4		%		50-140	29-AUG-18
Bromomethane			69.0		%		50-140	29-AUG-18
Carbon tetrachloride			113.3		%		50-140	29-AUG-18
Chlorobenzene			111.3		%		50-140	29-AUG-18
Chloroform			116.8		%		50-140	29-AUG-18
cis-1,2-Dichloroethylene			111.5		%		50-140	29-AUG-18
cis-1,3-Dichloropropene			115.2		%		50-140	29-AUG-18
Dibromochloromethane			116.5		%		50-140	29-AUG-18
Dichlorodifluoromethane			66.3		%		50-140	29-AUG-18
Ethylbenzene			96.4		%		50-140	29-AUG-18
n-Hexane			90.6		%		50-140	29-AUG-18
Methylene Chloride			108.8		%		50-140	29-AUG-18
MTBE			112.2		%		50-140	29-AUG-18
m+p-Xylenes			101.7		%		50-140	29-AUG-18
Methyl Ethyl Ketone			115.6		%		50-140	29-AUG-18
Methyl Isobutyl Ketone			106.4		%		50-140	29-AUG-18
o-Xylene			96.4		%		50-140	29-AUG-18
Styrene			110.6		%		50-140	29-AUG-18



## Quality Control Report

Workorder: L2153058

Report Date: 06-SEP-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Dr. Giorgio Garofalo

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Soil</b>							
<b>Batch</b>	<b>R4191754</b>							
<b>WG2861064-5 MS</b>		<b>L2148551-6</b>						
Tetrachloroethylene			103.1		%		50-140	29-AUG-18
Toluene			100.4		%		50-140	29-AUG-18
trans-1,2-Dichloroethylene			96.1		%		50-140	29-AUG-18
trans-1,3-Dichloropropene			106.6		%		50-140	29-AUG-18
Trichloroethylene			113.4		%		50-140	29-AUG-18
Trichlorofluoromethane			91.0		%		50-140	29-AUG-18
Vinyl chloride			65.1		%		50-140	29-AUG-18

# Quality Control Report

Workorder: L2153058

Report Date: 06-SEP-18

Client: Sirati & Partners Consultants Ltd. (Concord)  
12700 Keele St  
King City ON L7B 1H5

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Contact: Dr. Giorgio Garofalo

## Legend:

---

Limit ALS Control Limit (Data Quality Objectives)  
DUP Duplicate  
RPD Relative Percent Difference  
N/A Not Available  
LCS Laboratory Control Sample  
SRM Standard Reference Material  
MS Matrix Spike  
MSD Matrix Spike Duplicate  
ADE Average Desorption Efficiency  
MB Method Blank  
IRM Internal Reference Material  
CRM Certified Reference Material  
CCV Continuing Calibration Verification  
CVS Calibration Verification Standard  
LCSD Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

---

## Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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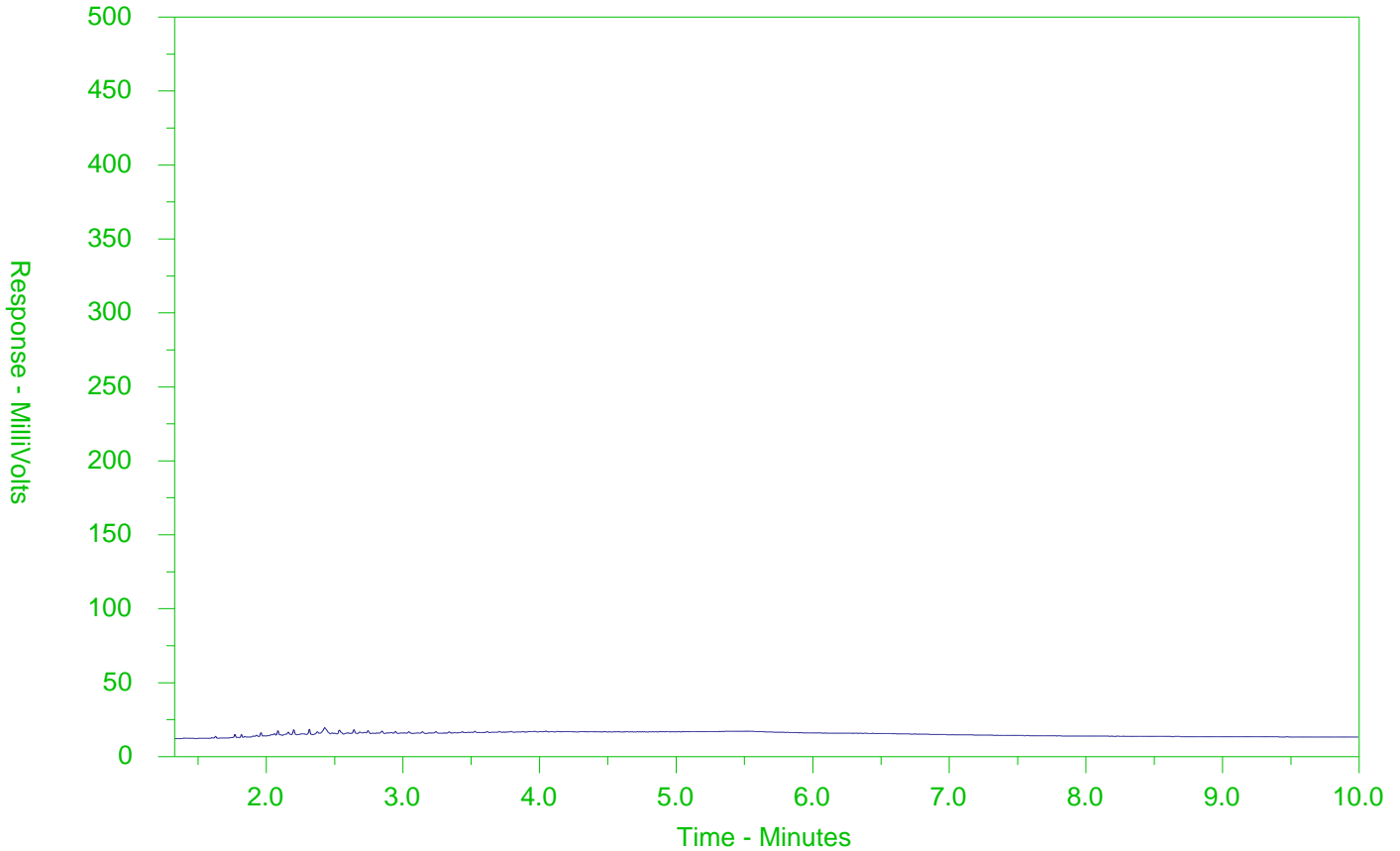
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2153058-3  
 Client Sample ID: BH206-SS5



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

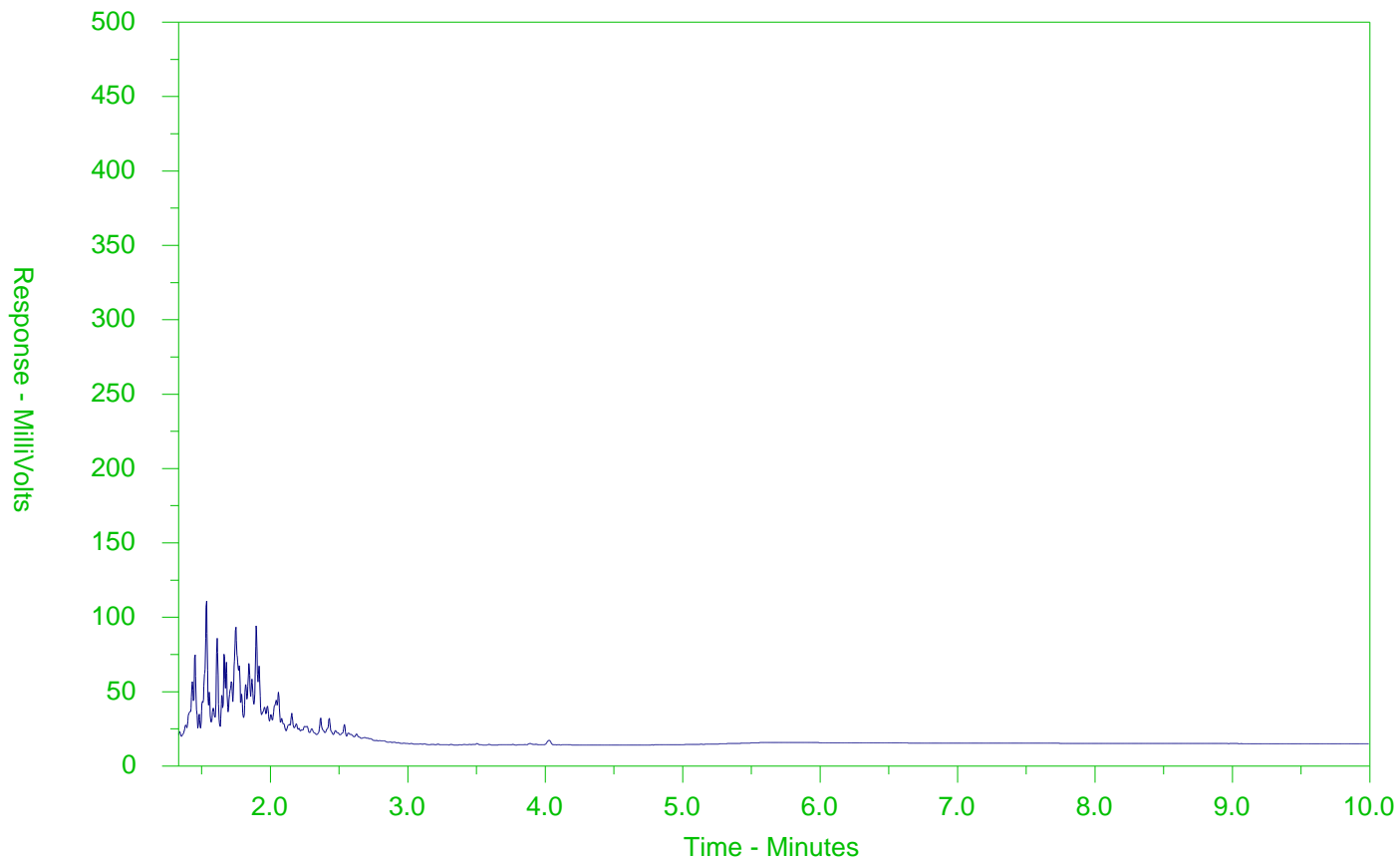
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2153058-4  
 Client Sample ID: BH209-SS7



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

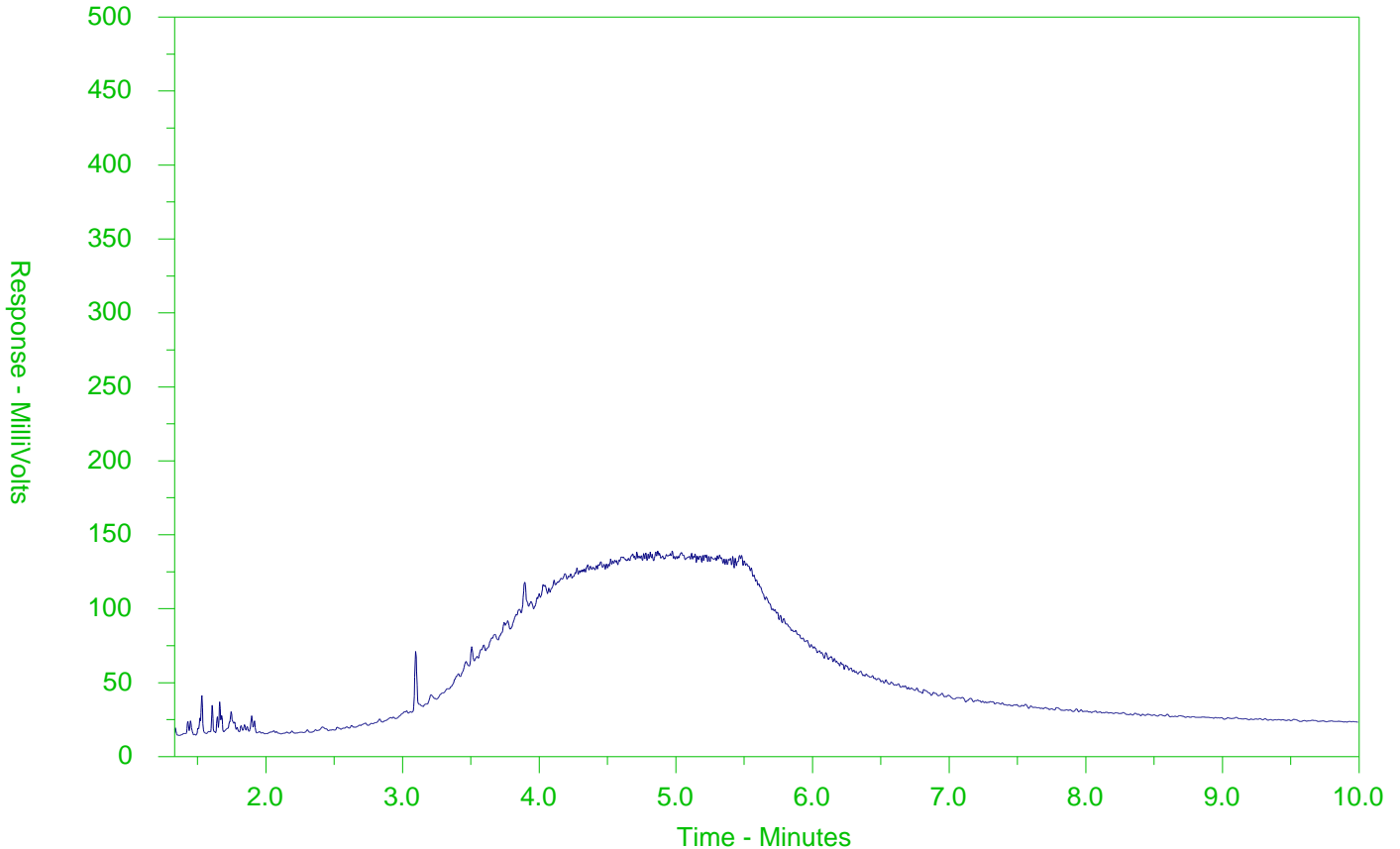
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2153058-5  
 Client Sample ID: BH210-SS5



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).



# APPENDIX D



Sirati & Partners Consultants Ltd.  
(Concord)  
ATTN: CHAORAN LI  
12700 Keele St  
King City ON L7B 1H5

Date Received: 13-JUN-18  
Report Date: 21-JUN-18 14:23 (MT)  
Version: FINAL

Client Phone: 905-833-1582

## Certificate of Analysis

Lab Work Order #: L2111659  
Project P.O. #: SP18-306-20  
Job Reference: SP18-306-20  
C of C Numbers: 17-624411  
Legal Site Desc:

Rick Hawthorne  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927  
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

## Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID	Client ID					
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Ground Water-All Types of Property Uses</b>						
L2111659-2	MW E4	Anions and Nutrients	Chloride (Cl)	1500	790	mg/L
		Dissolved Metals	Beryllium (Be)-Dissolved	<1.0	0.5	ug/L
			Silver (Ag)-Dissolved	<0.50	0.3	ug/L
			Sodium (Na)-Dissolved	768000	490000	ug/L
			Vanadium (V)-Dissolved	<5.0	3.9	ug/L
L2111659-5	MW E10	Volatile Organic Compounds	Benzene	18.6	0.5	ug/L
			Ethylbenzene	1.64	0.5	ug/L
		Hydrocarbons	F2 (C10-C16)	280	150	ug/L
L2111659-8	DUP-W2	Volatile Organic Compounds	Benzene	18.7	0.5	ug/L
			Ethylbenzene	1.71	0.5	ug/L
		Hydrocarbons	F2 (C10-C16)	280	150	ug/L
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Ground Water (Coarse Soil)-All Types of Property Use</b>						
L2111659-2	MW E4	Anions and Nutrients	Chloride (Cl)	1500	790	mg/L
		Dissolved Metals	Sodium (Na)-Dissolved	768000	490000	ug/L
L2111659-5	MW E10	Volatile Organic Compounds	Benzene	18.6	5	ug/L
		Hydrocarbons	F2 (C10-C16)	280	150	ug/L
L2111659-8	DUP-W2	Volatile Organic Compounds	Benzene	18.7	5	ug/L
		Hydrocarbons	F2 (C10-C16)	280	150	ug/L

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Physical Tests - WATER

	Lab ID	L2111659-2	L2111659-3
<b>Sample Date</b>		12-JUN-18	12-JUN-18
<b>Sample ID</b>		MW E4	MW E5

Analyte	Unit	Guide Limits			
		#1	#2		
Conductivity	mS/cm	-	-	4.46	1.85
pH	pH units	-	-	7.56	7.81

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

## Anions and Nutrients - WATER

Lab ID	L2111659-2	L2111659-3
Sample Date	12-JUN-18	12-JUN-18
Sample ID	MW E4	MW E5

Analyte	Unit	Guide Limits			
		#1	#2	#3	#4
Chloride (Cl)	mg/L	790	790	1500 <sup>DLHC</sup>	473 <sup>DLHC</sup>

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## Cyanides - WATER

<b>Lab ID</b>	L2111659-2	L2111659-3
<b>Sample Date</b>	12-JUN-18	12-JUN-18
<b>Sample ID</b>	MW E4	MW E5

Analyte	Unit	Guide Limits			
		#1	#2	#1	#2
Cyanide, Weak Acid Diss	ug/L	5	66	<2.0	<2.0

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Dissolved Metals - WATER

Analyte	Unit	Guide Limits		Lab ID	
		#1	#2	L2111659-2	L2111659-3
Dissolved Mercury Filtration Location	-	-	-	FIELD	NA
Dissolved Metals Filtration Location	-	-	-	FIELD	FIELD
Antimony (Sb)-Dissolved	ug/L	1.5	6	<1.0 <sup>DLHC</sup>	0.42
Arsenic (As)-Dissolved	ug/L	13	25	<1.0 <sup>DLHC</sup>	1.23
Barium (Ba)-Dissolved	ug/L	610	1000	157 <sup>DLHC</sup>	70.4
Beryllium (Be)-Dissolved	ug/L	0.5	4	<1.0 <sup>DLHC</sup>	<0.10
Boron (B)-Dissolved	ug/L	1700	5000	210 <sup>DLHC</sup>	608
Cadmium (Cd)-Dissolved	ug/L	0.5	2.7	<0.050 <sup>DLHC</sup>	0.010
Chromium (Cr)-Dissolved	ug/L	11	50	<5.0 <sup>DLHC</sup>	<0.50
Cobalt (Co)-Dissolved	ug/L	3.8	3.8	1.8 <sup>DLHC</sup>	0.68
Copper (Cu)-Dissolved	ug/L	5	87	3.2 <sup>DLHC</sup>	0.36
Lead (Pb)-Dissolved	ug/L	1.9	10	<0.50 <sup>DLHC</sup>	<0.050
Mercury (Hg)-Dissolved	ug/L	0.1	0.29	<0.010	<0.010
Molybdenum (Mo)-Dissolved	ug/L	23	70	0.99 <sup>DLHC</sup>	3.98
Nickel (Ni)-Dissolved	ug/L	14	100	<5.0 <sup>DLHC</sup>	1.00
Selenium (Se)-Dissolved	ug/L	5	10	<0.50 <sup>DLHC</sup>	0.125
Silver (Ag)-Dissolved	ug/L	0.3	1.5	<0.50 <sup>DLHC</sup>	<0.050
Sodium (Na)-Dissolved	ug/L	490000	490000	768000 <sup>DLHC</sup>	185000 <sup>DLHC</sup>
Thallium (Tl)-Dissolved	ug/L	0.5	2	<0.10 <sup>DLHC</sup>	0.019
Uranium (U)-Dissolved	ug/L	8.9	20	1.27 <sup>DLHC</sup>	1.92
Vanadium (V)-Dissolved	ug/L	3.9	6.2	<5.0 <sup>DLHC</sup>	0.80
Zinc (Zn)-Dissolved	ug/L	160	1100	11 <sup>DLHC</sup>	1.2

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

## Speciated Metals - WATER

		<b>Lab ID</b>		L2111659-2	L2111659-3
		<b>Sample Date</b>		12-JUN-18	12-JUN-18
		<b>Sample ID</b>		MW E4	MW E5
<b>Analyte</b>	<b>Unit</b>	<b>Guide Limits</b>			
		<b>#1</b>	<b>#2</b>	<b>#1</b>	<b>#2</b>
Chromium, Hexavalent	ug/L	25	25	<0.50	<0.50

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Volatile Organic Compounds - WATER

Analyte	Unit	Guide Limits		Lab ID	L2111659-1	L2111659-2	L2111659-3	L2111659-4	L2111659-5	L2111659-6	L2111659-7	L2111659-8
		#1	#2	Sample Date	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18
				Sample ID	MW E3	MW E4	MW E5	MW E9	MW E10	MW E6	MW E7	DUP-W2
Acetone	ug/L	2700	2700				<30	<30				
Benzene	ug/L	0.5	5		<0.50	<0.50	<0.50	<0.50	18.6	<0.50	<0.50	18.7
Bromodichloromethane	ug/L	2	16			<2.0	<2.0					
Bromoform	ug/L	5	25			<5.0	<5.0					
Bromomethane	ug/L	0.89	0.89			<0.50	<0.50					
Carbon tetrachloride	ug/L	0.2	0.79			<0.20	<0.20					
Chlorobenzene	ug/L	0.5	30			<0.50	<0.50					
Dibromochloromethane	ug/L	2	25			<2.0	<2.0					
Chloroform	ug/L	2	2.4			<1.0	<1.0					
1,2-Dibromoethane	ug/L	0.2	0.2			<0.20	<0.20					
1,2-Dichlorobenzene	ug/L	0.5	3			<0.50	<0.50					
1,3-Dichlorobenzene	ug/L	0.5	59			<0.50	<0.50					
1,4-Dichlorobenzene	ug/L	0.5	1			<0.50	<0.50					
Dichlorodifluoromethane	ug/L	590	590			<2.0	<2.0					
1,1-Dichloroethane	ug/L	0.5	5			<0.50	<0.50					
1,2-Dichloroethane	ug/L	0.5	1.6			<0.50	<0.50					
1,1-Dichloroethylene	ug/L	0.5	1.6			<0.50	<0.50					
cis-1,2-Dichloroethylene	ug/L	1.6	1.6			<0.50	<0.50					
trans-1,2-Dichloroethylene	ug/L	1.6	1.6			<0.50	<0.50					
Methylene Chloride	ug/L	5	50			<5.0	<5.0					
1,2-Dichloropropane	ug/L	0.5	5			<0.50	<0.50					
cis-1,3-Dichloropropene	ug/L	-	-			<0.30	<0.30					
trans-1,3-Dichloropropene	ug/L	-	-			<0.30	<0.30					
1,3-Dichloropropene (cis & trans)	ug/L	0.5	0.5			<0.50	<0.50					
Ethylbenzene	ug/L	0.5	2.4		<0.50	<0.50	<0.50	<0.50	1.64	<0.50	<0.50	1.71
n-Hexane	ug/L	5	51			<0.50	<0.50					
Methyl Ethyl Ketone	ug/L	400	1800			<20	<20					
Methyl Isobutyl Ketone	ug/L	640	640			<20	<20					
MTBE	ug/L	15	15			<2.0	<2.0					
Styrene	ug/L	0.5	5.4			<0.50	<0.50					

Guide Limit #1: T1-Ground Water-All Types of Property Uses

Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Volatile Organic Compounds - WATER

Analyte	Unit	Guide Limits		Lab ID	L2111659-1	L2111659-2	L2111659-3	L2111659-4	L2111659-5	L2111659-6	L2111659-7	L2111659-8
		#1	#2	Sample Date	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18
				Sample ID	MW E3	MW E4	MW E5	MW E9	MW E10	MW E6	MW E7	DUP-W2
1,1,1,2-Tetrachloroethane	ug/L	1.1	1.1		<0.50	<0.50						
1,1,2,2-Tetrachloroethane	ug/L	0.5	1		<0.50	<0.50						
Tetrachloroethylene	ug/L	0.5	1.6		<0.50	<0.50						
Toluene	ug/L	0.8	24		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	ug/L	0.5	200		<0.50	<0.50						
1,1,2-Trichloroethane	ug/L	0.5	4.7		<0.50	<0.50						
Trichloroethylene	ug/L	0.5	1.6		<0.50	<0.50						
Trichlorofluoromethane	ug/L	150	150		<5.0	<5.0						
Vinyl chloride	ug/L	0.5	0.5		<0.50	<0.50						
o-Xylene	ug/L	-	-		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m+p-Xylenes	ug/L	-	-		<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	ug/L	72	300		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate: 4-Bromofluorobenzene	%	-	-		92.6	93.4	93.4	92.4	92.6	95.4	93.0	92.5
Surrogate: 1,4-Difluorobenzene	%	-	-		97.7	97.1	96.9	96.9	96.6	97.6	97.8	97.0

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

## Hydrocarbons - WATER

Analyte	Unit	Guide Limits		Lab ID	L2111659-1	L2111659-2	L2111659-3	L2111659-4	L2111659-5	L2111659-6	L2111659-7	L2111659-8
		#1	#2	Sample Date	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18	12-JUN-18
				Sample ID	MW E3	MW E4	MW E5	MW E9	MW E10	MW E6	MW E7	DUP-W2
F1 (C6-C10)	ug/L	420	750	<25	<25	<25	<25	<25	62	<25	<25	67
F1-BTEX	ug/L	420	750	<25	<25	<25	<25	<25	41	<25	<25	47
F2 (C10-C16)	ug/L	150	150	<100	<100	<100	<100	<100	280	<100	<100	280
F3 (C16-C34)	ug/L	500	500	<250	<250	<250	<250	<250	280	<250	<250	<250
F4 (C34-C50)	ug/L	500	500	<250	<250	<250	<250	<250	<250	<250	<250	<250
Total Hydrocarbons (C6-C50)	ug/L	-	-	<370	<370	<370	<370	<370	630	<370	<370	<370
Chrom. to baseline at nC50		-	-	YES	YES	YES	YES	YES	YES	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	91.4	89.0	85.1	93.5	92.9	89.3	83.0	86.6	86.6
Surrogate: 3,4-Dichlorotoluene	%	-	-	89.2	78.6	78.7	80.5	81.0	79.3	88.4	80.3	80.3

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Polychlorinated Biphenyls - WATER

Lab ID	L2111659-2	L2111659-3
Sample Date	12-JUN-18	12-JUN-18
Sample ID	MW E4	MW E5

Analyte	Unit	Guide Limits			
		#1	#2		
Aroclor 1242	ug/L	-	-	<0.020	<0.020
Aroclor 1248	ug/L	-	-	<0.020	<0.020
Aroclor 1254	ug/L	-	-	<0.020	<0.020
Aroclor 1260	ug/L	-	-	<0.020	<0.020
Total PCBs	ug/L	0.2	3	<0.040	<0.040
Surrogate: 2-fluorobiphenyl	%	-	-	68.8	51.4

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

# Reference Information

## Qualifiers for Individual Parameters Listed:

Qualifier	Description
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DLHC Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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**BTX-511-HS-WT** Water BTEX by Headspace SW846 8260 (511)

BTX is determined by analyzing by headspace-GC/MS.

**CL-IC-N-WT** Water Chloride by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**CN-WAD-R511-WT** Water Cyanide (WAD)-O.Reg 153/04 APHA 4500CN I-Weak acid Dist Colorimet

Weak acid dissociable cyanide (WAD) is determined by undergoing a distillation procedure. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**CR-CR6-IC-R511-WT** Water Hex Chrom-O.Reg 153/04 (July 2011) EPA 7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**EC-R511-WT** Water Conductivity-O.Reg 153/04 (July 2011) APHA 2510 B

Water samples can be measured directly by immersing the conductivity cell into the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**F1-F4-511-CALC-WT** Water F1-F4 Hydrocarbon Calculated Parameters CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.



# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
		2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average. 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors. 4. Linearity of diesel or motor oil response within 15% throughout the calibration range.	
<b>F1-HS-511-WT</b>	Water	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS
		Fraction F1 is determined by analyzing by headspace-GC/FID.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).	
<b>F2-F4-511-WT</b>	Water	F2-F4-O.Reg 153/04 (July 2011)	EPA 3511/CCME Tier 1
		Petroleum Hydrocarbons (F2-F4 fractions) are extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, 2001.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).	
<b>HG-D-UG/L-CVAA-WT</b>	Water	Diss. Mercury in Water by CVAAS (ug/L)	EPA 1631E (mod)
		Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).	
<b>MET-D-UG/L-MS-WT</b>	Water	Diss. Metals in Water by ICPMS (ug/L)	EPA 200.8
		The metal constituents of a non-acidified sample that pass through a membrane filter prior to ICP/MS analysis.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).	
<b>PCB-511-WT</b>	Water	PCB-O. Reg 153/04 (July 2011)	SW846 3510/8082
		Aqueous samples are extracted, then concentrated, reconstituted, and analyzed by GC/MS.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).	
<b>PH-WT</b>	Water	pH	APHA 4500 H-Electrode
		Water samples are analyzed directly by a calibrated pH meter.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days	
<b>VOC-1,3-DCP-CALC-WT</b>	Water	Regulation 153 VOCs	SW8260B/SW8270C
<b>VOC-511-HS-WT</b>	Water	VOC by GCMS HS O.Reg 153/04 (July 2011)	SW846 8260
		Liquid samples are analyzed by headspace GC/MSD.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).	
<b>XYLENES-SUM-CALC-WT</b>	Water	Sum of Xylene Isomer Concentrations	CALCULATION

# Reference Information

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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Total xylenes represents the sum of o-xylene and m&p-xylene.

\*\*ALS test methods may incorporate modifications from specified reference methods to improve performance.

## Chain of Custody Numbers:

17-624411

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

## GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.



## Quality Control Report

Workorder: L2111659

Report Date: 21-JUN-18

Page 1 of 14

Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>BTX-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4083723</b>							
<b>WG2795608-4</b>	<b>DUP</b>	<b>WG2795608-3</b>						
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	15-JUN-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	15-JUN-18
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	15-JUN-18
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	15-JUN-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	15-JUN-18
<b>WG2795608-1</b>	<b>LCS</b>							
Benzene			102.9		%		70-130	15-JUN-18
Ethylbenzene			92.6		%		70-130	15-JUN-18
m+p-Xylenes			102.9		%		70-130	15-JUN-18
o-Xylene			93.9		%		70-130	15-JUN-18
Toluene			98.1		%		70-130	15-JUN-18
<b>WG2795608-2</b>	<b>MB</b>							
Benzene			<0.50		ug/L		0.5	15-JUN-18
Ethylbenzene			<0.50		ug/L		0.5	15-JUN-18
m+p-Xylenes			<0.40		ug/L		0.4	15-JUN-18
o-Xylene			<0.30		ug/L		0.3	15-JUN-18
Toluene			<0.50		ug/L		0.5	15-JUN-18
Surrogate: 1,4-Difluorobenzene			96.6		%		70-130	15-JUN-18
Surrogate: 4-Bromofluorobenzene			90.9		%		70-130	15-JUN-18
<b>WG2795608-5</b>	<b>MS</b>	<b>WG2795608-3</b>						
Benzene			102.6		%		50-140	15-JUN-18
Ethylbenzene			89.1		%		50-140	15-JUN-18
m+p-Xylenes			99.3		%		50-140	15-JUN-18
o-Xylene			91.6		%		50-140	15-JUN-18
Toluene			95.6		%		50-140	15-JUN-18
<b>Batch</b>	<b>R4083775</b>							
<b>WG2795606-4</b>	<b>DUP</b>	<b>WG2795606-3</b>						
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	15-JUN-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	15-JUN-18
m+p-Xylenes		1.16	1.20		ug/L	3.4	30	15-JUN-18
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	15-JUN-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	15-JUN-18
<b>WG2795606-1</b>	<b>LCS</b>							
Benzene			102.4		%		70-130	14-JUN-18



## Quality Control Report

Workorder: L2111659

Report Date: 21-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>BTX-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4083775</b>							
<b>WG2795606-1</b>	<b>LCS</b>							
Ethylbenzene			93.2		%		70-130	14-JUN-18
m+p-Xylenes			102.3		%		70-130	14-JUN-18
o-Xylene			94.3		%		70-130	14-JUN-18
Toluene			97.9		%		70-130	14-JUN-18
<b>WG2795606-2</b>	<b>MB</b>							
Benzene			<0.50		ug/L		0.5	15-JUN-18
Ethylbenzene			<0.50		ug/L		0.5	15-JUN-18
m+p-Xylenes			<0.40		ug/L		0.4	15-JUN-18
o-Xylene			<0.30		ug/L		0.3	15-JUN-18
Toluene			<0.50		ug/L		0.5	15-JUN-18
Surrogate: 1,4-Difluorobenzene			98.4		%		70-130	15-JUN-18
Surrogate: 4-Bromofluorobenzene			94.5		%		70-130	15-JUN-18
<b>WG2795606-5</b>	<b>MS</b>	<b>WG2795606-3</b>						
Benzene			101.7		%		50-140	15-JUN-18
Ethylbenzene			92.9		%		50-140	15-JUN-18
m+p-Xylenes			103.4		%		50-140	15-JUN-18
o-Xylene			95.3		%		50-140	15-JUN-18
Toluene			96.0		%		50-140	15-JUN-18
<b>CL-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4084012</b>							
<b>WG2797079-3</b>	<b>DUP</b>	<b>L2109839-1</b>						
Chloride (Cl)		77.4	77.5		mg/L	0.1	20	14-JUN-18
<b>WG2797079-2</b>	<b>LCS</b>							
Chloride (Cl)			99.3		%		90-110	14-JUN-18
<b>WG2797079-1</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	14-JUN-18
<b>WG2797079-4</b>	<b>MS</b>	<b>L2109839-1</b>						
Chloride (Cl)			102.5		%		75-125	14-JUN-18
<b>CN-WAD-R511-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4094024</b>							
<b>WG2802382-3</b>	<b>DUP</b>	<b>L2111659-2</b>						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	20-JUN-18
<b>WG2802382-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			96.8		%		80-120	20-JUN-18
<b>WG2802382-1</b>	<b>MB</b>							



## Quality Control Report

Workorder: L2111659

Report Date: 21-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>CN-WAD-R511-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4094024</b>							
<b>WG2802382-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<2.0		ug/L		2	20-JUN-18
<b>WG2802382-4</b>	<b>MS</b>	<b>L2111659-2</b>						
Cyanide, Weak Acid Diss			98.2		%		75-125	20-JUN-18
<b>CR-CR6-IC-R511-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4083503</b>							
<b>WG2796865-4</b>	<b>DUP</b>	<b>WG2796865-3</b>						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	14-JUN-18
<b>WG2796865-2</b>	<b>LCS</b>							
Chromium, Hexavalent			101.1		%		80-120	14-JUN-18
<b>WG2796865-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.50		ug/L		0.5	14-JUN-18
<b>WG2796865-5</b>	<b>MS</b>	<b>WG2796865-3</b>						
Chromium, Hexavalent			99.3		%		70-130	14-JUN-18
<b>EC-R511-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4083522</b>							
<b>WG2796759-4</b>	<b>DUP</b>	<b>WG2796759-3</b>						
Conductivity		2.53	2.51		mS/cm	0.8	10	14-JUN-18
<b>WG2796759-8</b>	<b>DUP</b>	<b>WG2796759-7</b>						
Conductivity		0.946	0.945		mS/cm	0.1	10	14-JUN-18
<b>WG2796759-2</b>	<b>LCS</b>							
Conductivity			97.1		%		90-110	14-JUN-18
<b>WG2796759-6</b>	<b>LCS</b>							
Conductivity			97.7		%		90-110	14-JUN-18
<b>WG2796759-1</b>	<b>MB</b>							
Conductivity			<0.0030		mS/cm		0.003	14-JUN-18
<b>WG2796759-5</b>	<b>MB</b>							
Conductivity			<0.0030		mS/cm		0.003	14-JUN-18
<b>F1-HS-511-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4082559</b>							
<b>WG2794395-4</b>	<b>DUP</b>	<b>WG2794395-3</b>						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	14-JUN-18
<b>WG2794395-1</b>	<b>LCS</b>							
F1 (C6-C10)			89.1		%		80-120	14-JUN-18
<b>WG2794395-2</b>	<b>MB</b>							
F1 (C6-C10)			<25		ug/L		25	14-JUN-18
Surrogate: 3,4-Dichlorotoluene			88.9		%		60-140	14-JUN-18



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12700 Keele St  
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Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F1-HS-511-WT</b>								
<b>Water</b>								
<b>Batch</b>	<b>R4082559</b>							
<b>WG2794395-5</b>	<b>MS</b>	<b>WG2794395-3</b>						
F1 (C6-C10)			86.0		%		60-140	14-JUN-18
<b>Batch</b>	<b>R4083723</b>							
<b>WG2795608-4</b>	<b>DUP</b>	<b>WG2795608-3</b>						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	15-JUN-18
<b>WG2795608-1</b>	<b>LCS</b>		103.0		%		80-120	15-JUN-18
F1 (C6-C10)								
<b>WG2795608-2</b>	<b>MB</b>		<25		ug/L		25	15-JUN-18
F1 (C6-C10)								
Surrogate: 3,4-Dichlorotoluene			97.7		%		60-140	15-JUN-18
<b>WG2795608-5</b>	<b>MS</b>	<b>WG2795608-3</b>						
F1 (C6-C10)			82.0		%		60-140	15-JUN-18
<b>Batch</b>	<b>R4083775</b>							
<b>WG2795606-4</b>	<b>DUP</b>	<b>WG2795606-3</b>						
F1 (C6-C10)		37	36		ug/L	3.5	30	15-JUN-18
<b>WG2795606-1</b>	<b>LCS</b>		101.0		%		80-120	14-JUN-18
F1 (C6-C10)								
<b>WG2795606-2</b>	<b>MB</b>		<25		ug/L		25	15-JUN-18
F1 (C6-C10)								
Surrogate: 3,4-Dichlorotoluene			109.4		%		60-140	15-JUN-18
<b>WG2795606-5</b>	<b>MS</b>	<b>WG2795606-3</b>						
F1 (C6-C10)			85.1		%		60-140	15-JUN-18
<b>F2-F4-511-WT</b>								
<b>Water</b>								
<b>Batch</b>	<b>R4092647</b>							
<b>WG2801621-2</b>	<b>LCS</b>							
F2 (C10-C16)			101.4		%		70-130	20-JUN-18
F3 (C16-C34)			101.6		%		70-130	20-JUN-18
F4 (C34-C50)			107.1		%		70-130	20-JUN-18
<b>WG2801621-3</b>	<b>LCSD</b>	<b>WG2801621-2</b>						
F2 (C10-C16)		101.4	102.5		%	1.0	50	20-JUN-18
F3 (C16-C34)		101.6	98.7		%	2.8	50	20-JUN-18
F4 (C34-C50)		107.1	105.8		%	1.2	50	20-JUN-18
<b>WG2801621-1</b>	<b>MB</b>							
F2 (C10-C16)			<100		ug/L		100	20-JUN-18
F3 (C16-C34)			<250		ug/L		250	20-JUN-18
F4 (C34-C50)			<250		ug/L		250	20-JUN-18



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King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
<b>F2-F4-511-WT Water</b>									
<b>Batch R4092647</b>									
<b>WG2801621-1 MB</b>									
	Surrogate: 2-Bromobenzotrifluoride		82.1		%		60-140	20-JUN-18	
<b>Batch R4094259</b>									
<b>WG2802832-2 LCS</b>									
	F2 (C10-C16)		96.1		%		70-130	21-JUN-18	
	F3 (C16-C34)		89.9		%		70-130	21-JUN-18	
	F4 (C34-C50)		99.8		%		70-130	21-JUN-18	
<b>WG2802832-3 LCSD</b>									
	F2 (C10-C16)	<b>WG2802832-2</b>	96.1	98.0	%	1.9	50	21-JUN-18	
	F3 (C16-C34)		89.9	92.5	%	2.9	50	21-JUN-18	
	F4 (C34-C50)		99.8	105.2	%	5.3	50	21-JUN-18	
<b>WG2802832-1 MB</b>									
	F2 (C10-C16)		<100		ug/L		100	21-JUN-18	
	F3 (C16-C34)		<250		ug/L		250	21-JUN-18	
	F4 (C34-C50)		<250		ug/L		250	21-JUN-18	
	Surrogate: 2-Bromobenzotrifluoride		91.0		%		60-140	21-JUN-18	
<b>HG-D-UG/L-CVAA-WT Water</b>									
<b>Batch R4086107</b>									
<b>WG2799847-3 DUP</b>									
	Mercury (Hg)-Dissolved	<b>L2111659-2</b>	<0.010	<0.010	RPD-NA	ug/L	N/A	20	18-JUN-18
<b>WG2799847-2 LCS</b>									
	Mercury (Hg)-Dissolved		99.0		%		80-120	18-JUN-18	
<b>WG2799847-1 MB</b>									
	Mercury (Hg)-Dissolved		<0.010		ug/L		0.01	18-JUN-18	
<b>WG2799847-4 MS</b>									
	Mercury (Hg)-Dissolved	<b>L2111659-3</b>	95.0		%		70-130	18-JUN-18	
<b>MET-D-UG/L-MS-WT Water</b>									
<b>Batch R4083992</b>									
<b>WG2796700-4 DUP</b>									
	Antimony (Sb)-Dissolved	<b>WG2796700-3</b>	0.35	0.35		ug/L	1.2	20	14-JUN-18
	Arsenic (As)-Dissolved		7.25	7.26		ug/L	0.2	20	14-JUN-18
	Barium (Ba)-Dissolved		144	142		ug/L	1.8	20	14-JUN-18
	Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	14-JUN-18
	Boron (B)-Dissolved		137	143		ug/L	4.0	20	14-JUN-18
	Cadmium (Cd)-Dissolved		0.0252	0.0210		ug/L	18	20	14-JUN-18



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Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-UG/L-MS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4083992</b>							
<b>WG2796700-4</b>	<b>DUP</b>	<b>WG2796700-3</b>						
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	14-JUN-18
Cobalt (Co)-Dissolved		12.4	12.1		ug/L	1.9	20	14-JUN-18
Copper (Cu)-Dissolved		4.29	4.30		ug/L	0.2	20	14-JUN-18
Lead (Pb)-Dissolved		0.079	0.067		ug/L	16	20	14-JUN-18
Molybdenum (Mo)-Dissolved		18.9	19.0		ug/L	0.9	20	14-JUN-18
Nickel (Ni)-Dissolved		25.5	25.5		ug/L	0.2	20	14-JUN-18
Selenium (Se)-Dissolved		0.434	0.480		ug/L	10	20	14-JUN-18
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	14-JUN-18
Sodium (Na)-Dissolved		83100	84400		ug/L	1.6	20	14-JUN-18
Thallium (Tl)-Dissolved		0.516	0.498		ug/L	3.5	20	14-JUN-18
Uranium (U)-Dissolved		23.6	22.8		ug/L	3.4	20	14-JUN-18
Vanadium (V)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	14-JUN-18
Zinc (Zn)-Dissolved		3.1	3.4		ug/L	8.8	20	14-JUN-18
<b>WG2796700-2</b>	<b>LCS</b>							
Antimony (Sb)-Dissolved			100.3		%		80-120	14-JUN-18
Arsenic (As)-Dissolved			99.8		%		80-120	14-JUN-18
Barium (Ba)-Dissolved			109.3		%		80-120	14-JUN-18
Beryllium (Be)-Dissolved			105.7		%		80-120	14-JUN-18
Boron (B)-Dissolved			103.1		%		80-120	14-JUN-18
Cadmium (Cd)-Dissolved			101.9		%		80-120	14-JUN-18
Chromium (Cr)-Dissolved			102.4		%		80-120	14-JUN-18
Cobalt (Co)-Dissolved			101.1		%		80-120	14-JUN-18
Copper (Cu)-Dissolved			103.6		%		80-120	14-JUN-18
Lead (Pb)-Dissolved			101.5		%		80-120	14-JUN-18
Molybdenum (Mo)-Dissolved			104.8		%		80-120	14-JUN-18
Nickel (Ni)-Dissolved			103.6		%		80-120	14-JUN-18
Selenium (Se)-Dissolved			101.4		%		80-120	14-JUN-18
Silver (Ag)-Dissolved			91.6		%		80-120	14-JUN-18
Sodium (Na)-Dissolved			101.7		%		80-120	14-JUN-18
Thallium (Tl)-Dissolved			100.9		%		80-120	14-JUN-18
Uranium (U)-Dissolved			107.1		%		80-120	14-JUN-18
Vanadium (V)-Dissolved			104.7		%		80-120	14-JUN-18
Zinc (Zn)-Dissolved			95.1		%		80-120	14-JUN-18





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Client: Sirati & Partners Consultants Ltd. (Concord)  
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 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-UG/L-MS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4083992</b>							
<b>WG2796700-1 MB</b>								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	14-JUN-18
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	14-JUN-18
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	14-JUN-18
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	14-JUN-18
Boron (B)-Dissolved			<10		ug/L		10	14-JUN-18
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	14-JUN-18
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	14-JUN-18
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	14-JUN-18
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	14-JUN-18
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	14-JUN-18
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	14-JUN-18
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	14-JUN-18
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	14-JUN-18
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	14-JUN-18
Sodium (Na)-Dissolved			<50		ug/L		50	14-JUN-18
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	14-JUN-18
Uranium (U)-Dissolved			<0.010		ug/L		0.01	14-JUN-18
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	14-JUN-18
Zinc (Zn)-Dissolved			<1.0		ug/L		1	14-JUN-18
<b>WG2796700-5 MS</b>		<b>WG2796700-3</b>						
Antimony (Sb)-Dissolved			102.4		%		70-130	14-JUN-18
Arsenic (As)-Dissolved			105.5		%		70-130	14-JUN-18
Barium (Ba)-Dissolved			N/A	MS-B	%		-	14-JUN-18
Beryllium (Be)-Dissolved			110.7		%		70-130	14-JUN-18
Boron (B)-Dissolved			N/A	MS-B	%		-	14-JUN-18
Cadmium (Cd)-Dissolved			98.8		%		70-130	14-JUN-18
Chromium (Cr)-Dissolved			102.1		%		70-130	14-JUN-18
Cobalt (Co)-Dissolved			92.8		%		70-130	14-JUN-18
Copper (Cu)-Dissolved			93.7		%		70-130	14-JUN-18
Lead (Pb)-Dissolved			94.4		%		70-130	14-JUN-18
Molybdenum (Mo)-Dissolved			N/A	MS-B	%		-	14-JUN-18
Nickel (Ni)-Dissolved			N/A	MS-B	%		-	14-JUN-18
Selenium (Se)-Dissolved			110.2		%		70-130	14-JUN-18
Silver (Ag)-Dissolved			74.8		%		70-130	18-JUN-18



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 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-UG/L-MS-WT</b>								
	Water							
<b>Batch</b>	<b>R4083992</b>							
<b>WG2796700-5</b>	<b>MS</b>	<b>WG2796700-3</b>						
Sodium (Na)-Dissolved			N/A	MS-B	%		-	14-JUN-18
Thallium (Tl)-Dissolved			93.4		%		70-130	14-JUN-18
Uranium (U)-Dissolved			N/A	MS-B	%		-	14-JUN-18
Vanadium (V)-Dissolved			109.2		%		70-130	14-JUN-18
Zinc (Zn)-Dissolved			97.1		%		70-130	14-JUN-18
<b>PCB-511-WT</b>								
	Water							
<b>Batch</b>	<b>R4088570</b>							
<b>WG2798112-2</b>	<b>LCS</b>							
Aroclor 1242			75.9		%		60-140	19-JUN-18
Aroclor 1248			76.3		%		60-140	19-JUN-18
Aroclor 1254			81.5		%		60-140	19-JUN-18
Aroclor 1260			97.1		%		60-140	19-JUN-18
<b>WG2798112-3</b>	<b>LCS</b>	<b>WG2798112-3</b>						
Aroclor 1242		75.9	83.9		%	10	50	19-JUN-18
Aroclor 1248		76.3	76.3		%	0.0	50	19-JUN-18
Aroclor 1254		81.5	79.1		%	3.0	50	19-JUN-18
Aroclor 1260		97.1	110.8		%	13	50	19-JUN-18
<b>WG2798112-1</b>	<b>MB</b>							
Aroclor 1242			<0.020		ug/L		0.02	19-JUN-18
Aroclor 1248			<0.020		ug/L		0.02	19-JUN-18
Aroclor 1254			<0.020		ug/L		0.02	19-JUN-18
Aroclor 1260			<0.020		ug/L		0.02	19-JUN-18
Surrogate: 2-fluorobiphenyl			74.4		%		50-150	19-JUN-18
<b>PH-WT</b>								
	Water							
<b>Batch</b>	<b>R4083522</b>							
<b>WG2796759-4</b>	<b>DUP</b>	<b>WG2796759-3</b>						
pH		8.90	8.90	J	pH units	0.01	0.2	14-JUN-18
<b>WG2796759-8</b>	<b>DUP</b>	<b>WG2796759-7</b>						
pH		7.89	7.90	J	pH units	0.01	0.2	14-JUN-18
<b>WG2796759-2</b>	<b>LCS</b>							
pH			6.98		pH units		6.9-7.1	14-JUN-18
<b>WG2796759-6</b>	<b>LCS</b>							
pH			7.00		pH units		6.9-7.1	14-JUN-18
<b>VOC-511-HS-WT</b>								
	Water							



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Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4082559</b>							
<b>WG2794395-4</b>	<b>DUP</b>	<b>WG2794395-3</b>						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	14-JUN-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	14-JUN-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	14-JUN-18
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	14-JUN-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	14-JUN-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	14-JUN-18
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	14-JUN-18
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	14-JUN-18
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	14-JUN-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	14-JUN-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	14-JUN-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	14-JUN-18
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	14-JUN-18
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	14-JUN-18
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	14-JUN-18
Styrene		<0.50	<0.50		ug/L			14-JUN-18



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 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4082559</b>							
<b>WG2794395-4</b>	<b>DUP</b>	<b>WG2794395-3</b>						
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	14-JUN-18
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	14-JUN-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-JUN-18
<b>WG2794395-1</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			105.2		%		70-130	14-JUN-18
1,1,2,2-Tetrachloroethane			94.3		%		70-130	14-JUN-18
1,1,1-Trichloroethane			107.3		%		70-130	14-JUN-18
1,1,2-Trichloroethane			100.8		%		70-130	14-JUN-18
1,1-Dichloroethane			102.2		%		70-130	14-JUN-18
1,1-Dichloroethylene			94.2		%		70-130	14-JUN-18
1,2-Dibromoethane			99.4		%		70-130	14-JUN-18
1,2-Dichlorobenzene			102.6		%		70-130	14-JUN-18
1,2-Dichloroethane			101.3		%		70-130	14-JUN-18
1,2-Dichloropropane			104.3		%		70-130	14-JUN-18
1,3-Dichlorobenzene			86.8		%		70-130	14-JUN-18
1,4-Dichlorobenzene			88.7		%		70-130	14-JUN-18
Acetone			115.7		%		60-140	14-JUN-18
Benzene			105.0		%		70-130	14-JUN-18
Bromodichloromethane			100.4		%		70-130	14-JUN-18
Bromoform			100.3		%		70-130	14-JUN-18
Bromomethane			96.9		%		60-140	14-JUN-18
Carbon tetrachloride			109.7		%		70-130	14-JUN-18
Chlorobenzene			103.4		%		70-130	14-JUN-18
Chloroform			105.2		%		70-130	14-JUN-18
cis-1,2-Dichloroethylene			103.8		%		70-130	14-JUN-18
cis-1,3-Dichloropropene			98.9		%		70-130	14-JUN-18
Dibromochloromethane			105.8		%		70-130	14-JUN-18
Dichlorodifluoromethane			69.7		%		50-140	14-JUN-18



## Quality Control Report

Workorder: L2111659

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4082559</b>							
<b>WG2794395-1</b>	<b>LCS</b>							
Ethylbenzene			102.1		%		70-130	14-JUN-18
n-Hexane			110.2		%		70-130	14-JUN-18
m+p-Xylenes			101.9		%		70-130	14-JUN-18
Methyl Ethyl Ketone			101.0		%		60-140	14-JUN-18
Methyl Isobutyl Ketone			101.8		%		60-140	14-JUN-18
Methylene Chloride			104.7		%		70-130	14-JUN-18
MTBE			108.1		%		70-130	14-JUN-18
o-Xylene			101.9		%		70-130	14-JUN-18
Styrene			100.4		%		70-130	14-JUN-18
Tetrachloroethylene			102.9		%		70-130	14-JUN-18
Toluene			100.9		%		70-130	14-JUN-18
trans-1,2-Dichloroethylene			103.0		%		70-130	14-JUN-18
trans-1,3-Dichloropropene			100.4		%		70-130	14-JUN-18
Trichloroethylene			109.0		%		70-130	14-JUN-18
Trichlorofluoromethane			103.0		%		60-140	14-JUN-18
Vinyl chloride			94.5		%		60-140	14-JUN-18
<b>WG2794395-2</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	14-JUN-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	14-JUN-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	14-JUN-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	14-JUN-18
1,1-Dichloroethane			<0.50		ug/L		0.5	14-JUN-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	14-JUN-18
1,2-Dibromoethane			<0.20		ug/L		0.2	14-JUN-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	14-JUN-18
1,2-Dichloroethane			<0.50		ug/L		0.5	14-JUN-18
1,2-Dichloropropane			<0.50		ug/L		0.5	14-JUN-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	14-JUN-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	14-JUN-18
Acetone			<30		ug/L		30	14-JUN-18
Benzene			<0.50		ug/L		0.5	14-JUN-18
Bromodichloromethane			<2.0		ug/L		2	14-JUN-18
Bromoform			<5.0		ug/L		5	14-JUN-18
Bromomethane			<0.50		ug/L		0.5	14-JUN-18



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	Water							
<b>Batch</b>	<b>R4082559</b>							
<b>WG2794395-2 MB</b>								
Carbon tetrachloride			<0.20		ug/L		0.2	14-JUN-18
Chlorobenzene			<0.50		ug/L		0.5	14-JUN-18
Chloroform			<1.0		ug/L		1	14-JUN-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	14-JUN-18
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	14-JUN-18
Dibromochloromethane			<2.0		ug/L		2	14-JUN-18
Dichlorodifluoromethane			<2.0		ug/L		2	14-JUN-18
Ethylbenzene			<0.50		ug/L		0.5	14-JUN-18
n-Hexane			<0.50		ug/L		0.5	14-JUN-18
m+p-Xylenes			<0.40		ug/L		0.4	14-JUN-18
Methyl Ethyl Ketone			<20		ug/L		20	14-JUN-18
Methyl Isobutyl Ketone			<20		ug/L		20	14-JUN-18
Methylene Chloride			<5.0		ug/L		5	14-JUN-18
MTBE			<2.0		ug/L		2	14-JUN-18
o-Xylene			<0.30		ug/L		0.3	14-JUN-18
Styrene			<0.50		ug/L		0.5	14-JUN-18
Tetrachloroethylene			<0.50		ug/L		0.5	14-JUN-18
Toluene			<0.50		ug/L		0.5	14-JUN-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	14-JUN-18
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	14-JUN-18
Trichloroethylene			<0.50		ug/L		0.5	14-JUN-18
Trichlorofluoromethane			<5.0		ug/L		5	14-JUN-18
Vinyl chloride			<0.50		ug/L		0.5	14-JUN-18
Surrogate: 1,4-Difluorobenzene			98.8		%		70-130	14-JUN-18
Surrogate: 4-Bromofluorobenzene			100.5		%		70-130	14-JUN-18
<b>WG2794395-5 MS</b>		<b>WG2794395-3</b>						
1,1,1,2-Tetrachloroethane			105.4		%		50-140	14-JUN-18
1,1,1,2,2-Tetrachloroethane			98.3		%		50-140	14-JUN-18
1,1,1-Trichloroethane			105.9		%		50-140	14-JUN-18
1,1,2-Trichloroethane			103.1		%		50-140	14-JUN-18
1,1-Dichloroethane			101.8		%		50-140	14-JUN-18
1,1-Dichloroethylene			90.2		%		50-140	14-JUN-18
1,2-Dibromoethane			102.6		%		50-140	14-JUN-18
1,2-Dichlorobenzene			102.5		%		50-140	14-JUN-18



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: CHAORAN LI

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4082559</b>							
<b>WG2794395-5 MS</b>		<b>WG2794395-3</b>						
1,2-Dichloroethane			105.4		%		50-140	14-JUN-18
1,2-Dichloropropane			106.4		%		50-140	14-JUN-18
1,3-Dichlorobenzene			98.3		%		50-140	14-JUN-18
1,4-Dichlorobenzene			84.7		%		50-140	14-JUN-18
Acetone			119.5		%		50-140	14-JUN-18
Benzene			105.2		%		50-140	14-JUN-18
Bromodichloromethane			103.4		%		50-140	14-JUN-18
Bromoform			105.0		%		50-140	14-JUN-18
Bromomethane			94.2		%		50-140	14-JUN-18
Carbon tetrachloride			107.4		%		50-140	14-JUN-18
Chlorobenzene			102.9		%		50-140	14-JUN-18
Chloroform			106.5		%		50-140	14-JUN-18
cis-1,2-Dichloroethylene			104.9		%		50-140	14-JUN-18
cis-1,3-Dichloropropene			102.2		%		50-140	14-JUN-18
Dibromochloromethane			108.5		%		50-140	14-JUN-18
Dichlorodifluoromethane			76.4		%		50-140	14-JUN-18
Ethylbenzene			99.2		%		50-140	14-JUN-18
n-Hexane			103.3		%		50-140	14-JUN-18
m+p-Xylenes			99.2		%		50-140	14-JUN-18
Methyl Ethyl Ketone			105.4		%		50-140	14-JUN-18
Methyl Isobutyl Ketone			108.7		%		50-140	14-JUN-18
Methylene Chloride			105.5		%		50-140	14-JUN-18
MTBE			109.2		%		50-140	14-JUN-18
o-Xylene			99.9		%		50-140	14-JUN-18
Styrene			99.7		%		50-140	14-JUN-18
Tetrachloroethylene			99.3		%		50-140	14-JUN-18
Toluene			98.1		%		50-140	14-JUN-18
trans-1,2-Dichloroethylene			100.7		%		50-140	14-JUN-18
trans-1,3-Dichloropropene			98.4		%		50-140	14-JUN-18
Trichloroethylene			108.2		%		50-140	14-JUN-18
Trichlorofluoromethane			98.5		%		50-140	14-JUN-18
Vinyl chloride			91.3		%		50-140	14-JUN-18

# Quality Control Report

Workorder: L2111659

Report Date: 21-JUN-18

Client: Sirati & Partners Consultants Ltd. (Concord)  
12700 Keele St  
King City ON L7B 1H5  
Contact: CHAORAN LI

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## Legend:

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Limit ALS Control Limit (Data Quality Objectives)  
DUP Duplicate  
RPD Relative Percent Difference  
N/A Not Available  
LCS Laboratory Control Sample  
SRM Standard Reference Material  
MS Matrix Spike  
MSD Matrix Spike Duplicate  
ADE Average Desorption Efficiency  
MB Method Blank  
IRM Internal Reference Material  
CRM Certified Reference Material  
CCV Continuing Calibration Verification  
CVS Calibration Verification Standard  
LCSD Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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## Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

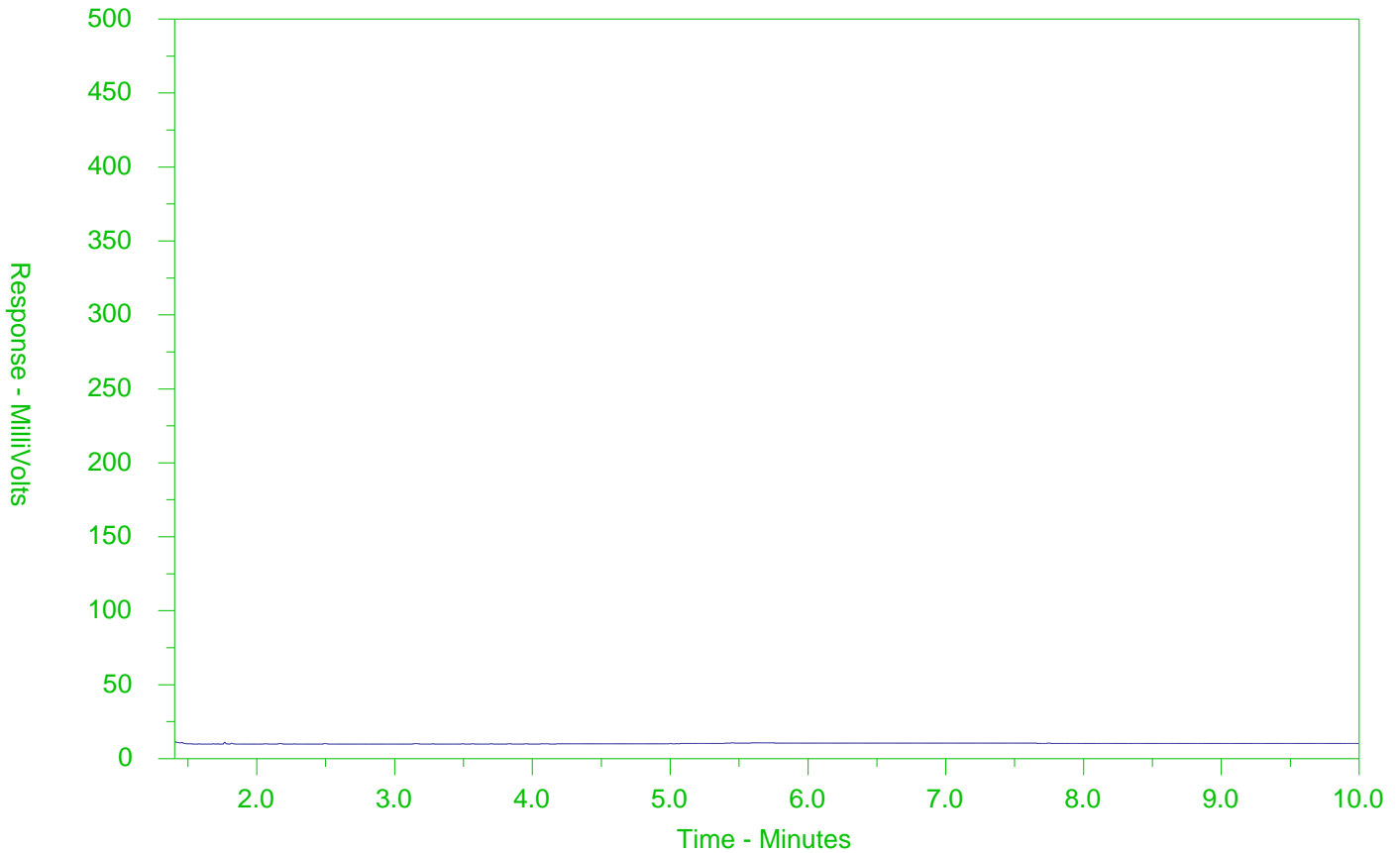
Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111659-1  
 Client Sample ID: MW E3



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

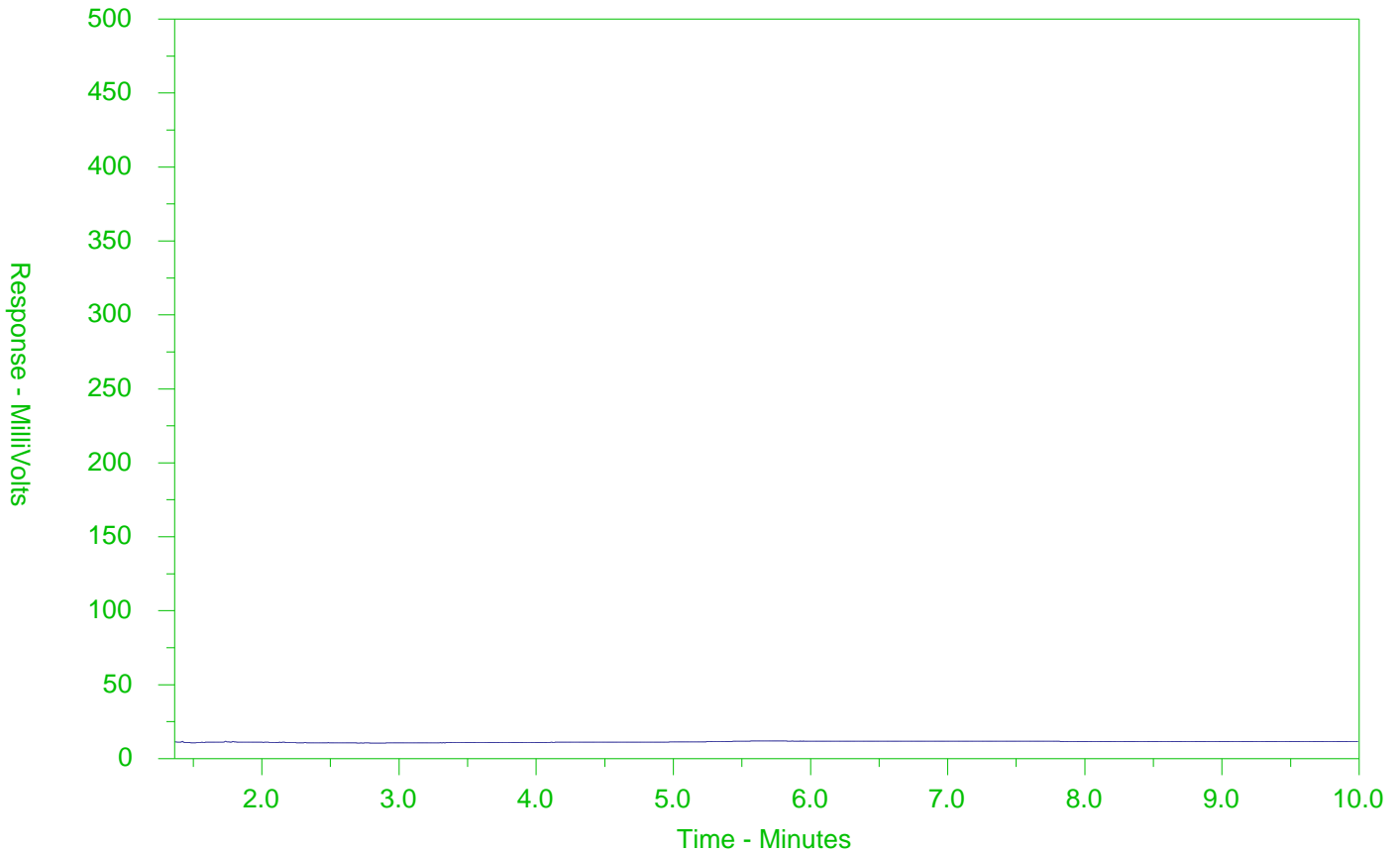
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111659-2  
 Client Sample ID: MW E4



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

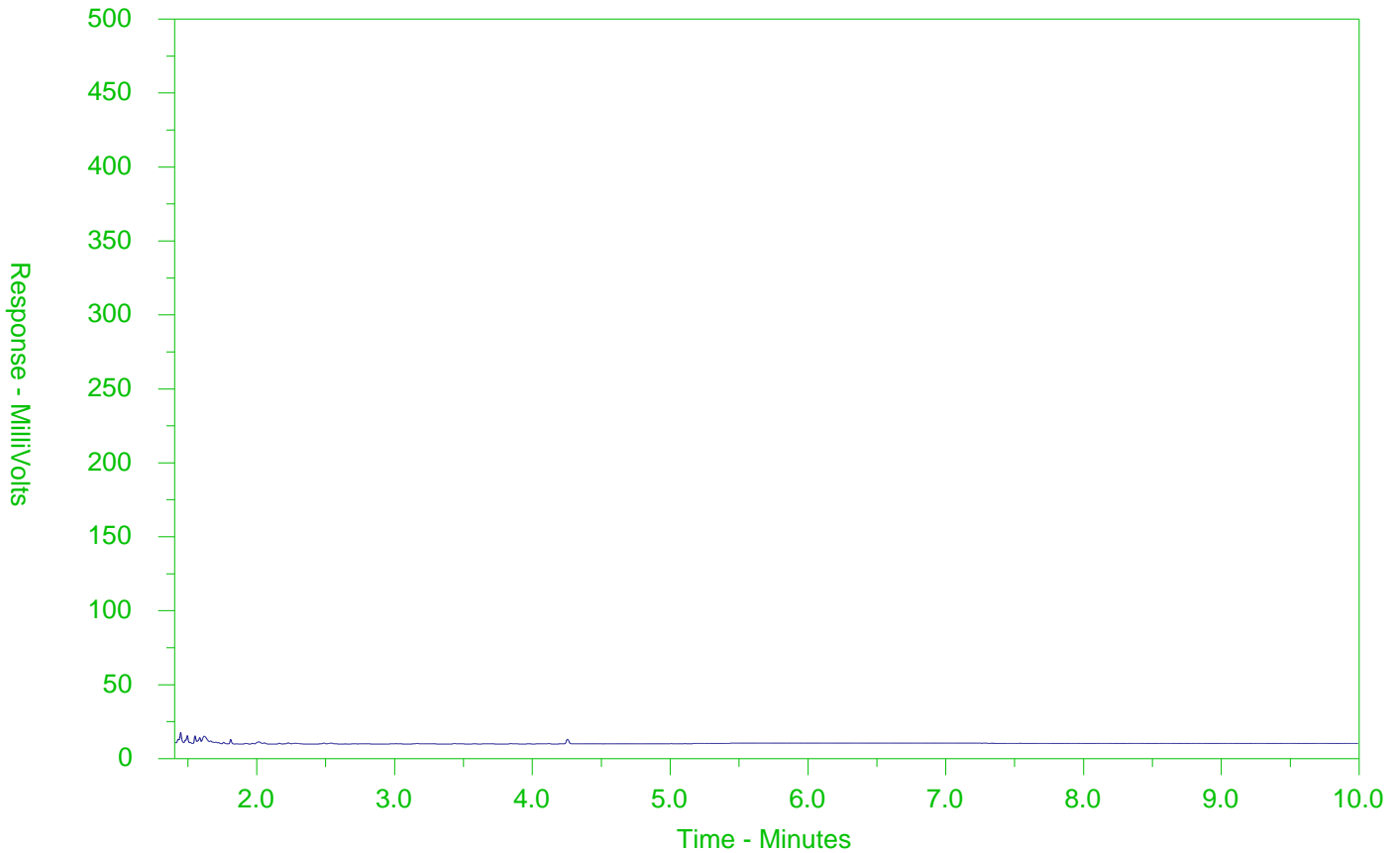
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111659-3  
 Client Sample ID: MW E5



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

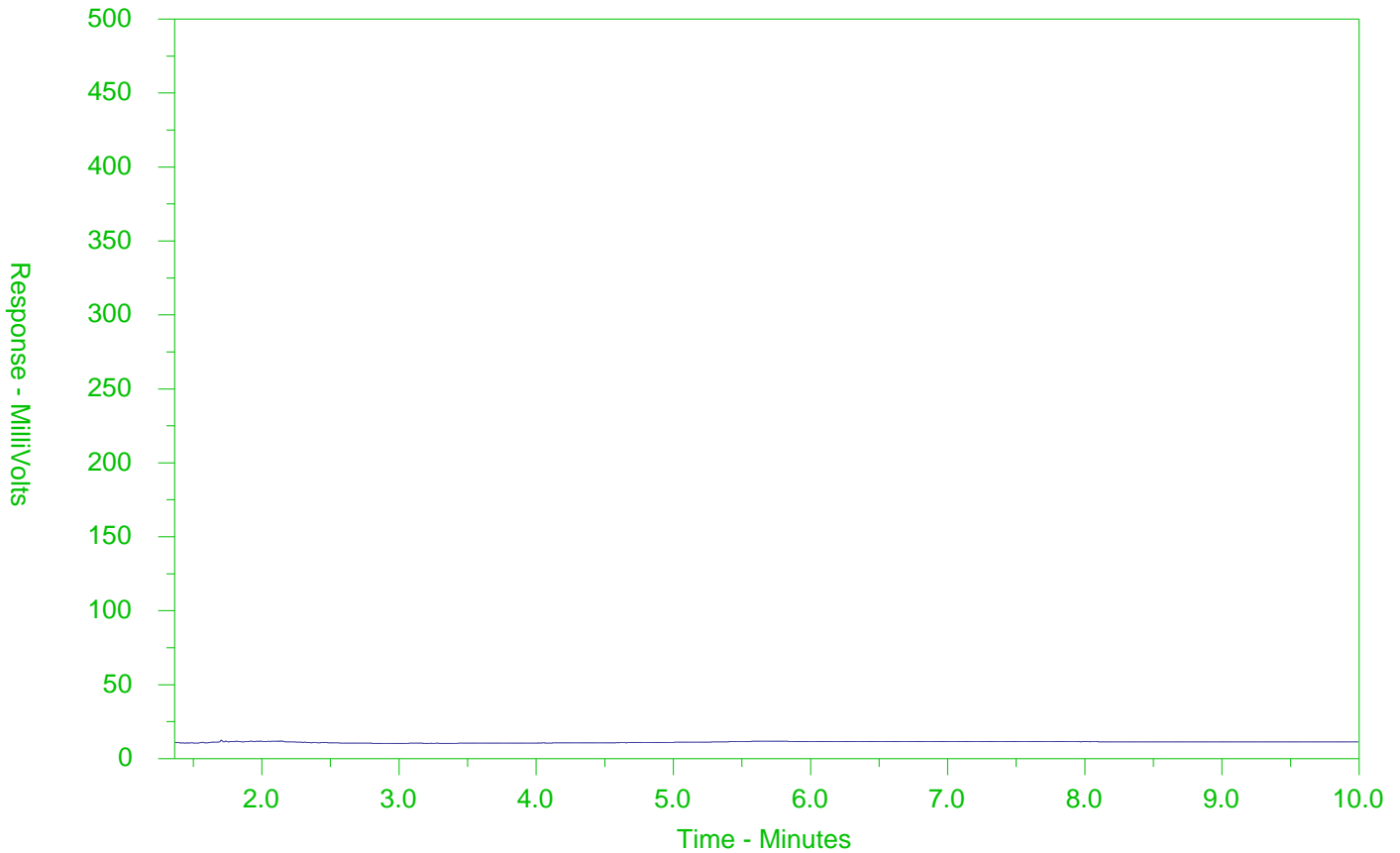
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111659-4  
 Client Sample ID: MW E9



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

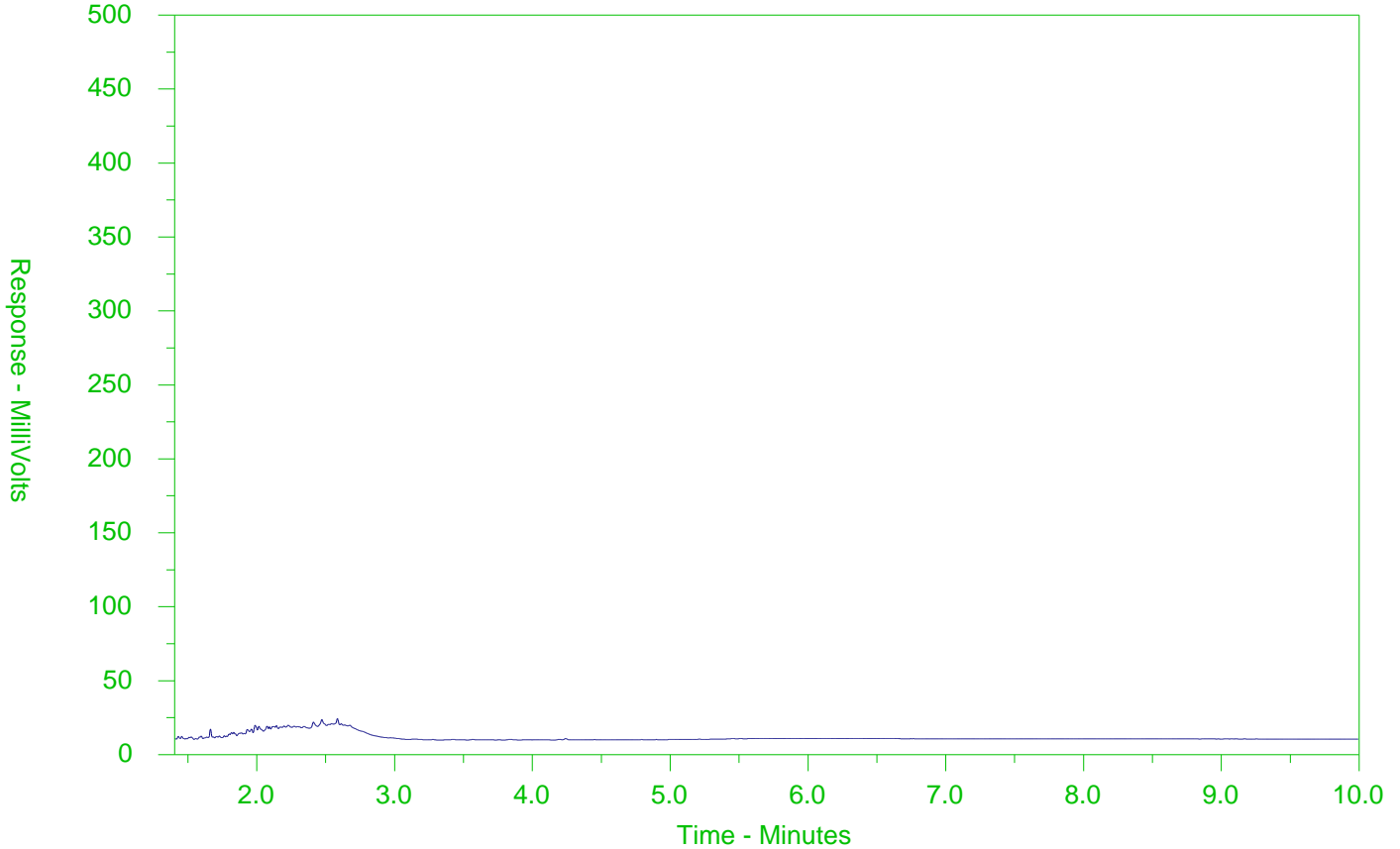
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111659-5  
 Client Sample ID: MW E10



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

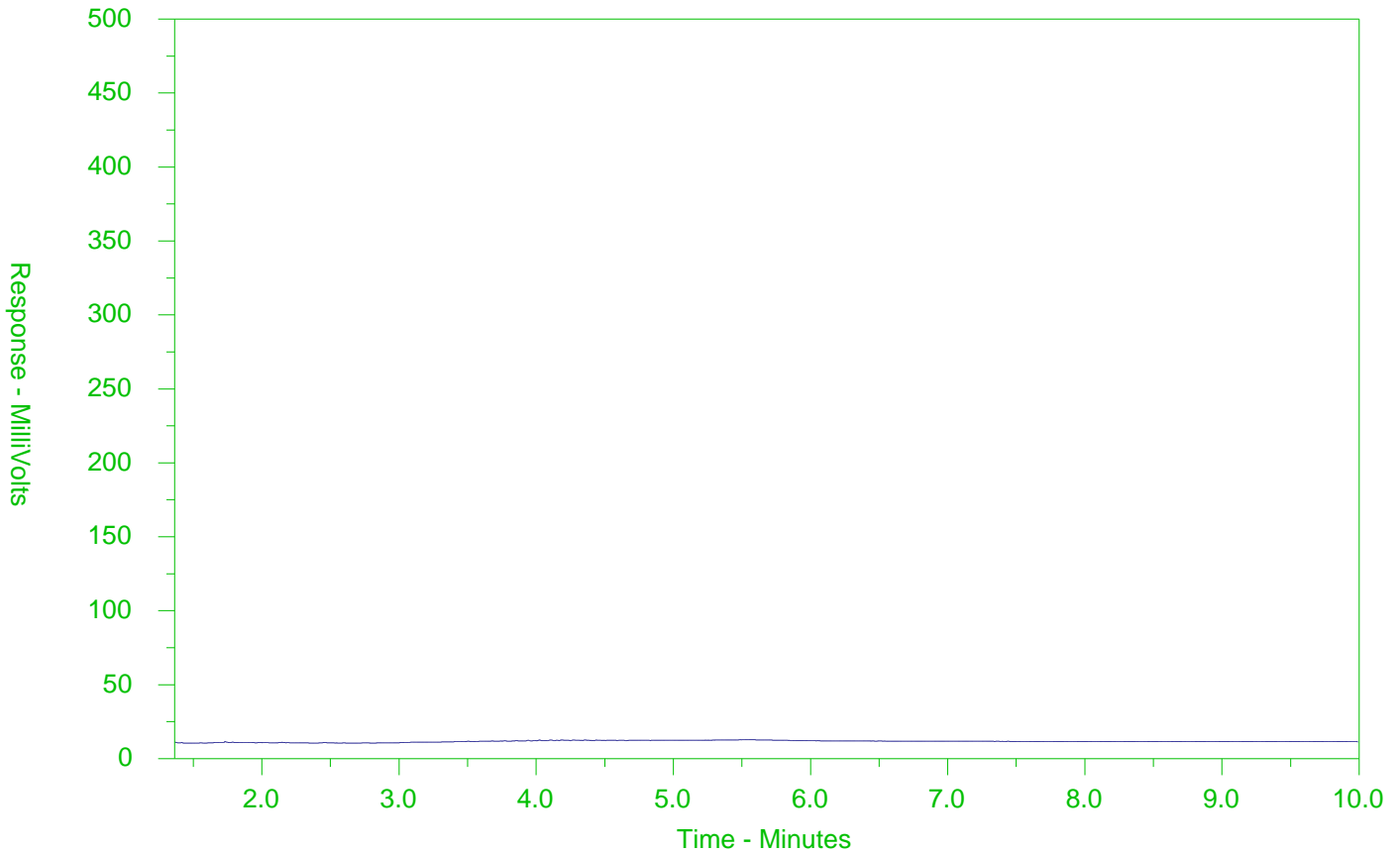
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111659-6  
 Client Sample ID: MW E6



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

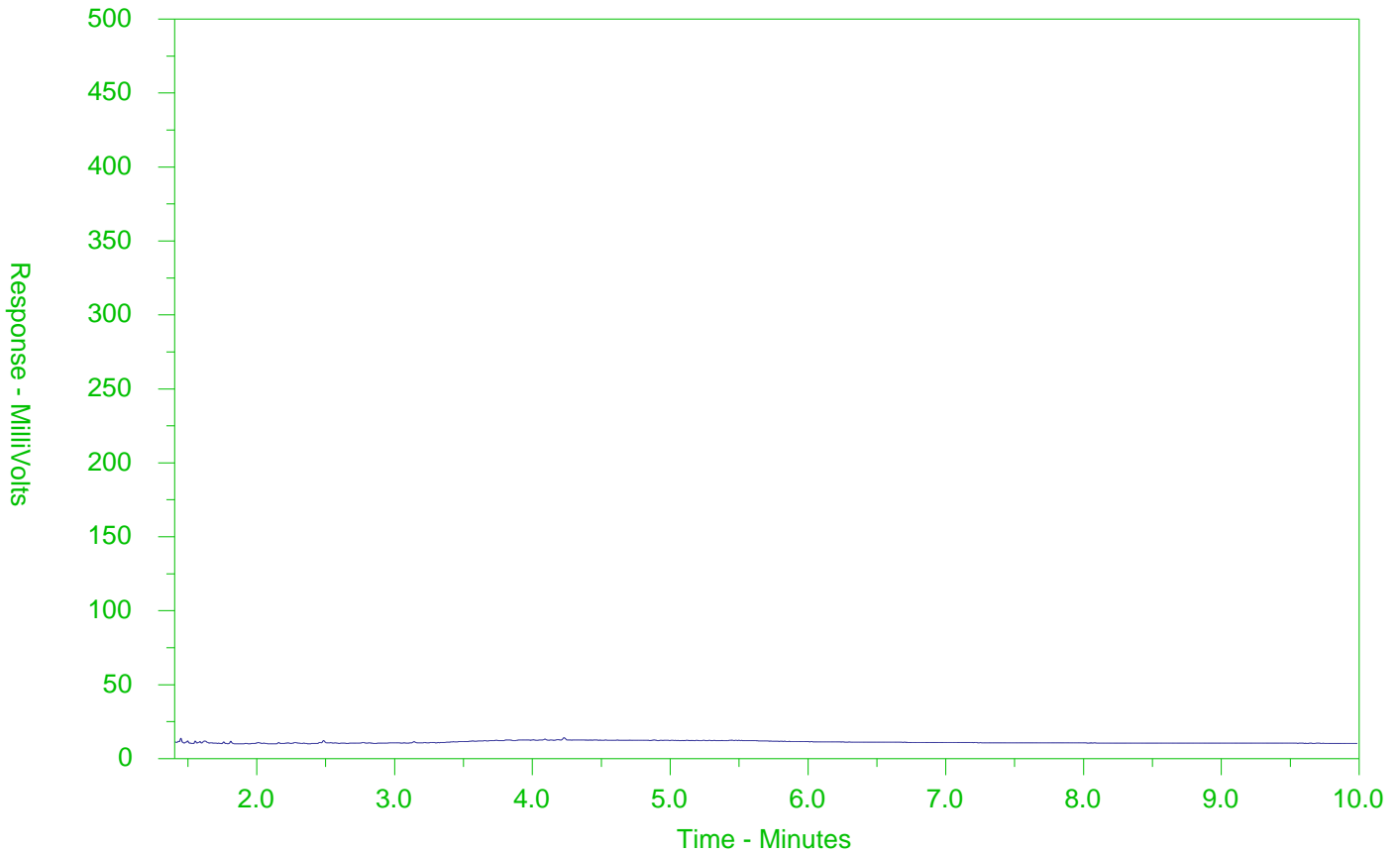
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111659-7  
 Client Sample ID: MW E7



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

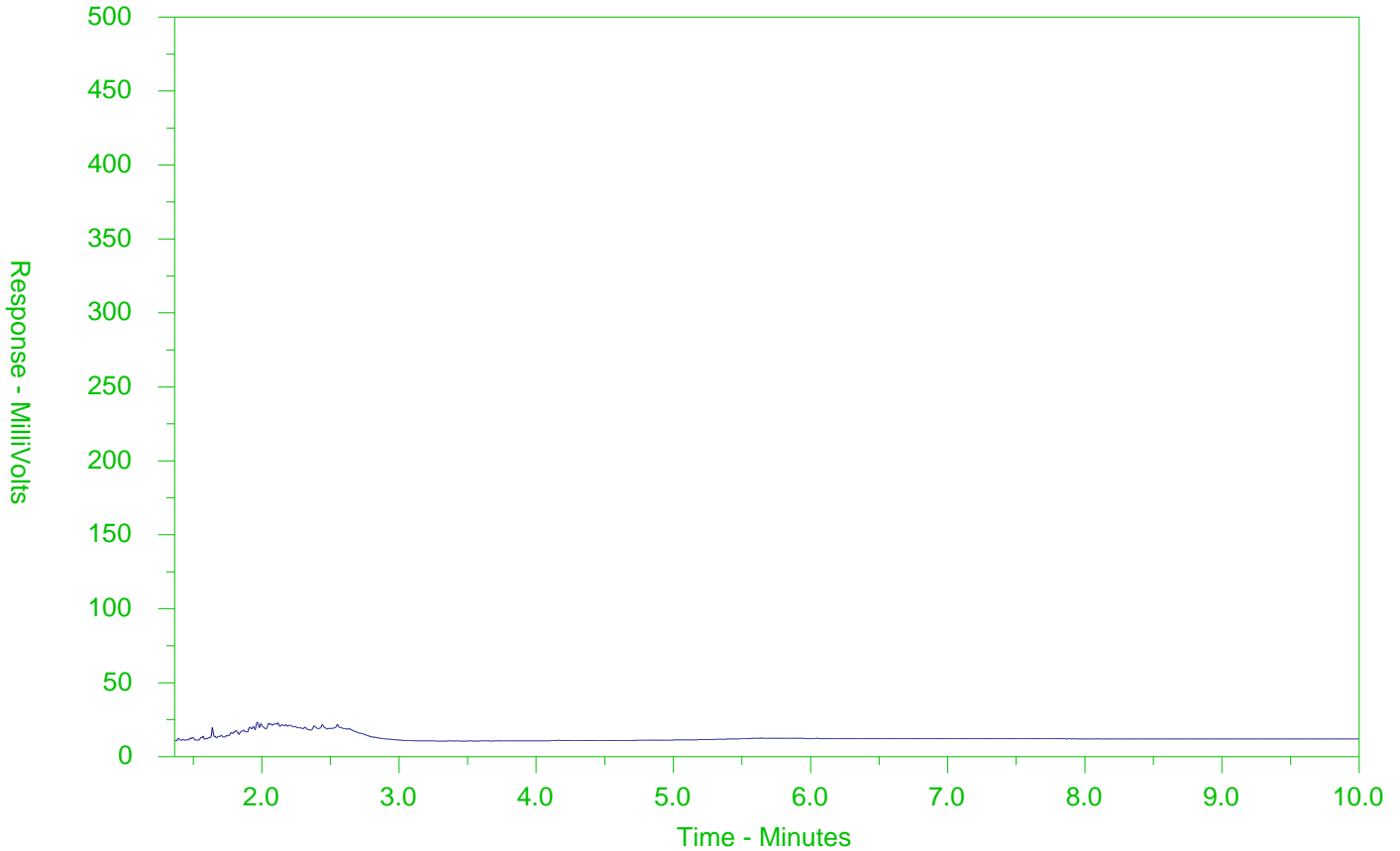
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111659-8  
 Client Sample ID: DUP-W2



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).







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(Concord)  
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Date Received: 13-JUN-18  
Report Date: 21-JUN-18 13:46 (MT)  
Version: FINAL

Client Phone: 905-833-1582

## Certificate of Analysis

Lab Work Order #: L2111856  
Project P.O. #: SP18-306-20  
Job Reference: SP18-306-20  
C of C Numbers: 17-622372  
Legal Site Desc:

Rick Hawthorne  
Account Manager

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## Summary of Guideline Exceedances

Guideline		Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID							
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Ground Water-All Types of Property Uses</b>							
L2111856-2	MW-E2		Dissolved Metals	Beryllium (Be)-Dissolved	<1.0	0.5	ug/L
				Silver (Ag)-Dissolved	<0.50	0.3	ug/L
				Vanadium (V)-Dissolved	<5.0	3.9	ug/L
L2111856-4	MW-E7		Anions and Nutrients	Chloride (Cl)	1280	790	mg/L
			Dissolved Metals	Beryllium (Be)-Dissolved	<1.0	0.5	ug/L
				Silver (Ag)-Dissolved	<0.50	0.3	ug/L
				Vanadium (V)-Dissolved	<5.0	3.9	ug/L
L2111856-6	MW-E11		Hydrocarbons	F1 (C6-C10)	606	420	ug/L
				F2 (C10-C16)	1650	150	ug/L
L2111856-9	DUP-W1		Dissolved Metals	Beryllium (Be)-Dissolved	<1.0	0.5	ug/L
				Silver (Ag)-Dissolved	<0.50	0.3	ug/L
				Vanadium (V)-Dissolved	<5.0	3.9	ug/L
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Ground Water (Coarse Soil)-All Types of Property Use</b>							
L2111856-4	MW-E7		Anions and Nutrients	Chloride (Cl)	1280	790	mg/L
L2111856-6	MW-E11		Hydrocarbons	F2 (C10-C16)	1650	150	ug/L

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Physical Tests - WATER

Lab ID	L2111856-2	L2111856-4	L2111856-9
Sample Date	13-JUN-18	13-JUN-18	13-JUN-18
Sample ID	MW-E2	MW-E7	DUP-W1

Analyte	Unit	Guide Limits				
		#1	#2			
Conductivity	mS/cm	-	-	1.69	3.43	1.69
pH	pH units	-	-	7.66	7.71	7.72

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Anions and Nutrients - WATER

	<b>Lab ID</b>		<b>Sample Date</b>		<b>Sample ID</b>	
	L2111856-2	L2111856-4	L2111856-9	13-JUN-18	13-JUN-18	13-JUN-18
	MW-E2	MW-E7	DUP-W1			
<b>Guide Limits</b>						
<b>Analyte</b>	<b>Unit</b>	<b>#1</b>	<b>#2</b>			
Chloride (Cl)	mg/L	790	790	342 <sup>DLHC</sup>	1280 <sup>DLHC</sup>	320 <sup>DLHC</sup>

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

Environmental

## Cyanides - WATER


Lab ID	L2111856-2	L2111856-4	L2111856-9
Sample Date	13-JUN-18	13-JUN-18	13-JUN-18
Sample ID	MW-E2	MW-E7	DUP-W1


Analyte	Unit	Guide Limits		
		#1	#2	
Cyanide, Weak Acid Diss	ug/L	5	66	<2.0

Analyte	Unit	Guide Limits		
		#1	#2	
Cyanide, Weak Acid Diss	ug/L	5	66	<2.0

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## ANALYTICAL REPORT

## Dissolved Metals - WATER

Analyte	Unit	Guide Limits			L2111856-2	L2111856-4	L2111856-9
		#1	#2				
Dissolved Mercury Filtration Location	-	-	-	NA	NA	NA	
Dissolved Metals Filtration Location	-	-	-	FIELD	FIELD	FIELD	
Antimony (Sb)-Dissolved	ug/L	1.5	6	<1.0 <sup>DLHC</sup>	<1.0 <sup>DLHC</sup>	<1.0 <sup>DLHC</sup>	
Arsenic (As)-Dissolved	ug/L	13	25	3.8 <sup>DLHC</sup>	2.2 <sup>DLHC</sup>	3.8 <sup>DLHC</sup>	
Barium (Ba)-Dissolved	ug/L	610	1000	52.7 <sup>DLHC</sup>	246 <sup>DLHC</sup>	51.2 <sup>DLHC</sup>	
Beryllium (Be)-Dissolved	ug/L	0.5	4	<1.0 <sup>DLHC</sup>	<1.0 <sup>DLHC</sup>	<1.0 <sup>DLHC</sup>	
Boron (B)-Dissolved	ug/L	1700	5000	570 <sup>DLHC</sup>	430 <sup>DLHC</sup>	570 <sup>DLHC</sup>	
Cadmium (Cd)-Dissolved	ug/L	0.5	2.7	<0.050 <sup>DLHC</sup>	0.064 <sup>DLHC</sup>	<0.050 <sup>DLHC</sup>	
Chromium (Cr)-Dissolved	ug/L	11	50	<5.0 <sup>DLHC</sup>	<5.0 <sup>DLHC</sup>	<5.0 <sup>DLHC</sup>	
Cobalt (Co)-Dissolved	ug/L	3.8	3.8	<1.0 <sup>DLHC</sup>	1.2 <sup>DLHC</sup>	<1.0 <sup>DLHC</sup>	
Copper (Cu)-Dissolved	ug/L	5	87	<2.0 <sup>DLHC</sup>	<2.0 <sup>DLHC</sup>	<2.0 <sup>DLHC</sup>	
Lead (Pb)-Dissolved	ug/L	1.9	10	<0.50 <sup>DLHC</sup>	0.70 <sup>DLHC</sup>	<0.50 <sup>DLHC</sup>	
Mercury (Hg)-Dissolved	ug/L	0.1	0.29	<0.010	<0.010	<0.010	
Molybdenum (Mo)-Dissolved	ug/L	23	70	1.08 <sup>DLHC</sup>	3.22 <sup>DLHC</sup>	1.03 <sup>DLHC</sup>	
Nickel (Ni)-Dissolved	ug/L	14	100	11.9 <sup>DLHC</sup>	<5.0 <sup>DLHC</sup>	11.3 <sup>DLHC</sup>	
Selenium (Se)-Dissolved	ug/L	5	10	<0.50 <sup>DLHC</sup>	<0.50 <sup>DLHC</sup>	<0.50 <sup>DLHC</sup>	
Silver (Ag)-Dissolved	ug/L	0.3	1.5	<0.50 <sup>DLHC</sup>	<0.50 <sup>DLHC</sup>	<0.50 <sup>DLHC</sup>	
Sodium (Na)-Dissolved	ug/L	490000	490000	110000 <sup>DLHC</sup>	411000 <sup>DLHC</sup>	106000 <sup>DLHC</sup>	
Thallium (Tl)-Dissolved	ug/L	0.5	2	<0.10 <sup>DLHC</sup>	<0.10 <sup>DLHC</sup>	<0.10 <sup>DLHC</sup>	
Uranium (U)-Dissolved	ug/L	8.9	20	0.61 <sup>DLHC</sup>	1.18 <sup>DLHC</sup>	0.63 <sup>DLHC</sup>	
Vanadium (V)-Dissolved	ug/L	3.9	6.2	<5.0 <sup>DLHC</sup>	<5.0 <sup>DLHC</sup>	<5.0 <sup>DLHC</sup>	
Zinc (Zn)-Dissolved	ug/L	160	1100	<10 <sup>DLHC</sup>	<10 <sup>DLHC</sup>	<10 <sup>DLHC</sup>	

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

## Speciated Metals - WATER

	<b>Lab ID</b>		<b>Sample Date</b>		<b>Sample ID</b>	
	L2111856-2	L2111856-4	L2111856-9	13-JUN-18	13-JUN-18	13-JUN-18
		MW-E2	MW-E7	DUP-W1		
	<b>Guide Limits</b>					
<b>Analyte</b>	<b>Unit</b>	<b>#1</b>	<b>#2</b>			
Chromium, Hexavalent	ug/L	25	25	<0.50	<0.50 <sup>SFP</sup>	<0.50

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.





## Volatile Organic Compounds - WATER

Lab ID	L2111856-3	L2111856-10
Sample Date	13-JUN-18	13-JUN-18
Sample ID	MW-E6	TRIP BLANK 1

Analyte	Unit	Guide Limits			
		#1	#2		
1,1,1,2-Tetrachloroethane	ug/L	1.1	1.1	<0.50	<0.50
1,1,2,2-Tetrachloroethane	ug/L	0.5	1	<0.50	<0.50
Tetrachloroethylene	ug/L	0.5	1.6	<0.50	<0.50
Toluene	ug/L	0.8	24	<0.50	<0.50
1,1,1-Trichloroethane	ug/L	0.5	200	<0.50	<0.50
1,1,2-Trichloroethane	ug/L	0.5	4.7	<0.50	<0.50
Trichloroethylene	ug/L	0.5	1.6	<0.50	<0.50
Trichlorofluoromethane	ug/L	150	150	<5.0	<5.0
Vinyl chloride	ug/L	0.5	0.5	<0.50	<0.50
o-Xylene	ug/L	-	-	<0.30	<0.30
m+p-Xylenes	ug/L	-	-	<0.40	<0.40
Xylenes (Total)	ug/L	72	300	<0.50	<0.50
Surrogate: 4-Bromofluorobenzene	%	-	-	95.4	103.0
Surrogate: 1,4-Difluorobenzene	%	-	-	98.2	100.2

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Hydrocarbons - WATER

Analyte	Unit	Guide Limits		Lab ID	L2111856-1	L2111856-2	L2111856-3	L2111856-4	L2111856-5	L2111856-6	L2111856-7	L2111856-8
		#1	#2	Sample Date	13-JUN-18	13-JUN-18	13-JUN-18	13-JUN-18	13-JUN-18	13-JUN-18	13-JUN-18	13-JUN-18
				Sample ID	MW-E1	MW-E2	MW-E6	MW-E7	MW-E8	MW-E11	MW-E12	MW-E13
F1 (C6-C10)	ug/L	420	750		<25	<25	<25	<25	<25	606	<25	<25
F1-BTEX	ug/L	420	750				<25					
F2 (C10-C16)	ug/L	150	150		<100	<100	<100	<100	<100	1650	<100	<100
F3 (C16-C34)	ug/L	500	500		<250	<250	<250	<250	<250	<250	<250	<250
F4 (C34-C50)	ug/L	500	500		<250	<250	<250	<250	<250	<250	<250	<250
Total Hydrocarbons (C6-C50)	ug/L	-	-		<370	<370	<370	<370	<370	2250	<370	<370
Chrom. to baseline at nC50		-	-		YES	YES	YES	YES	YES	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-		83.5	89.8	85.1	85.7	83.3	88.4	88.8	82.5
Surrogate: 3,4-Dichlorotoluene	%	-	-		87.0	85.2	73.8	97.0	81.7	79.7	91.8	83.7

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

# Reference Information

## Qualifiers for Sample Submission Listed:

Qualifier	Description
CINT	Cooling initiated. Samples were received packed with ice or ice packs and were sampled the same day as received.

## Qualifiers for Individual Parameters Listed:

Qualifier	Description
SFP	Sample was Filtered and Preserved at the laboratory
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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**CL-IC-N-WT** Water Chloride by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**CN-WAD-R511-WT** Water Cyanide (WAD)-O.Reg 153/04 APHA 4500CN I-Weak acid Dist Colorimet

Weak acid dissociable cyanide (WAD) is determined by undergoing a distillation procedure. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**CR-CR6-IC-R511-WT** Water Hex Chrom-O.Reg 153/04 (July 2011) EPA 7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**EC-R511-WT** Water Conductivity-O.Reg 153/04 (July 2011) APHA 2510 B

Water samples can be measured directly by immersing the conductivity cell into the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**F1-F4-511-CALC-WT** Water F1-F4 Hydrocarbon Calculated Parameters CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

# Reference Information

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
<p>Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:</p> <ol style="list-style-type: none"> <li>1. All extraction and analysis holding times were met.</li> <li>2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.</li> <li>3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.</li> <li>4. Linearity of diesel or motor oil response within 15% throughout the calibration range.</li> </ol>			
<b>F1-HS-511-WT</b>	Water	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS
<p>Fraction F1 is determined by analyzing by headspace-GC/FID.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>F2-F4-511-WT</b>	Water	F2-F4-O.Reg 153/04 (July 2011)	EPA 3511/CCME Tier 1
<p>Petroleum Hydrocarbons (F2-F4 fractions) are extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, 2001.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>HG-D-UG/L-CVAA-WT</b>	Water	Diss. Mercury in Water by CVAAS (ug/L)	EPA 1631E (mod)
<p>Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).</p>			
<b>MET-D-UG/L-MS-WT</b>	Water	Diss. Metals in Water by ICPMS (ug/L)	EPA 200.8
<p>The metal constituents of a non-acidified sample that pass through a membrane filter prior to ICP/MS analysis.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>PH-WT</b>	Water	pH	APHA 4500 H-Electrode
<p>Water samples are analyzed directly by a calibrated pH meter.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days</p>			
<b>VOC-1,3-DCP-CALC-WT</b>	Water	Regulation 153 VOCs	SW8260B/SW8270C
<b>VOC-511-HS-WT</b>	Water	VOC by GCMS HS O.Reg 153/04 (July 2011)	SW846 8260
<p>Liquid samples are analyzed by headspace GC/MSD.</p> <p>Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).</p>			
<b>XYLENES-SUM-CALC-WT</b>	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

# Reference Information

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
---------------	--------	------------------	--------------------

\*\*ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

17-622372

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
----	---

## GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.



## Quality Control Report

Workorder: L2111856

Report Date: 21-JUN-18

Page 1 of 11

Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>CL-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4084012</b>							
<b>WG2797079-3</b>	<b>DUP</b>	<b>L2109839-1</b>						
Chloride (Cl)		77.4	77.5		mg/L	0.1	20	14-JUN-18
<b>WG2797079-2</b>	<b>LCS</b>							
Chloride (Cl)			99.3		%		90-110	14-JUN-18
<b>WG2797079-1</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	14-JUN-18
<b>WG2797079-4</b>	<b>MS</b>	<b>L2109839-1</b>						
Chloride (Cl)			102.5		%		75-125	14-JUN-18
<b>CN-WAD-R511-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4094024</b>							
<b>WG2802382-3</b>	<b>DUP</b>	<b>L2111659-2</b>						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	20-JUN-18
<b>WG2802382-2</b>	<b>LCS</b>							
Cyanide, Weak Acid Diss			96.8		%		80-120	20-JUN-18
<b>WG2802382-1</b>	<b>MB</b>							
Cyanide, Weak Acid Diss			<2.0		ug/L		2	20-JUN-18
<b>WG2802382-4</b>	<b>MS</b>	<b>L2111659-2</b>						
Cyanide, Weak Acid Diss			98.2		%		75-125	20-JUN-18
<b>CR-CR6-IC-R511-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4083503</b>							
<b>WG2796865-15</b>	<b>DUP</b>	<b>WG2796865-13</b>						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	14-JUN-18
<b>WG2796865-4</b>	<b>DUP</b>	<b>WG2796865-3</b>						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	14-JUN-18
<b>WG2796865-12</b>	<b>LCS</b>							
Chromium, Hexavalent			101.6		%		80-120	14-JUN-18
<b>WG2796865-2</b>	<b>LCS</b>							
Chromium, Hexavalent			101.1		%		80-120	14-JUN-18
<b>WG2796865-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.50		ug/L		0.5	14-JUN-18
<b>WG2796865-11</b>	<b>MB</b>							
Chromium, Hexavalent			<0.50		ug/L		0.5	14-JUN-18
<b>WG2796865-14</b>	<b>MS</b>	<b>WG2796865-13</b>						
Chromium, Hexavalent			98.6		%		70-130	14-JUN-18
<b>WG2796865-5</b>	<b>MS</b>	<b>WG2796865-3</b>						
Chromium, Hexavalent			99.3		%		70-130	14-JUN-18
<b>EC-R511-WT</b>		<b>Water</b>						



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 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>EC-R511-WT</b>								
	Water							
<b>Batch</b>	<b>R4083522</b>							
<b>WG2796759-12</b>	<b>DUP</b>	<b>WG2796759-11</b>						
Conductivity		1.20	1.20		mS/cm	0.1	10	14-JUN-18
<b>WG2796759-10</b>	<b>LCS</b>							
Conductivity			96.8		%		90-110	14-JUN-18
<b>WG2796759-9</b>	<b>MB</b>							
Conductivity			<0.0030		mS/cm		0.003	14-JUN-18
<b>F1-HS-511-WT</b>								
	Water							
<b>Batch</b>	<b>R4083551</b>							
<b>WG2795609-4</b>	<b>DUP</b>	<b>WG2795609-3</b>						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	15-JUN-18
<b>WG2795609-1</b>	<b>LCS</b>							
F1 (C6-C10)			103.7		%		80-120	15-JUN-18
<b>WG2795609-2</b>	<b>MB</b>							
F1 (C6-C10)			<25		ug/L		25	15-JUN-18
Surrogate: 3,4-Dichlorotoluene			100.7		%		60-140	15-JUN-18
<b>WG2795609-5</b>	<b>MS</b>	<b>WG2795609-3</b>						
F1 (C6-C10)			97.0		%		60-140	15-JUN-18
<b>Batch</b>	<b>R4085068</b>							
<b>WG2794398-4</b>	<b>DUP</b>	<b>WG2794398-3</b>						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	18-JUN-18
<b>WG2794398-1</b>	<b>LCS</b>							
F1 (C6-C10)			93.0		%		80-120	18-JUN-18
<b>WG2794398-2</b>	<b>MB</b>							
F1 (C6-C10)			<25		ug/L		25	18-JUN-18
Surrogate: 3,4-Dichlorotoluene			84.5		%		60-140	18-JUN-18
<b>WG2794398-5</b>	<b>MS</b>	<b>WG2794398-3</b>						
F1 (C6-C10)			80.5		%		60-140	18-JUN-18
<b>F2-F4-511-WT</b>								
	Water							
<b>Batch</b>	<b>R4093928</b>							
<b>WG2801784-2</b>	<b>LCS</b>							
F2 (C10-C16)			105.1		%		70-130	20-JUN-18
F3 (C16-C34)			106.7		%		70-130	20-JUN-18
F4 (C34-C50)			109.8		%		70-130	20-JUN-18
<b>WG2801784-3</b>	<b>LCSD</b>	<b>WG2801784-2</b>						
F2 (C10-C16)		105.1	110.2		%	4.7	50	20-JUN-18
F3 (C16-C34)		106.7	105.8		%	0.8	50	20-JUN-18
F4 (C34-C50)		109.8	109.3		%	0.5	50	20-JUN-18





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Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F2-F4-511-WT Water</b>								
<b>Batch R4093928</b>								
<b>WG2801784-1 MB</b>								
F2 (C10-C16)			<100		ug/L		100	20-JUN-18
F3 (C16-C34)			<250		ug/L		250	20-JUN-18
F4 (C34-C50)			<250		ug/L		250	20-JUN-18
Surrogate: 2-Bromobenzotrifluoride			113.3		%		60-140	20-JUN-18
<b>HG-D-UG/L-CVAA-WT Water</b>								
<b>Batch R4086107</b>								
<b>WG2799847-3 DUP</b>								
Mercury (Hg)-Dissolved		<b>L2111659-2</b>	<0.010	RPD-NA	ug/L	N/A	20	18-JUN-18
<b>WG2799847-2 LCS</b>								
Mercury (Hg)-Dissolved			99.0		%		80-120	18-JUN-18
<b>WG2799847-1 MB</b>								
Mercury (Hg)-Dissolved			<0.010		ug/L		0.01	18-JUN-18
<b>WG2799847-4 MS</b>								
Mercury (Hg)-Dissolved		<b>L2111659-3</b>	95.0		%		70-130	18-JUN-18
<b>MET-D-UG/L-MS-WT Water</b>								
<b>Batch R4083992</b>								
<b>WG2797424-4 DUP</b>								
Antimony (Sb)-Dissolved		<b>WG2797424-3</b>	<1.0	RPD-NA	ug/L	N/A	20	17-JUN-18
Arsenic (As)-Dissolved			3.8		ug/L	0.3	20	17-JUN-18
Barium (Ba)-Dissolved			52.7		ug/L	0.8	20	17-JUN-18
Beryllium (Be)-Dissolved			<1.0	RPD-NA	ug/L	N/A	20	17-JUN-18
Boron (B)-Dissolved			570		ug/L	1.2	20	17-JUN-18
Cadmium (Cd)-Dissolved			<0.050	RPD-NA	ug/L	N/A	20	17-JUN-18
Chromium (Cr)-Dissolved			<5.0	RPD-NA	ug/L	N/A	20	17-JUN-18
Cobalt (Co)-Dissolved			<1.0	RPD-NA	ug/L	N/A	20	17-JUN-18
Copper (Cu)-Dissolved			<2.0	RPD-NA	ug/L	N/A	20	17-JUN-18
Lead (Pb)-Dissolved			<0.50	RPD-NA	ug/L	N/A	20	17-JUN-18
Molybdenum (Mo)-Dissolved			1.08		ug/L	4.4	20	17-JUN-18
Nickel (Ni)-Dissolved			11.9		ug/L	1.6	20	17-JUN-18
Selenium (Se)-Dissolved			<0.50	RPD-NA	ug/L	N/A	20	17-JUN-18
Silver (Ag)-Dissolved			<0.50	RPD-NA	ug/L	N/A	20	17-JUN-18
Sodium (Na)-Dissolved			110000		ug/L	2.5	20	17-JUN-18
Thallium (Tl)-Dissolved			<0.10	RPD-NA	ug/L	N/A	20	17-JUN-18
Uranium (U)-Dissolved			0.61		ug/L	0.9	20	17-JUN-18



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Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-UG/L-MS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4083992</b>							
<b>WG2797424-4</b>	<b>DUP</b>	<b>WG2797424-3</b>						
Vanadium (V)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	17-JUN-18
Zinc (Zn)-Dissolved		<10	<10	RPD-NA	ug/L	N/A	20	17-JUN-18
<b>WG2797424-2</b>	<b>LCS</b>							
Antimony (Sb)-Dissolved			108.5		%		80-120	17-JUN-18
Arsenic (As)-Dissolved			101.9		%		80-120	17-JUN-18
Barium (Ba)-Dissolved			106.8		%		80-120	17-JUN-18
Beryllium (Be)-Dissolved			99.7		%		80-120	17-JUN-18
Boron (B)-Dissolved			94.3		%		80-120	17-JUN-18
Cadmium (Cd)-Dissolved			99.9		%		80-120	17-JUN-18
Chromium (Cr)-Dissolved			97.8		%		80-120	17-JUN-18
Cobalt (Co)-Dissolved			97.4		%		80-120	17-JUN-18
Copper (Cu)-Dissolved			97.0		%		80-120	17-JUN-18
Lead (Pb)-Dissolved			104.1		%		80-120	17-JUN-18
Molybdenum (Mo)-Dissolved			104.0		%		80-120	17-JUN-18
Nickel (Ni)-Dissolved			97.0		%		80-120	17-JUN-18
Selenium (Se)-Dissolved			92.4		%		80-120	17-JUN-18
Silver (Ag)-Dissolved			94.4		%		80-120	17-JUN-18
Sodium (Na)-Dissolved			96.1		%		80-120	17-JUN-18
Thallium (Tl)-Dissolved			102.9		%		80-120	17-JUN-18
Uranium (U)-Dissolved			99.1		%		80-120	17-JUN-18
Vanadium (V)-Dissolved			101.1		%		80-120	17-JUN-18
Zinc (Zn)-Dissolved			98.0		%		80-120	17-JUN-18
<b>WG2797424-1</b>	<b>MB</b>							
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	17-JUN-18
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	17-JUN-18
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	17-JUN-18
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	17-JUN-18
Boron (B)-Dissolved			<10		ug/L		10	17-JUN-18
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	17-JUN-18
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	17-JUN-18
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	17-JUN-18
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	17-JUN-18
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	17-JUN-18
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	17-JUN-18



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Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-UG/L-MS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4083992</b>							
<b>WG2797424-1</b>	<b>MB</b>							
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	17-JUN-18
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	17-JUN-18
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	17-JUN-18
Sodium (Na)-Dissolved			<50		ug/L		50	17-JUN-18
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	17-JUN-18
Uranium (U)-Dissolved			<0.010		ug/L		0.01	17-JUN-18
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	17-JUN-18
Zinc (Zn)-Dissolved			<1.0		ug/L		1	17-JUN-18
<b>WG2797424-5</b>	<b>MS</b>	<b>WG2797424-6</b>						
Antimony (Sb)-Dissolved			93.9		%		70-130	17-JUN-18
Arsenic (As)-Dissolved			89.8		%		70-130	17-JUN-18
Barium (Ba)-Dissolved			N/A	MS-B	%		-	17-JUN-18
Beryllium (Be)-Dissolved			88.8		%		70-130	17-JUN-18
Boron (B)-Dissolved			N/A	MS-B	%		-	17-JUN-18
Cadmium (Cd)-Dissolved			88.7		%		70-130	17-JUN-18
Chromium (Cr)-Dissolved			85.2		%		70-130	17-JUN-18
Cobalt (Co)-Dissolved			79.7		%		70-130	17-JUN-18
Copper (Cu)-Dissolved			79.3		%		70-130	17-JUN-18
Lead (Pb)-Dissolved			89.1		%		70-130	17-JUN-18
Molybdenum (Mo)-Dissolved			74.3		%		70-130	17-JUN-18
Nickel (Ni)-Dissolved			81.4		%		70-130	17-JUN-18
Selenium (Se)-Dissolved			85.5		%		70-130	17-JUN-18
Silver (Ag)-Dissolved			76.1		%		70-130	17-JUN-18
Sodium (Na)-Dissolved			N/A	MS-B	%		-	17-JUN-18
Thallium (Tl)-Dissolved			87.7		%		70-130	17-JUN-18
Uranium (U)-Dissolved			N/A	MS-B	%		-	17-JUN-18
Vanadium (V)-Dissolved			89.7		%		70-130	17-JUN-18
Zinc (Zn)-Dissolved			73.5		%		70-130	17-JUN-18
<b>PH-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4083522</b>							
<b>WG2796759-12</b>	<b>DUP</b>	<b>WG2796759-11</b>						
pH		7.88	7.89	J	pH units	0.01	0.2	14-JUN-18
<b>WG2796759-10</b>	<b>LCS</b>							
pH			6.99		pH units		6.9-7.1	14-JUN-18



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King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4085068</b>							
<b>WG2794398-4</b>	<b>DUP</b>	<b>WG2794398-3</b>						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	18-JUN-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	18-JUN-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	18-JUN-18
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	18-JUN-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	18-JUN-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	18-JUN-18
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	18-JUN-18
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	18-JUN-18
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	18-JUN-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	18-JUN-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	18-JUN-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	18-JUN-18
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	18-JUN-18
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	18-JUN-18
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	18-JUN-18
Styrene		<0.50	<0.50		ug/L			18-JUN-18



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Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4085068</b>							
<b>WG2794398-4</b>	<b>DUP</b>	<b>WG2794398-3</b>						
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	18-JUN-18
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	18-JUN-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUN-18
<b>WG2794398-1</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			104.8		%		70-130	18-JUN-18
1,1,2,2-Tetrachloroethane			100.2		%		70-130	18-JUN-18
1,1,1-Trichloroethane			104.4		%		70-130	18-JUN-18
1,1,2-Trichloroethane			104.8		%		70-130	18-JUN-18
1,1-Dichloroethane			101.2		%		70-130	18-JUN-18
1,1-Dichloroethylene			89.0		%		70-130	18-JUN-18
1,2-Dibromoethane			105.4		%		70-130	18-JUN-18
1,2-Dichlorobenzene			102.2		%		70-130	18-JUN-18
1,2-Dichloroethane			105.3		%		70-130	18-JUN-18
1,2-Dichloropropane			103.5		%		70-130	18-JUN-18
1,3-Dichlorobenzene			98.8		%		70-130	18-JUN-18
1,4-Dichlorobenzene			98.8		%		70-130	18-JUN-18
Acetone			121.8		%		60-140	18-JUN-18
Benzene			103.5		%		70-130	18-JUN-18
Bromodichloromethane			101.9		%		70-130	18-JUN-18
Bromoform			106.8		%		70-130	18-JUN-18
Bromomethane			99.2		%		60-140	18-JUN-18
Carbon tetrachloride			107.3		%		70-130	18-JUN-18
Chlorobenzene			101.9		%		70-130	18-JUN-18
Chloroform			105.5		%		70-130	18-JUN-18
cis-1,2-Dichloroethylene			106.2		%		70-130	18-JUN-18
cis-1,3-Dichloropropene			100.6		%		70-130	18-JUN-18
Dibromochloromethane			109.7		%		70-130	18-JUN-18
Dichlorodifluoromethane			84.3		%		50-140	18-JUN-18



## Quality Control Report

Workorder: L2111856

Report Date: 21-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4085068</b>							
<b>WG2794398-1</b>	<b>LCS</b>							
Ethylbenzene			96.1		%		70-130	18-JUN-18
n-Hexane			103.2		%		70-130	18-JUN-18
m+p-Xylenes			96.4		%		70-130	18-JUN-18
Methyl Ethyl Ketone			112.9		%		60-140	18-JUN-18
Methyl Isobutyl Ketone			103.2		%		60-140	18-JUN-18
Methylene Chloride			109.1		%		70-130	18-JUN-18
MTBE			109.1		%		70-130	18-JUN-18
o-Xylene			96.5		%		70-130	18-JUN-18
Styrene			97.4		%		70-130	18-JUN-18
Tetrachloroethylene			101.3		%		70-130	18-JUN-18
Toluene			96.1		%		70-130	18-JUN-18
trans-1,2-Dichloroethylene			99.98		%		70-130	18-JUN-18
trans-1,3-Dichloropropene			97.8		%		70-130	18-JUN-18
Trichloroethylene			110.3		%		70-130	18-JUN-18
Trichlorofluoromethane			100.8		%		60-140	18-JUN-18
Vinyl chloride			94.3		%		60-140	18-JUN-18
<b>WG2794398-2</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	18-JUN-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	18-JUN-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	18-JUN-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	18-JUN-18
1,1-Dichloroethane			<0.50		ug/L		0.5	18-JUN-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	18-JUN-18
1,2-Dibromoethane			<0.20		ug/L		0.2	18-JUN-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	18-JUN-18
1,2-Dichloroethane			<0.50		ug/L		0.5	18-JUN-18
1,2-Dichloropropane			<0.50		ug/L		0.5	18-JUN-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	18-JUN-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	18-JUN-18
Acetone			<30		ug/L		30	18-JUN-18
Benzene			<0.50		ug/L		0.5	18-JUN-18
Bromodichloromethane			<2.0		ug/L		2	18-JUN-18
Bromoform			<5.0		ug/L		5	18-JUN-18
Bromomethane			<0.50		ug/L		0.5	18-JUN-18



## Quality Control Report

Workorder: L2111856

Report Date: 21-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	Water							
<b>Batch</b>	<b>R4085068</b>							
<b>WG2794398-2 MB</b>								
Carbon tetrachloride			<0.20		ug/L		0.2	18-JUN-18
Chlorobenzene			<0.50		ug/L		0.5	18-JUN-18
Chloroform			<1.0		ug/L		1	18-JUN-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	18-JUN-18
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	18-JUN-18
Dibromochloromethane			<2.0		ug/L		2	18-JUN-18
Dichlorodifluoromethane			<2.0		ug/L		2	18-JUN-18
Ethylbenzene			<0.50		ug/L		0.5	18-JUN-18
n-Hexane			<0.50		ug/L		0.5	18-JUN-18
m+p-Xylenes			<0.40		ug/L		0.4	18-JUN-18
Methyl Ethyl Ketone			<20		ug/L		20	18-JUN-18
Methyl Isobutyl Ketone			<20		ug/L		20	18-JUN-18
Methylene Chloride			<5.0		ug/L		5	18-JUN-18
MTBE			<2.0		ug/L		2	18-JUN-18
o-Xylene			<0.30		ug/L		0.3	18-JUN-18
Styrene			<0.50		ug/L		0.5	18-JUN-18
Tetrachloroethylene			<0.50		ug/L		0.5	18-JUN-18
Toluene			<0.50		ug/L		0.5	18-JUN-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	18-JUN-18
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	18-JUN-18
Trichloroethylene			<0.50		ug/L		0.5	18-JUN-18
Trichlorofluoromethane			<5.0		ug/L		5	18-JUN-18
Vinyl chloride			<0.50		ug/L		0.5	18-JUN-18
Surrogate: 1,4-Difluorobenzene			97.6		%		70-130	18-JUN-18
Surrogate: 4-Bromofluorobenzene			94.2		%		70-130	18-JUN-18
<b>WG2794398-5 MS</b>		<b>WG2794398-3</b>						
1,1,1,2-Tetrachloroethane			110.3		%		50-140	18-JUN-18
1,1,1,2,2-Tetrachloroethane			90.2		%		50-140	18-JUN-18
1,1,1-Trichloroethane			107.8		%		50-140	18-JUN-18
1,1,2-Trichloroethane			105.1		%		50-140	18-JUN-18
1,1-Dichloroethane			107.5		%		50-140	18-JUN-18
1,1-Dichloroethylene			97.8		%		50-140	18-JUN-18
1,2-Dibromoethane			108.1		%		50-140	18-JUN-18
1,2-Dichlorobenzene			97.7		%		50-140	18-JUN-18



## Quality Control Report

Workorder: L2111856

Report Date: 21-JUN-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4085068</b>							
<b>WG2794398-5 MS</b>		<b>WG2794398-3</b>						
1,2-Dichloroethane			110.9		%		50-140	18-JUN-18
1,2-Dichloropropane			111.5		%		50-140	18-JUN-18
1,3-Dichlorobenzene			81.1		%		50-140	18-JUN-18
1,4-Dichlorobenzene			83.7		%		50-140	18-JUN-18
Acetone			118.4		%		50-140	18-JUN-18
Benzene			110.4		%		50-140	18-JUN-18
Bromodichloromethane			106.4		%		50-140	18-JUN-18
Bromoform			108.8		%		50-140	18-JUN-18
Bromomethane			94.9		%		50-140	18-JUN-18
Carbon tetrachloride			106.5		%		50-140	18-JUN-18
Chlorobenzene			106.3		%		50-140	18-JUN-18
Chloroform			101.4		%		50-140	18-JUN-18
cis-1,2-Dichloroethylene			108.2		%		50-140	18-JUN-18
cis-1,3-Dichloropropene			108.4		%		50-140	18-JUN-18
Dibromochloromethane			113.3		%		50-140	18-JUN-18
Dichlorodifluoromethane			96.5		%		50-140	18-JUN-18
Ethylbenzene			97.8		%		50-140	18-JUN-18
n-Hexane			111.8		%		50-140	18-JUN-18
m+p-Xylenes			98.4		%		50-140	18-JUN-18
Methyl Ethyl Ketone			105.9		%		50-140	18-JUN-18
Methyl Isobutyl Ketone			105.2		%		50-140	18-JUN-18
Methylene Chloride			110.7		%		50-140	18-JUN-18
MTBE			108.2		%		50-140	18-JUN-18
o-Xylene			93.9		%		50-140	18-JUN-18
Styrene			98.0		%		50-140	18-JUN-18
Tetrachloroethylene			128.7		%		50-140	18-JUN-18
Toluene			135.6		%		50-140	18-JUN-18
trans-1,2-Dichloroethylene			106.8		%		50-140	18-JUN-18
trans-1,3-Dichloropropene			129.5		%		50-140	18-JUN-18
Trichloroethylene			102.3		%		50-140	18-JUN-18
Trichlorofluoromethane			106.9		%		50-140	18-JUN-18
Vinyl chloride			98.2		%		50-140	18-JUN-18



# Quality Control Report

Workorder: L2111856

Report Date: 21-JUN-18

Client: Sirati & Partners Consultants Ltd. (Concord)  
12700 Keele St  
King City ON L7B 1H5  
Contact: Chaoran Li

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## Legend:

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Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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## Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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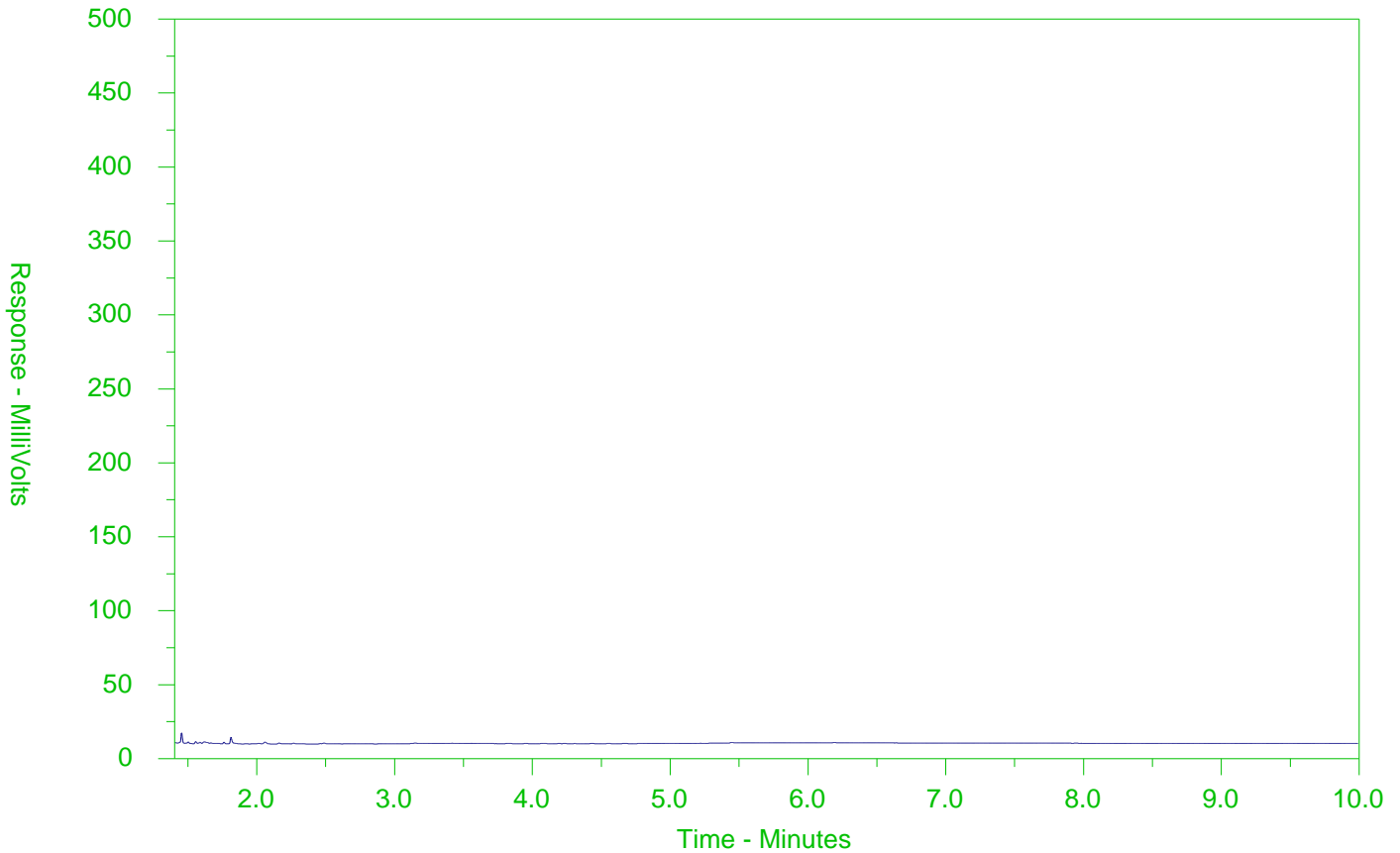
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111856-1  
 Client Sample ID: MW-E1



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

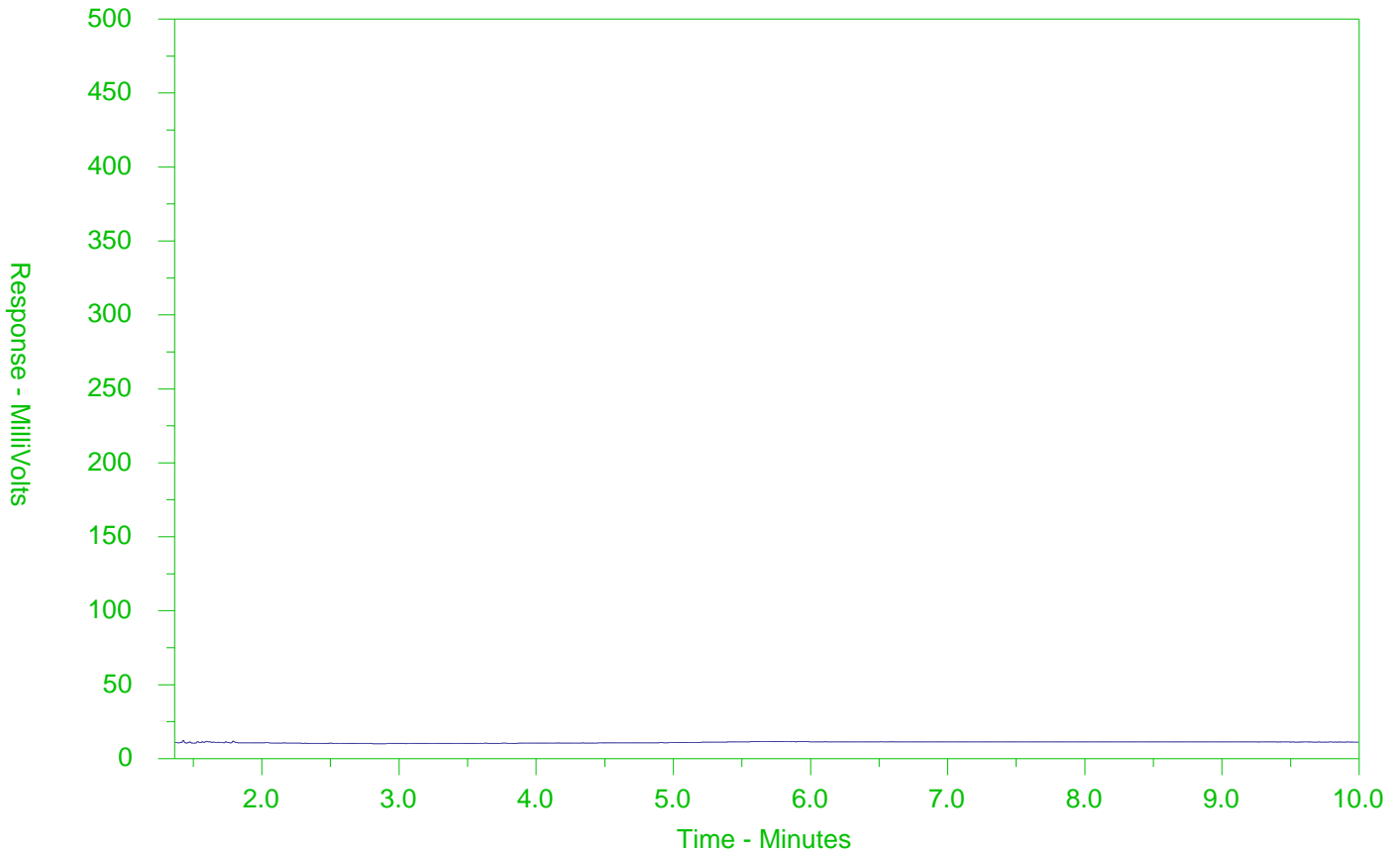
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111856-2  
 Client Sample ID: MW-E2



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

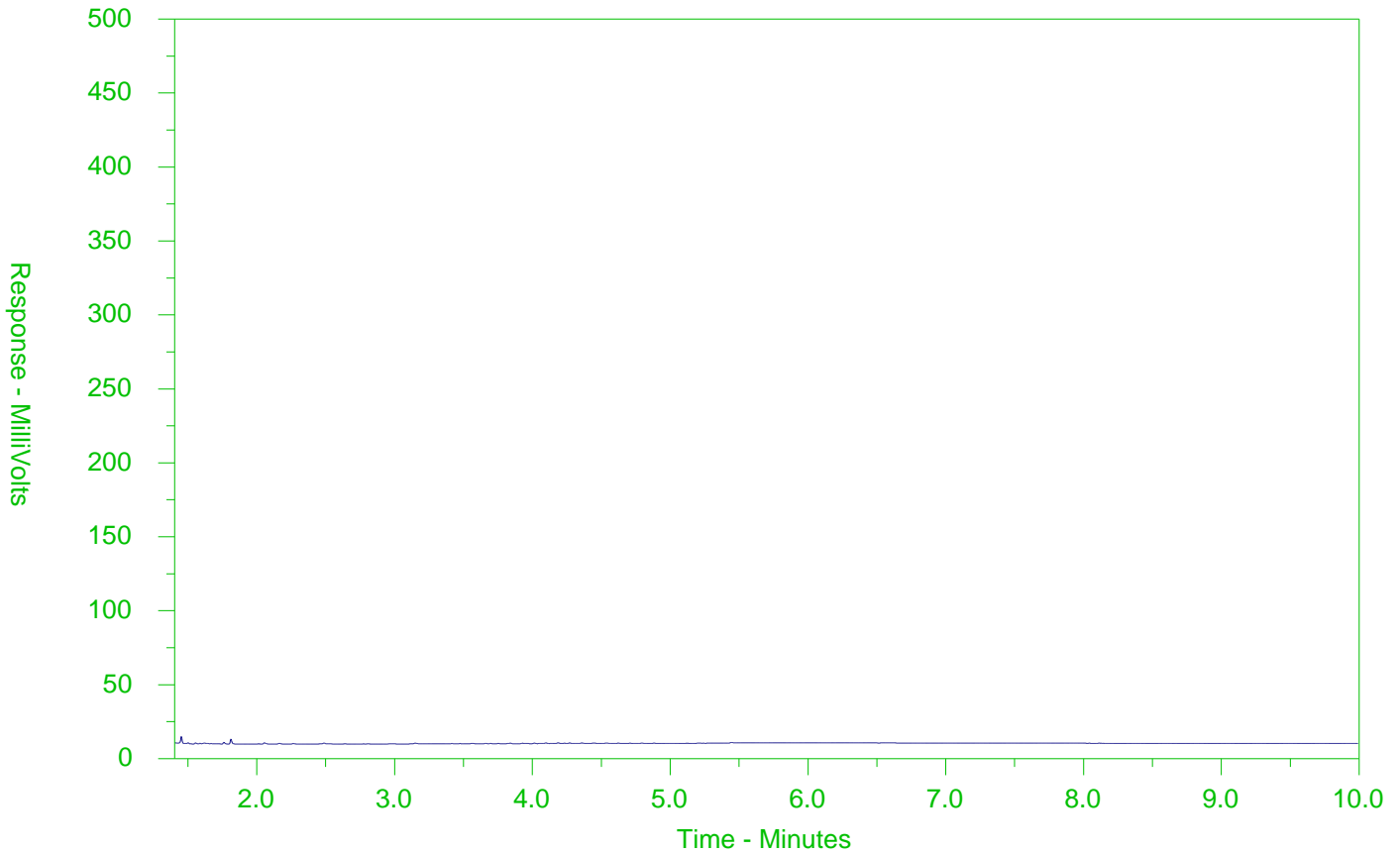
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111856-3  
 Client Sample ID: MW-E6



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

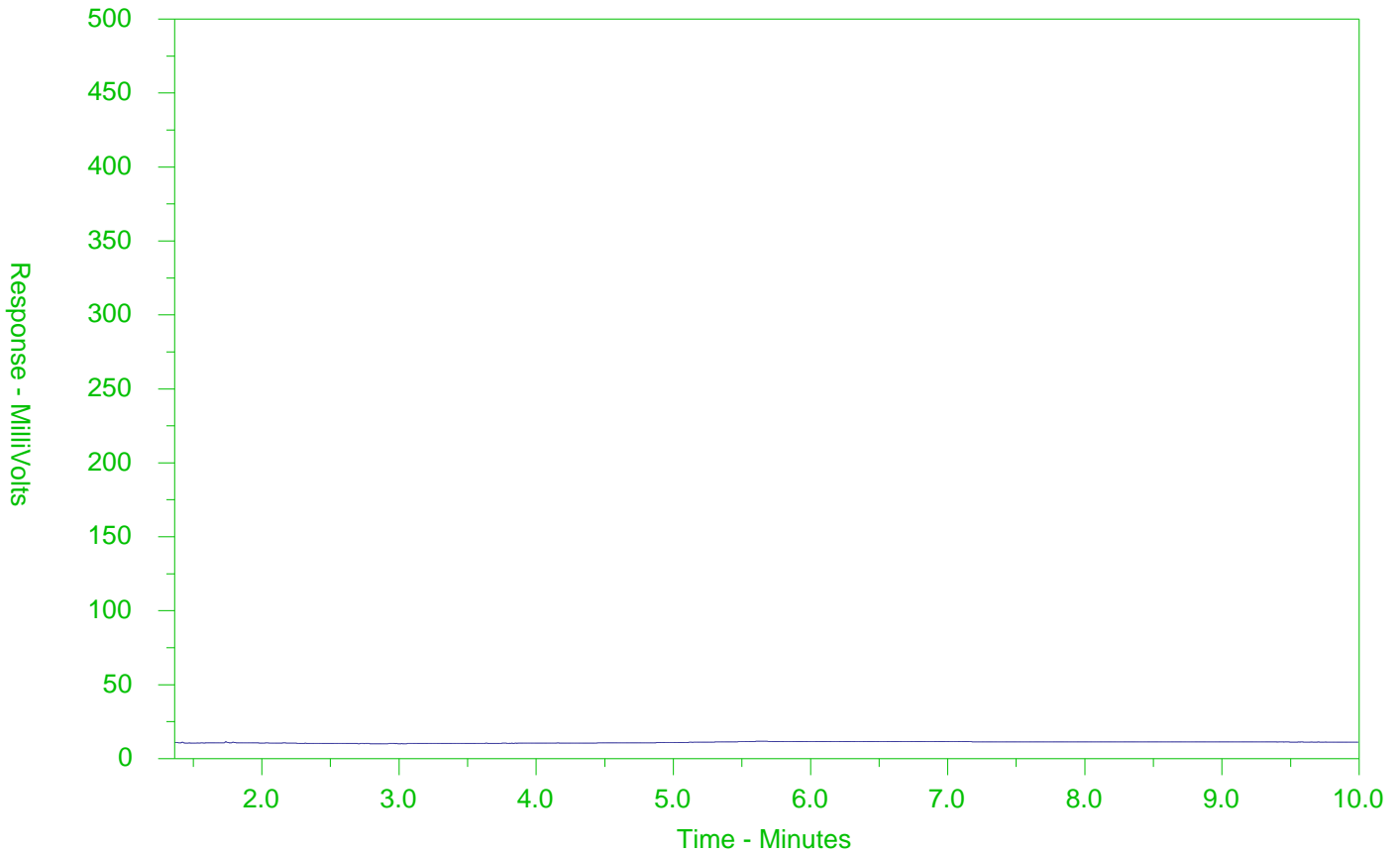
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111856-4  
 Client Sample ID: MW-E7



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

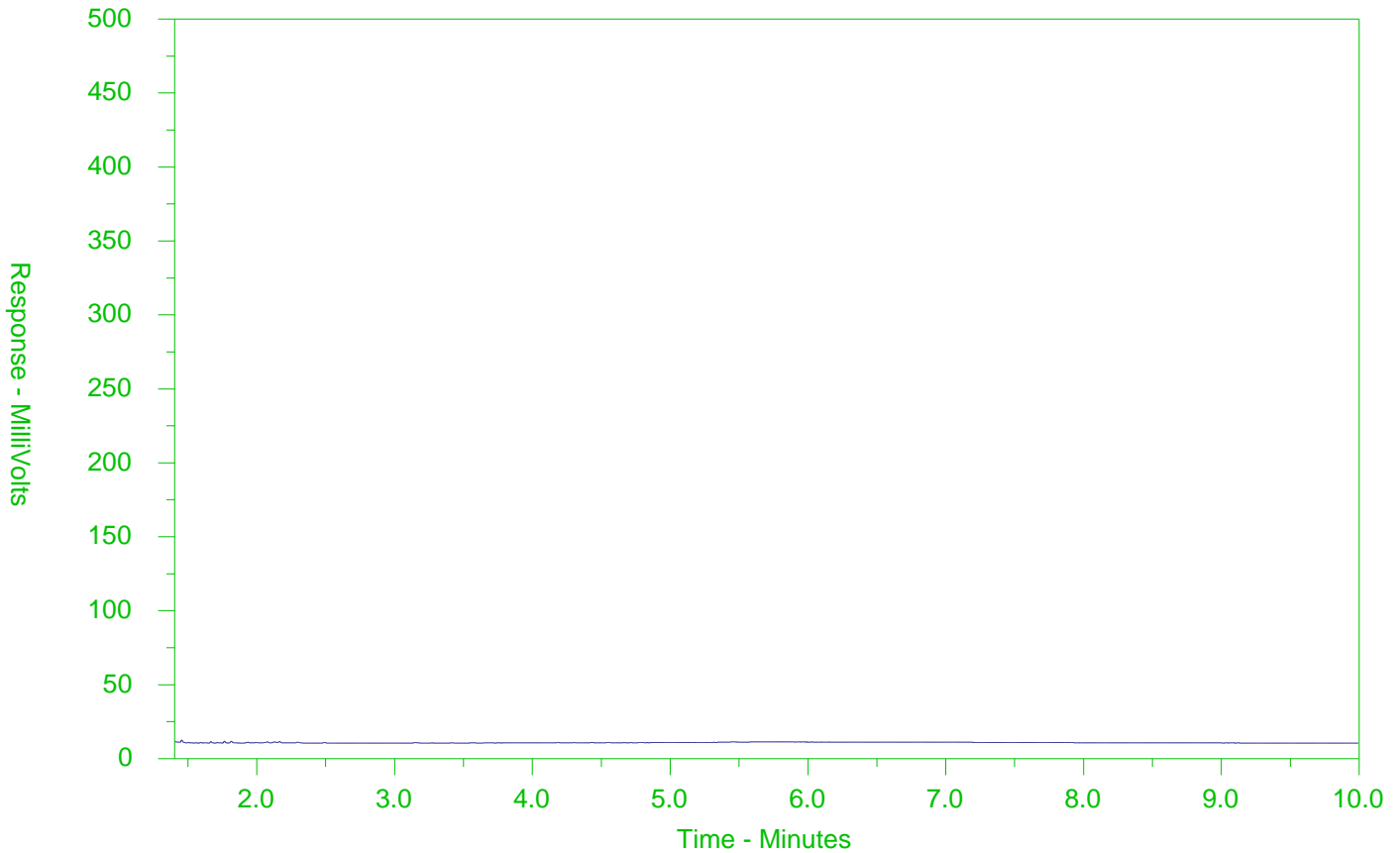
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111856-5  
 Client Sample ID: MW-E8



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

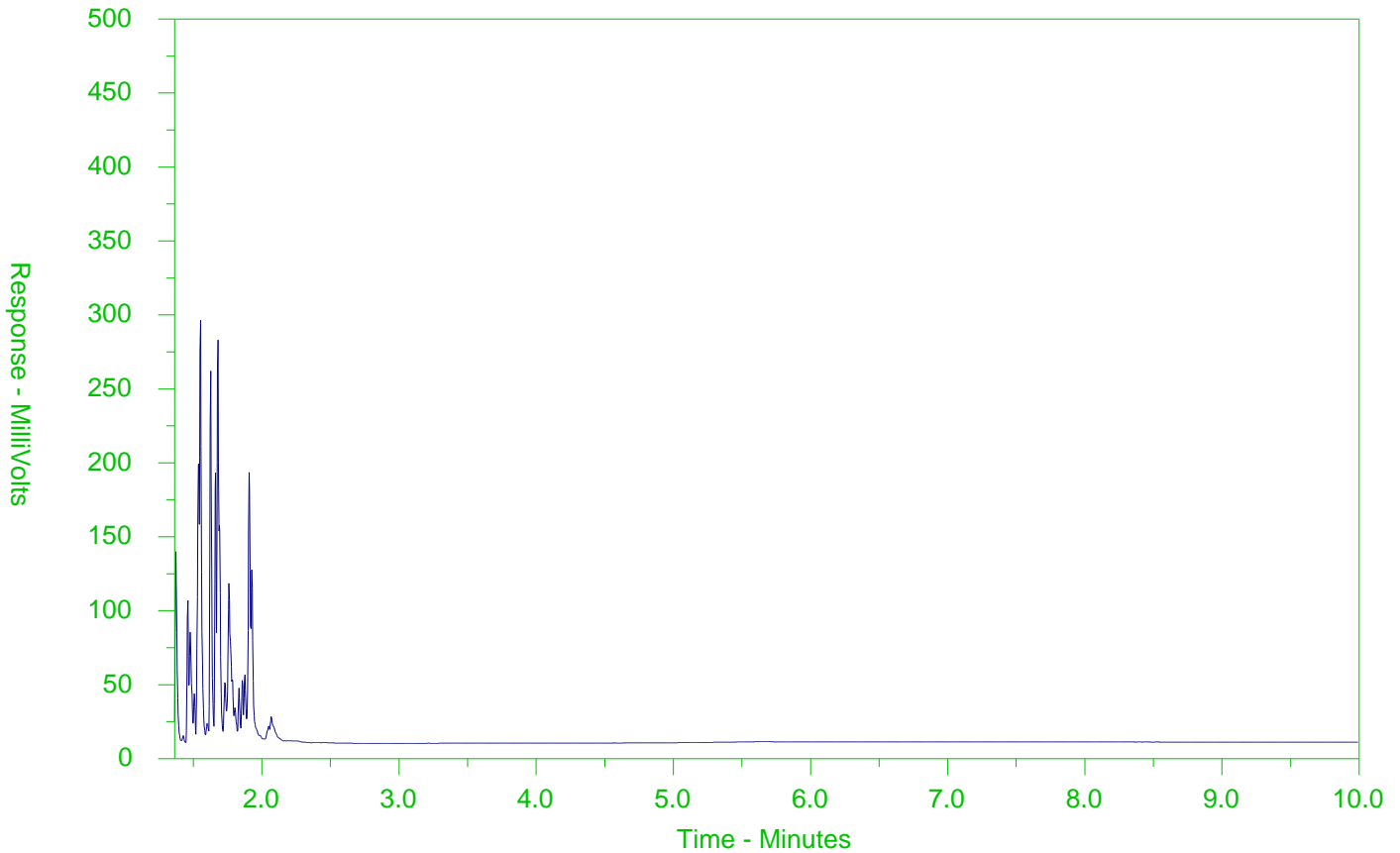
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111856-6  
 Client Sample ID: MW-E11



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

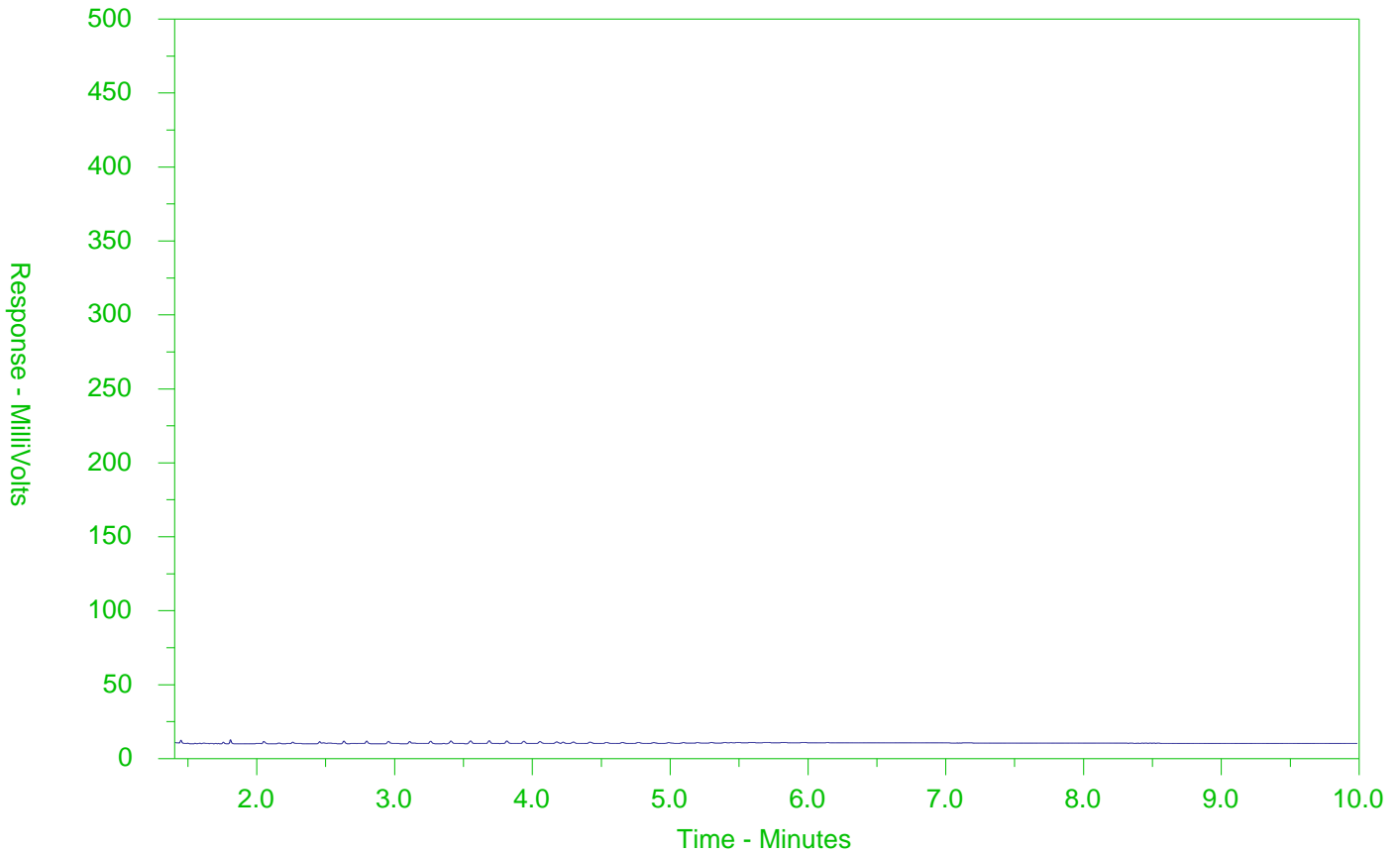
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111856-7  
 Client Sample ID: MW-E12



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

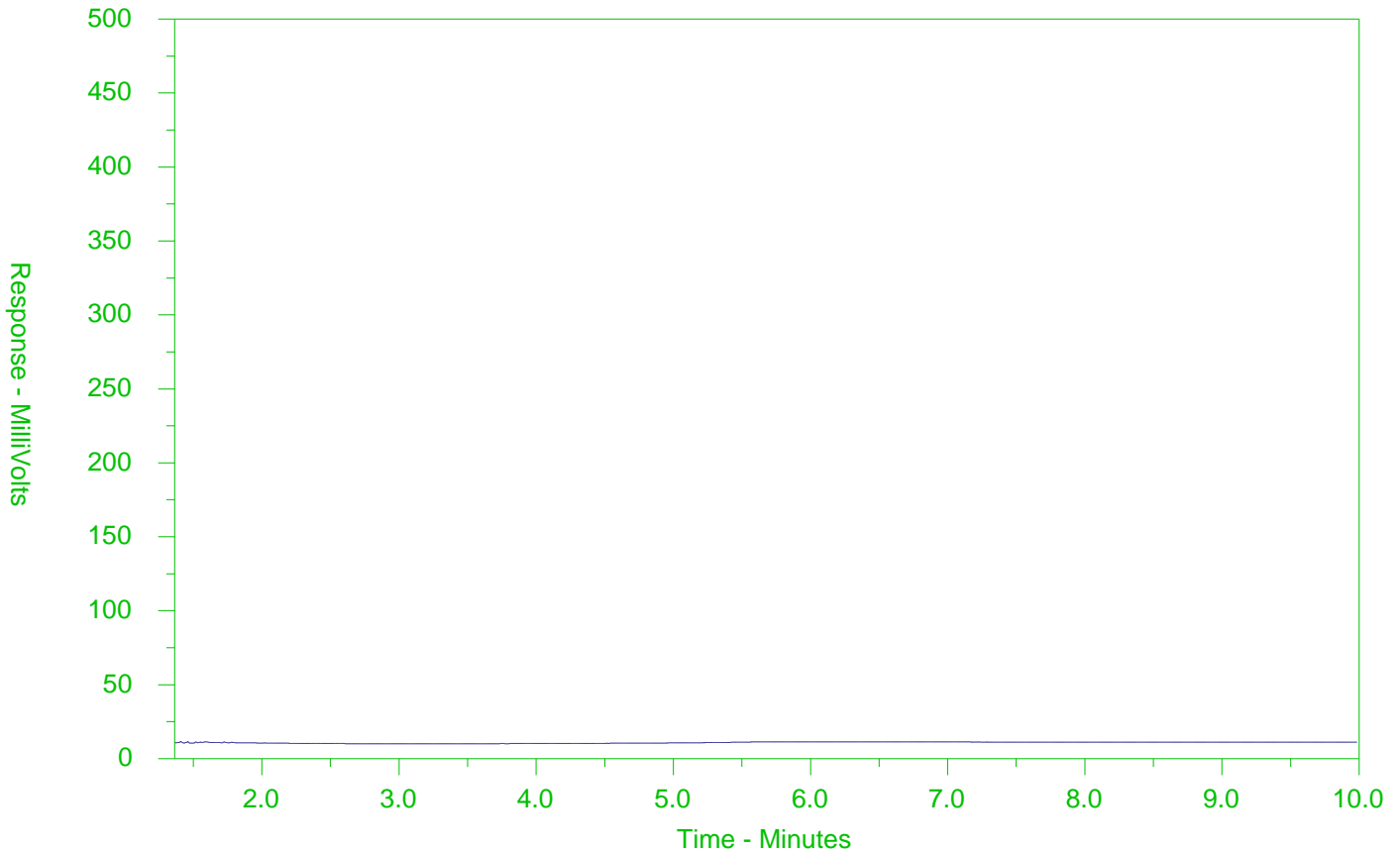
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2111856-8  
 Client Sample ID: MW-E13



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).





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Date Received: 14-SEP-18  
Report Date: 21-SEP-18 13:47 (MT)  
Version: FINAL

Client Phone: 905-833-1582

## Certificate of Analysis

Lab Work Order #: L2165216  
Project P.O. #: SP18-306-20  
Job Reference: SP18-306-20  
C of C Numbers: 17-638606  
Legal Site Desc:

Rick Hawthorne  
Account Manager

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## Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit	
ALS ID	Client ID						
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Ground Water-All Types of Property Uses</b>							
L2165216-2	MW202	Volatile Organic Compounds	Bromodichloromethane	<3.0	2	ug/L	
			Ethylbenzene	1.39	0.5	ug/L	
			n-Hexane	8.38	5	ug/L	
			Hydrocarbons	F1 (C6-C10)	486	420	ug/L
				F1-BTEX	483	420	ug/L
			F2 (C10-C16)	400	150	ug/L	
L2165216-3	MW204	Volatile Organic Compounds	Benzene	3760	0.5	ug/L	
			Bromodichloromethane	<3.2	2	ug/L	
			1,2-Dichloroethane	3.22	0.5	ug/L	
			Methylene Chloride	<9.0	5	ug/L	
			Ethylbenzene	696	0.5	ug/L	
			n-Hexane	71.6	5	ug/L	
			Styrene	1.13	0.5	ug/L	
			Toluene	518	0.8	ug/L	
			Xylenes (Total)	2930	72	ug/L	
			Hydrocarbons	F1 (C6-C10)	10800	420	ug/L
				F1-BTEX	2900	420	ug/L
				F2 (C10-C16)	1610	150	ug/L
L2165216-5	MW207		Volatile Organic Compounds	Benzene	299	0.5	ug/L
		Bromodichloromethane		<6.0	2	ug/L	
		1,2-Dichloroethane		<0.70	0.5	ug/L	
		Ethylbenzene		90.5	0.5	ug/L	
		n-Hexane		18.8	5	ug/L	
		1,1,2,2-Tetrachloroethane		<0.80	0.5	ug/L	
		Toluene		6.69	0.8	ug/L	
		1,1,2-Trichloroethane		<2.3	0.5	ug/L	
		Hydrocarbons		F1 (C6-C10)	4190	420	ug/L
				F1-BTEX	3770	420	ug/L
			F2 (C10-C16)	1400	150	ug/L	
L2165216-6	MW208	Volatile Organic Compounds	Benzene	1.82	0.5	ug/L	
			Trichloroethylene	0.69	0.5	ug/L	
L2165216-7	MW209	Volatile Organic Compounds	Benzene	0.60	0.5	ug/L	
			Trichloroethylene	0.87	0.5	ug/L	
L2165216-8	MW210	Volatile Organic Compounds	Benzene	32.0	0.5	ug/L	
			Bromodichloromethane	<3.6	2	ug/L	

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID	Client ID					
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Ground Water-All Types of Property Uses</b>						
L2165216-8	MW210	Volatile Organic Compounds	Ethylbenzene	5.97	0.5	ug/L
			Toluene	2.17	0.8	ug/L
		Hydrocarbons	F1 (C6-C10)	1680	420	ug/L
			F1-BTEX	1630	420	ug/L
			F2 (C10-C16)	1810	150	ug/L
<b>Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Ground Water (Coarse Soil)-All Types of Property Use</b>						
L2165216-2	MW202	Hydrocarbons	F2 (C10-C16)	400	150	ug/L
L2165216-3	MW204	Volatile Organic Compounds	Benzene	3760	5	ug/L
			1,2-Dichloroethane	3.22	1.6	ug/L
			Ethylbenzene	696	2.4	ug/L
			n-Hexane	71.6	51	ug/L
			Toluene	518	24	ug/L
			Xylenes (Total)	2930	300	ug/L
			Hydrocarbons	F1 (C6-C10)	10800	750
			F1-BTEX	2900	750	ug/L
			F2 (C10-C16)	1610	150	ug/L
L2165216-5	MW207	Volatile Organic Compounds	Benzene	299	5	ug/L
			Ethylbenzene	90.5	2.4	ug/L
		Hydrocarbons	F1 (C6-C10)	4190	750	ug/L
			F1-BTEX	3770	750	ug/L
			F2 (C10-C16)	1400	150	ug/L
L2165216-8	MW210	Volatile Organic Compounds	Benzene	32.0	5	ug/L
			Ethylbenzene	5.97	2.4	ug/L
		Hydrocarbons	F1 (C6-C10)	1680	750	ug/L
			F1-BTEX	1630	750	ug/L
			F2 (C10-C16)	1810	150	ug/L

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## ANALYTICAL REPORT



## Volatile Organic Compounds - WATER

Analyte	Unit	Guide Limits		Lab ID	L2165216-1	L2165216-2	L2165216-3	L2165216-4	L2165216-5	L2165216-6	L2165216-7	L2165216-8	L2165216-9
		#1	#2	Sample Date	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18
				Sample ID	MW201	MW202	MW204	MW206	MW207	MW208	MW209	MW210	DUP-W201
Acetone	ug/L	2700	2700		<30	<30	<30	<30	<30	<30	<30	<30	<30
Benzene	ug/L	0.5	5		<0.50	<0.50	3760 <sup>DLHC</sup>	<0.50	299	1.82	0.60	32.0	<0.50
Bromodichloromethane	ug/L	2	16		<2.0	<3.0 <sup>DLVH</sup>	<3.2 <sup>DLVH</sup>	<2.0	<6.0 <sup>DLVH</sup>	<2.0	<2.0	<3.6 <sup>DLVH</sup>	<2.0
Bromoform	ug/L	5	25		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	ug/L	0.89	0.89		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	ug/L	0.2	0.79		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	ug/L	0.5	30		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	ug/L	2	25		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloroform	ug/L	2	2.4		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane	ug/L	0.2	0.2		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	ug/L	0.5	3		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	ug/L	0.5	59		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	ug/L	0.5	1		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	ug/L	590	590		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,1-Dichloroethane	ug/L	0.5	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	ug/L	0.5	1.6		<0.50	<0.50	3.22	<0.50	<0.70 <sup>DLVH</sup>	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/L	0.5	1.6		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	ug/L	1.6	1.6		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethylene	ug/L	1.6	1.6		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	ug/L	5	50		<5.0	<5.0	<9.0 <sup>DLVH</sup>	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	ug/L	0.5	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	ug/L	-	-		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	ug/L	-	-		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
1,3-Dichloropropene (cis & trans)	ug/L	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	ug/L	0.5	2.4		<0.50	1.39	696 <sup>DLHC</sup>	<0.50	90.5	<0.50	<0.50	5.97	<0.50
n-Hexane	ug/L	5	51		<0.50	8.38	71.6	<0.50	18.8	<0.50	<0.50	4.94	<0.50
Methyl Ethyl Ketone	ug/L	400	1800		<20	<20	<30 <sup>DLVH</sup>	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	ug/L	640	640		<20	<20	<20	<20	<20	<20	<20	<20	<20
MTBE	ug/L	15	15		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Styrene	ug/L	0.5	5.4		<0.50	<0.50	1.13	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Guide Limit #1: T1-Ground Water-All Types of Property Uses

Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.

## Volatile Organic Compounds - WATER

**Lab ID** L2165216-11  
**Sample Date** 14-SEP-18  
**Sample ID** TRIP BLANK

Analyte	Unit	Guide Limits		
		#1	#2	
Acetone	ug/L	2700	2700	<30
Benzene	ug/L	0.5	5	<0.50
Bromodichloromethane	ug/L	2	16	<2.0
Bromoform	ug/L	5	25	<5.0
Bromomethane	ug/L	0.89	0.89	<0.50
Carbon tetrachloride	ug/L	0.2	0.79	<0.20
Chlorobenzene	ug/L	0.5	30	<0.50
Dibromochloromethane	ug/L	2	25	<2.0
Chloroform	ug/L	2	2.4	<1.0
1,2-Dibromoethane	ug/L	0.2	0.2	<0.20
1,2-Dichlorobenzene	ug/L	0.5	3	<0.50
1,3-Dichlorobenzene	ug/L	0.5	59	<0.50
1,4-Dichlorobenzene	ug/L	0.5	1	<0.50
Dichlorodifluoromethane	ug/L	590	590	<2.0
1,1-Dichloroethane	ug/L	0.5	5	<0.50
1,2-Dichloroethane	ug/L	0.5	1.6	<0.50
1,1-Dichloroethylene	ug/L	0.5	1.6	<0.50
cis-1,2-Dichloroethylene	ug/L	1.6	1.6	<0.50
trans-1,2-Dichloroethylene	ug/L	1.6	1.6	<0.50
Methylene Chloride	ug/L	5	50	<5.0
1,2-Dichloropropane	ug/L	0.5	5	<0.50
cis-1,3-Dichloropropene	ug/L	-	-	<0.30
trans-1,3-Dichloropropene	ug/L	-	-	<0.30
1,3-Dichloropropene (cis & trans)	ug/L	0.5	0.5	<0.50
Ethylbenzene	ug/L	0.5	2.4	<0.50
n-Hexane	ug/L	5	51	<0.50
Methyl Ethyl Ketone	ug/L	400	1800	<20
Methyl Isobutyl Ketone	ug/L	640	640	<20
MTBE	ug/L	15	15	<2.0
Styrene	ug/L	0.5	5.4	<0.50

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**  
**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

\* Please refer to the Reference Information section for an explanation of any qualifiers noted.



## ANALYTICAL REPORT

## Volatile Organic Compounds - WATER

Analyte	Unit	Guide Limits		Lab ID	L2165216-1	L2165216-2	L2165216-3	L2165216-4	L2165216-5	L2165216-6	L2165216-7	L2165216-8	L2165216-9
		#1	#2	Sample Date	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18
				Sample ID	MW201	MW202	MW204	MW206	MW207	MW208	MW209	MW210	DUP-W201
1,1,1,2-Tetrachloroethane	ug/L	1.1	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	ug/L	0.5	1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.80 <sup>DLVH</sup>	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	ug/L	0.5	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	ug/L	0.8	24	<0.50	<0.50	518 <sup>DLHC</sup>	<0.50	6.69	<0.50	<0.50	<0.50	2.17	<0.50
1,1,1-Trichloroethane	ug/L	0.5	200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/L	0.5	4.7	<0.50	<0.50	<0.50	<0.50	<2.3 <sup>DLVH</sup>	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	ug/L	0.5	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	0.69	0.87	<0.50	<0.50	<0.50
Trichlorofluoromethane	ug/L	150	150	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl chloride	ug/L	0.5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	ug/L	-	-	<0.30	<0.30	975 <sup>DLHC</sup>	<0.30	1.31	<0.30	<0.30	<0.30	0.86	<0.30
m+p-Xylenes	ug/L	-	-	<0.40	1.66	1960 <sup>DLHC</sup>	<0.40	18.6	<0.40	<0.40	<0.40	4.58	<0.40
Xylenes (Total)	ug/L	72	300	<0.50	1.66	2930	<0.50	19.9	<0.50	<0.50	<0.50	5.44	<0.50
Surrogate: 4-Bromofluorobenzene	%	-	-	102.1	98.5	96.6	98.7	99.1	100.9	97.9	100.9	98.2	98.2
Surrogate: 1,4-Difluorobenzene	%	-	-	100.4	96.5	79.4	101.8	71.5	100.5	99.0	65.5 <sup>SOLMI</sup>	101.7	101.7

Guide Limit #1: T1-Ground Water-All Types of Property Uses

Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.





## ANALYTICAL REPORT

## Volatile Organic Compounds - WATER

**Lab ID** L2165216-11  
**Sample Date** 14-SEP-18  
**Sample ID** TRIP BLANK

Analyte	Unit	Guide Limits		
		#1	#2	
1,1,1,2-Tetrachloroethane	ug/L	1.1	1.1	<0.50
1,1,2,2-Tetrachloroethane	ug/L	0.5	1	<0.50
Tetrachloroethylene	ug/L	0.5	1.6	<0.50
Toluene	ug/L	0.8	24	<0.50
1,1,1-Trichloroethane	ug/L	0.5	200	<0.50
1,1,2-Trichloroethane	ug/L	0.5	4.7	<0.50
Trichloroethylene	ug/L	0.5	1.6	<0.50
Trichlorofluoromethane	ug/L	150	150	<5.0
Vinyl chloride	ug/L	0.5	0.5	<0.50
o-Xylene	ug/L	-	-	<0.30
m+p-Xylenes	ug/L	-	-	<0.40
Xylenes (Total)	ug/L	72	300	<0.50
Surrogate: 4-Bromofluorobenzene	%	-	-	102.7
Surrogate: 1,4-Difluorobenzene	%	-	-	101.9

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



## ANALYTICAL REPORT

## Hydrocarbons - WATER

Analyte	Unit	Guide Limits		Lab ID	L2165216-1	L2165216-2	L2165216-3	L2165216-4	L2165216-5	L2165216-6	L2165216-7	L2165216-8	L2165216-9
		#1	#2	Sample Date	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18	14-SEP-18
				Sample ID	MW201	MW202	MW204	MW206	MW207	MW208	MW209	MW210	DUP-W201
F1 (C6-C10)	ug/L	420	750	<25	486	10800 <sup>DLHC</sup>	<25	4190	34	<25	1680	<25	
F1-BTEX	ug/L	420	750	<25	483	2900	<25	3770	33	<25	1630	<25	
F2 (C10-C16)	ug/L	150	150	<100	400	1610	<100	1400 <sup>OWP</sup>	<100	<100	1810 <sup>OWP</sup>	<100	
F3 (C16-C34)	ug/L	500	500	<250	<250	<250	<250	<250 <sup>OWP</sup>	<250	<250	<250 <sup>OWP</sup>	<250	
F4 (C34-C50)	ug/L	500	500	<250	<250	<250	<250	<250 <sup>OWP</sup>	<250	<250	<250 <sup>OWP</sup>	<250	
Total Hydrocarbons (C6-C50)	ug/L	-	-	<370	890	12400	<370	5590	<370	<370	3490	<370	
Chrom. to baseline at nC50		-	-	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Surrogate: 2-Bromobenzotrifluoride	%	-	-	84.6	88.8	100.4	87.6	91.7	85.8	78.3	94.5	82.3	
Surrogate: 3,4-Dichlorotoluene	%	-	-	83.4	80.8	83.3	86.9	90.1	91.0	94.5	77.5	86.0	

**Guide Limit #1: T1-Ground Water-All Types of Property Uses**

**Guide Limit #2: T2-Ground Water (Coarse Soil)-All Types of Property Use**

  Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

  Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

# Reference Information

## Qualifiers for Individual Parameters Listed:

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Qualifier	Description
DLVH	Detection Limit raised due to interference from Volatile Hydrocarbons on VOC method. Chromatographic elution of interfering peaks in the same region as test analytes prevents a

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## Reference Information

determination of whether VOC analyte is present or absent (above/below regular detection limits).

SOL:MI

Surrogate recovery outside acceptable limits due to matrix interference

OWP

Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of

# Reference Information

sediment.

DLHC Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

**Methods Listed (if applicable):**

ALS Test Code	Matrix	Test Description	Method Reference**
<b>F1-F4-511-CALC-WT</b>	Water	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

<b>F1-HS-511-WT</b>	Water	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS
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Fraction F1 is determined by analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

<b>F2-F4-511-WT</b>	Water	F2-F4-O.Reg 153/04 (July 2011)	EPA 3511/CCME Tier 1
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Petroleum Hydrocarbons (F2-F4 fractions) are extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, 2001.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

<b>VOC-1,3-DCP-CALC-WT</b>	Water	Regulation 153 VOCs	SW8260B/SW8270C
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<b>VOC-511-HS-WT</b>	Water	VOC by GCMS HS O.Reg 153/04 (July 2011)	SW846 8260
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Liquid samples are analyzed by headspace GC/MSD.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

<b>XYLENES-SUM-CALC-WT</b>	Water	Sum of Xylene Isomer Concentrations	CALCULATION
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# Reference Information

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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Total xylenes represents the sum of o-xylene and m&p-xylene.

\*\*ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

17-638606

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

## GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



### Quality Control Report

Workorder: L2165216

Report Date: 21-SEP-18

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Client: Sirati & Partners Consultants Ltd. (Concord)  
12700 Keele St  
King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F1-HS-511-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4225931</b>							
<b>WG2873872-4</b>	<b>DUP</b>	<b>WG2873872-3</b>						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	20-SEP-18
<b>WG2873872-1</b>	<b>LCS</b>							
F1 (C6-C10)			97.8		%		80-120	20-SEP-18
<b>WG2873872-2</b>	<b>MB</b>							
F1 (C6-C10)			<25		ug/L		25	20-SEP-18
Surrogate: 3,4-Dichlorotoluene			90.7		%		60-140	20-SEP-18
<b>WG2873872-5</b>	<b>MS</b>	<b>WG2873872-3</b>						
F1 (C6-C10)			97.8		%		60-140	20-SEP-18
<b>Batch</b>	<b>R4230668</b>							
<b>WG2882669-1</b>	<b>LCS</b>							
F1 (C6-C10)			103.2		%		80-120	21-SEP-18
<b>WG2882669-2</b>	<b>MB</b>							
F1 (C6-C10)			<25		ug/L		25	21-SEP-18
Surrogate: 3,4-Dichlorotoluene			87.3		%		60-140	21-SEP-18
<b>F2-F4-511-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4222927</b>							
<b>WG2879277-2</b>	<b>LCS</b>							
F2 (C10-C16)			112.4		%		70-130	18-SEP-18
F3 (C16-C34)			110.8		%		70-130	18-SEP-18
F4 (C34-C50)			121.4		%		70-130	18-SEP-18
<b>WG2879277-3</b>	<b>LCSD</b>	<b>WG2879277-2</b>						
F2 (C10-C16)		112.4	101.3		%	10	50	18-SEP-18
F3 (C16-C34)		110.8	100.9		%	9.4	50	18-SEP-18
F4 (C34-C50)		121.4	108.1		%	12	50	18-SEP-18
<b>WG2879277-1</b>	<b>MB</b>							
F2 (C10-C16)			<100		ug/L		100	18-SEP-18
F3 (C16-C34)			<250		ug/L		250	18-SEP-18
F4 (C34-C50)			<250		ug/L		250	18-SEP-18
Surrogate: 2-Bromobenzotrifluoride			83.3		%		60-140	18-SEP-18
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4225931</b>							
<b>WG2873872-4</b>	<b>DUP</b>	<b>WG2873872-3</b>						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18



## Quality Control Report

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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4225931</b>							
<b>WG2873872-4</b>	<b>DUP</b>	<b>WG2873872-3</b>						
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	20-SEP-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
Acetone		33	34		ug/L	0.5	30	20-SEP-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	20-SEP-18
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	20-SEP-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	20-SEP-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	20-SEP-18
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	20-SEP-18
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	20-SEP-18
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	20-SEP-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	20-SEP-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	20-SEP-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	20-SEP-18
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	20-SEP-18
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	20-SEP-18
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	20-SEP-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
Toluene		1.80	1.87		ug/L	3.8	30	20-SEP-18
trans-1,2-Dichloroethylene		<0.50	<0.50		ug/L			20-SEP-18





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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4225931</b>							
<b>WG2873872-4</b>	<b>DUP</b>	<b>WG2873872-3</b>						
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	20-SEP-18
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	20-SEP-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	20-SEP-18
<b>WG2873872-1</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			108.6		%		70-130	20-SEP-18
1,1,2,2-Tetrachloroethane			105.0		%		70-130	20-SEP-18
1,1,1-Trichloroethane			106.8		%		70-130	20-SEP-18
1,1,2-Trichloroethane			111.0		%		70-130	20-SEP-18
1,1-Dichloroethane			109.7		%		70-130	20-SEP-18
1,1-Dichloroethylene			102.4		%		70-130	20-SEP-18
1,2-Dibromoethane			110.7		%		70-130	20-SEP-18
1,2-Dichlorobenzene			112.4		%		70-130	20-SEP-18
1,2-Dichloroethane			111.9		%		70-130	20-SEP-18
1,2-Dichloropropane			107.6		%		70-130	20-SEP-18
1,3-Dichlorobenzene			109.5		%		70-130	20-SEP-18
1,4-Dichlorobenzene			109.8		%		70-130	20-SEP-18
Acetone			118.8		%		60-140	20-SEP-18
Benzene			108.1		%		70-130	20-SEP-18
Bromodichloromethane			109.9		%		70-130	20-SEP-18
Bromoform			109.5		%		70-130	20-SEP-18
Bromomethane			86.0		%		60-140	20-SEP-18
Carbon tetrachloride			106.1		%		70-130	20-SEP-18
Chlorobenzene			108.1		%		70-130	20-SEP-18
Chloroform			108.7		%		70-130	20-SEP-18
cis-1,2-Dichloroethylene			106.1		%		70-130	20-SEP-18
cis-1,3-Dichloropropene			107.1		%		70-130	20-SEP-18
Dibromochloromethane			110.3		%		70-130	20-SEP-18
Dichlorodifluoromethane			143.6	MES	%		50-140	20-SEP-18
Ethylbenzene			110.6		%		70-130	20-SEP-18
n-Hexane			128.5		%		70-130	20-SEP-18
m+p-Xylenes			110.7		%		70-130	20-SEP-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4225931</b>							
<b>WG2873872-1</b>	<b>LCS</b>							
Methyl Ethyl Ketone			116.1		%		60-140	20-SEP-18
Methyl Isobutyl Ketone			108.1		%		60-140	20-SEP-18
Methylene Chloride			108.5		%		70-130	20-SEP-18
MTBE			109.6		%		70-130	20-SEP-18
o-Xylene			109.9		%		70-130	20-SEP-18
Styrene			111.2		%		70-130	20-SEP-18
Tetrachloroethylene			106.2		%		70-130	20-SEP-18
Toluene			109.2		%		70-130	20-SEP-18
trans-1,2-Dichloroethylene			104.6		%		70-130	20-SEP-18
trans-1,3-Dichloropropene			106.5		%		70-130	20-SEP-18
Trichloroethylene			108.8		%		70-130	20-SEP-18
Trichlorofluoromethane			114.9		%		60-140	20-SEP-18
Vinyl chloride			105.7		%		60-140	20-SEP-18
<b>WG2873872-2</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	20-SEP-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	20-SEP-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	20-SEP-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	20-SEP-18
1,1-Dichloroethane			<0.50		ug/L		0.5	20-SEP-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	20-SEP-18
1,2-Dibromoethane			<0.20		ug/L		0.2	20-SEP-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	20-SEP-18
1,2-Dichloroethane			<0.50		ug/L		0.5	20-SEP-18
1,2-Dichloropropane			<0.50		ug/L		0.5	20-SEP-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	20-SEP-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	20-SEP-18
Acetone			<30		ug/L		30	20-SEP-18
Benzene			<0.50		ug/L		0.5	20-SEP-18
Bromodichloromethane			<2.0		ug/L		2	20-SEP-18
Bromoform			<5.0		ug/L		5	20-SEP-18
Bromomethane			<0.50		ug/L		0.5	20-SEP-18
Carbon tetrachloride			<0.20		ug/L		0.2	20-SEP-18
Chlorobenzene			<0.50		ug/L		0.5	20-SEP-18
Chloroform			<1.0		ug/L		1	20-SEP-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4225931</b>							
<b>WG2873872-2 MB</b>								
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	20-SEP-18
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	20-SEP-18
Dibromochloromethane			<2.0		ug/L		2	20-SEP-18
Dichlorodifluoromethane			<2.0		ug/L		2	20-SEP-18
Ethylbenzene			<0.50		ug/L		0.5	20-SEP-18
n-Hexane			<0.50		ug/L		0.5	20-SEP-18
m+p-Xylenes			<0.40		ug/L		0.4	20-SEP-18
Methyl Ethyl Ketone			<20		ug/L		20	20-SEP-18
Methyl Isobutyl Ketone			<20		ug/L		20	20-SEP-18
Methylene Chloride			<5.0		ug/L		5	20-SEP-18
MTBE			<2.0		ug/L		2	20-SEP-18
o-Xylene			<0.30		ug/L		0.3	20-SEP-18
Styrene			<0.50		ug/L		0.5	20-SEP-18
Tetrachloroethylene			<0.50		ug/L		0.5	20-SEP-18
Toluene			<0.50		ug/L		0.5	20-SEP-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	20-SEP-18
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	20-SEP-18
Trichloroethylene			<0.50		ug/L		0.5	20-SEP-18
Trichlorofluoromethane			<5.0		ug/L		5	20-SEP-18
Vinyl chloride			<0.50		ug/L		0.5	20-SEP-18
Surrogate: 1,4-Difluorobenzene			99.0		%		70-130	20-SEP-18
Surrogate: 4-Bromofluorobenzene			97.3		%		70-130	20-SEP-18
<b>WG2873872-5 MS</b>		<b>WG2873872-3</b>						
1,1,1,2-Tetrachloroethane			105.6		%		50-140	20-SEP-18
1,1,1,2-Tetrachloroethane			101.8		%		50-140	20-SEP-18
1,1,1-Trichloroethane			104.9		%		50-140	20-SEP-18
1,1,2-Trichloroethane			104.3		%		50-140	20-SEP-18
1,1-Dichloroethane			104.0		%		50-140	20-SEP-18
1,1-Dichloroethylene			98.5		%		50-140	20-SEP-18
1,2-Dibromoethane			102.2		%		50-140	20-SEP-18
1,2-Dichlorobenzene			110.9		%		50-140	20-SEP-18
1,2-Dichloroethane			105.8		%		50-140	20-SEP-18
1,2-Dichloropropane			104.5		%		50-140	20-SEP-18
1,3-Dichlorobenzene			114.5		%		50-140	20-SEP-18



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Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4225931</b>							
<b>WG2873872-5 MS</b>		<b>WG2873872-3</b>						
1,4-Dichlorobenzene			116.7		%		50-140	20-SEP-18
Acetone			96.3		%		50-140	20-SEP-18
Benzene			106.5		%		50-140	20-SEP-18
Bromodichloromethane			106.7		%		50-140	20-SEP-18
Bromoform			102.4		%		50-140	20-SEP-18
Bromomethane			76.9		%		50-140	20-SEP-18
Carbon tetrachloride			105.4		%		50-140	20-SEP-18
Chlorobenzene			109.9		%		50-140	20-SEP-18
Chloroform			105.9		%		50-140	20-SEP-18
cis-1,2-Dichloroethylene			105.3		%		50-140	20-SEP-18
cis-1,3-Dichloropropene			121.9		%		50-140	20-SEP-18
Dibromochloromethane			104.4		%		50-140	20-SEP-18
Dichlorodifluoromethane			71.8		%		50-140	20-SEP-18
Ethylbenzene			114.5		%		50-140	20-SEP-18
n-Hexane			118.3		%		50-140	20-SEP-18
m+p-Xylenes			116.7		%		50-140	20-SEP-18
Methyl Ethyl Ketone			100.6		%		50-140	20-SEP-18
Methyl Isobutyl Ketone			98.6		%		50-140	20-SEP-18
Methylene Chloride			103.1		%		50-140	20-SEP-18
MTBE			109.0		%		50-140	20-SEP-18
o-Xylene			112.5		%		50-140	20-SEP-18
Styrene			114.9		%		50-140	20-SEP-18
Tetrachloroethylene			114.3		%		50-140	20-SEP-18
Toluene			109.9		%		50-140	20-SEP-18
trans-1,2-Dichloroethylene			110.4		%		50-140	20-SEP-18
trans-1,3-Dichloropropene			121.7		%		50-140	20-SEP-18
Trichloroethylene			113.8		%		50-140	20-SEP-18
Trichlorofluoromethane			103.4		%		50-140	20-SEP-18
Vinyl chloride			86.1		%		50-140	20-SEP-18
<b>Batch</b>	<b>R4229753</b>							
<b>WG2881571-1 LCS</b>								
Benzene			106.9		%		70-130	20-SEP-18
m+p-Xylenes			119.9		%		70-130	20-SEP-18
o-Xylene			113.6		%		70-130	20-SEP-18



## Quality Control Report

Workorder: L2165216

Report Date: 21-SEP-18

Page 7 of 8

Client: Sirati & Partners Consultants Ltd. (Concord)  
 12700 Keele St  
 King City ON L7B 1H5

Contact: Chaoran Li

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-511-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4229753</b>							
<b>WG2881571-1</b>	<b>LCS</b>							
Trichloroethylene			117.1		%		70-130	20-SEP-18
<b>WG2881571-2</b>	<b>MB</b>							
Benzene			<0.50		ug/L		0.5	21-SEP-18
m+p-Xylenes			<0.40		ug/L		0.4	21-SEP-18
o-Xylene			<0.30		ug/L		0.3	21-SEP-18
Trichloroethylene			<0.50		ug/L		0.5	21-SEP-18
<b>Batch</b>	<b>R4230668</b>							
<b>WG2882669-1</b>	<b>LCS</b>							
Benzene			111.0		%		70-130	21-SEP-18
Ethylbenzene			105.5		%		70-130	21-SEP-18
m+p-Xylenes			109.4		%		70-130	21-SEP-18
o-Xylene			103.9		%		70-130	21-SEP-18
Toluene			108.1		%		70-130	21-SEP-18
<b>WG2882669-2</b>	<b>MB</b>							
Benzene			<0.50		ug/L		0.5	21-SEP-18
Ethylbenzene			<0.50		ug/L		0.5	21-SEP-18
m+p-Xylenes			<0.40		ug/L		0.4	21-SEP-18
o-Xylene			<0.30		ug/L		0.3	21-SEP-18
Toluene			<0.50		ug/L		0.5	21-SEP-18

# Quality Control Report

Workorder: L2165216

Report Date: 21-SEP-18

Client: Sirati & Partners Consultants Ltd. (Concord)  
12700 Keele St  
King City ON L7B 1H5  
Contact: Chaoran Li

Page 8 of 8

## Legend:

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Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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## Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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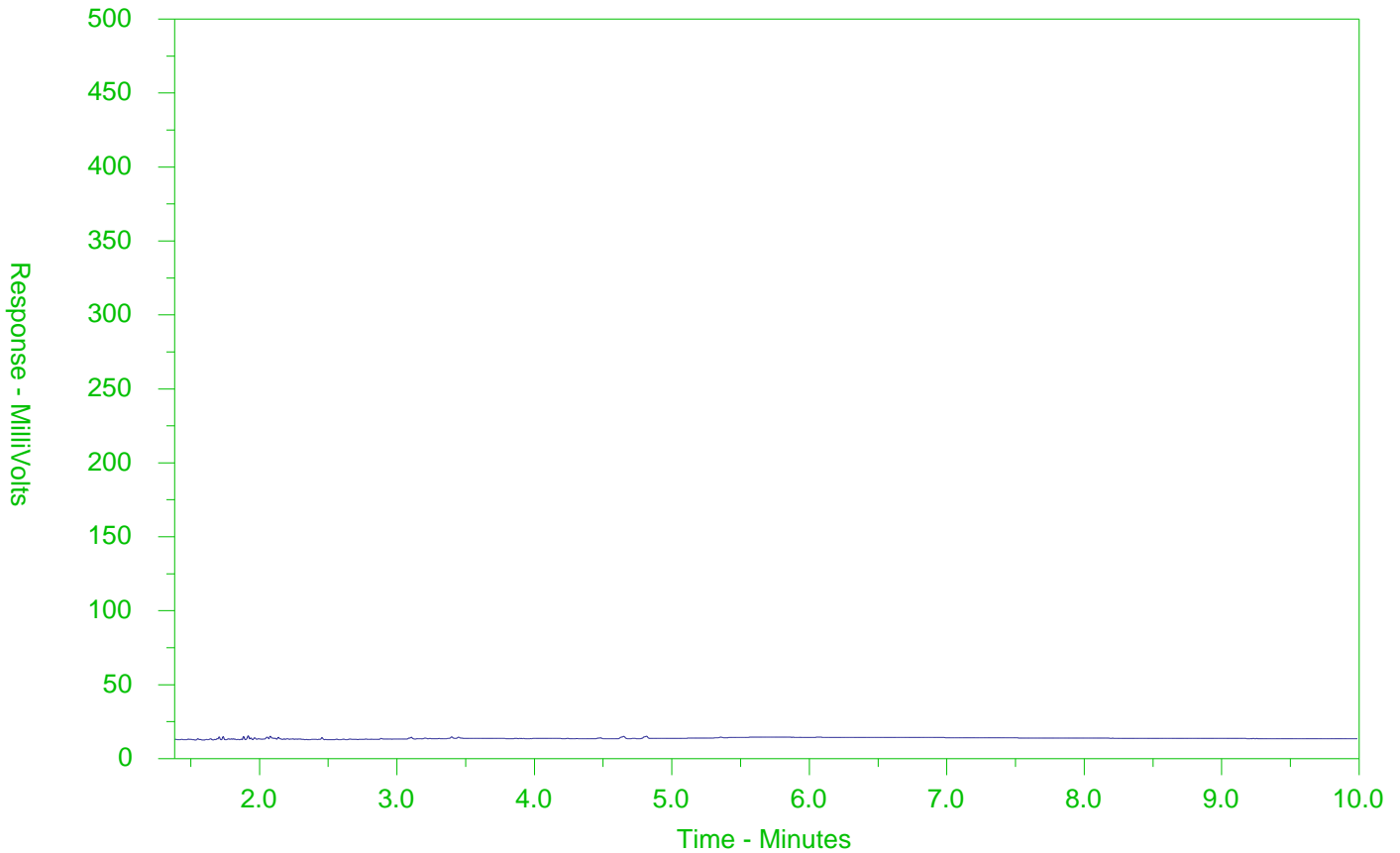
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2165216-1  
 Client Sample ID: MW201



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

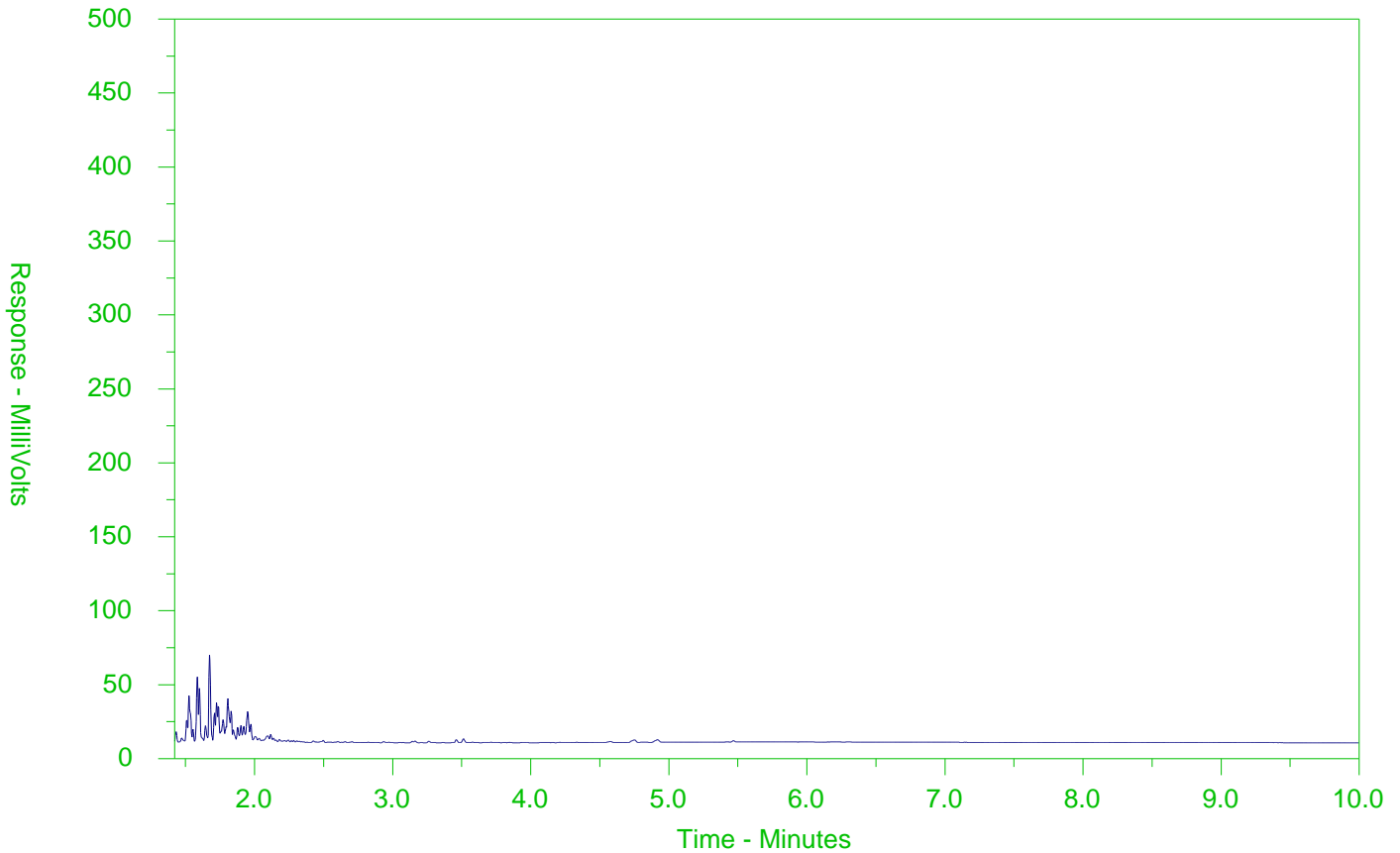
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2165216-2  
 Client Sample ID: MW202



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

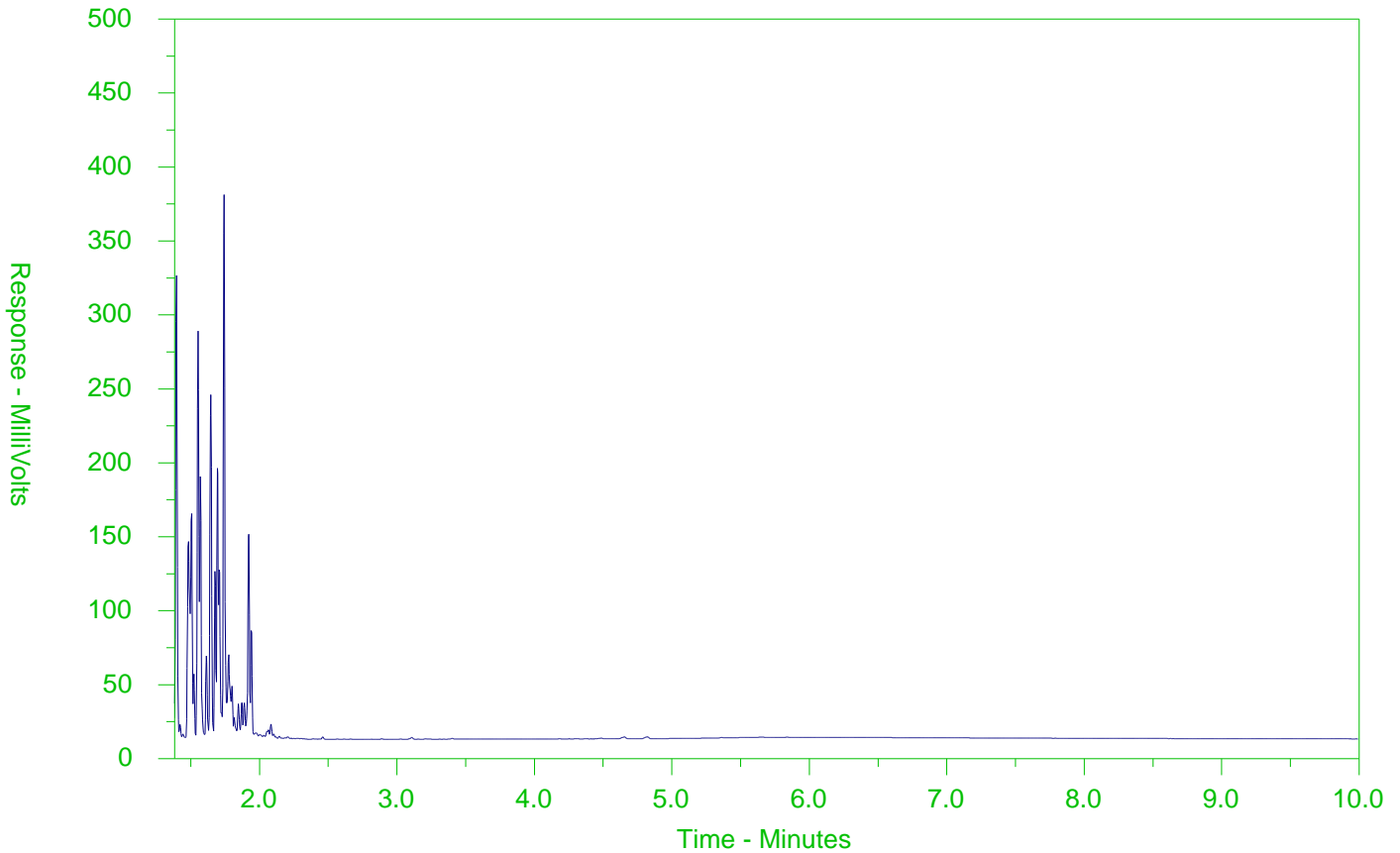
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2165216-3  
 Client Sample ID: MW204



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

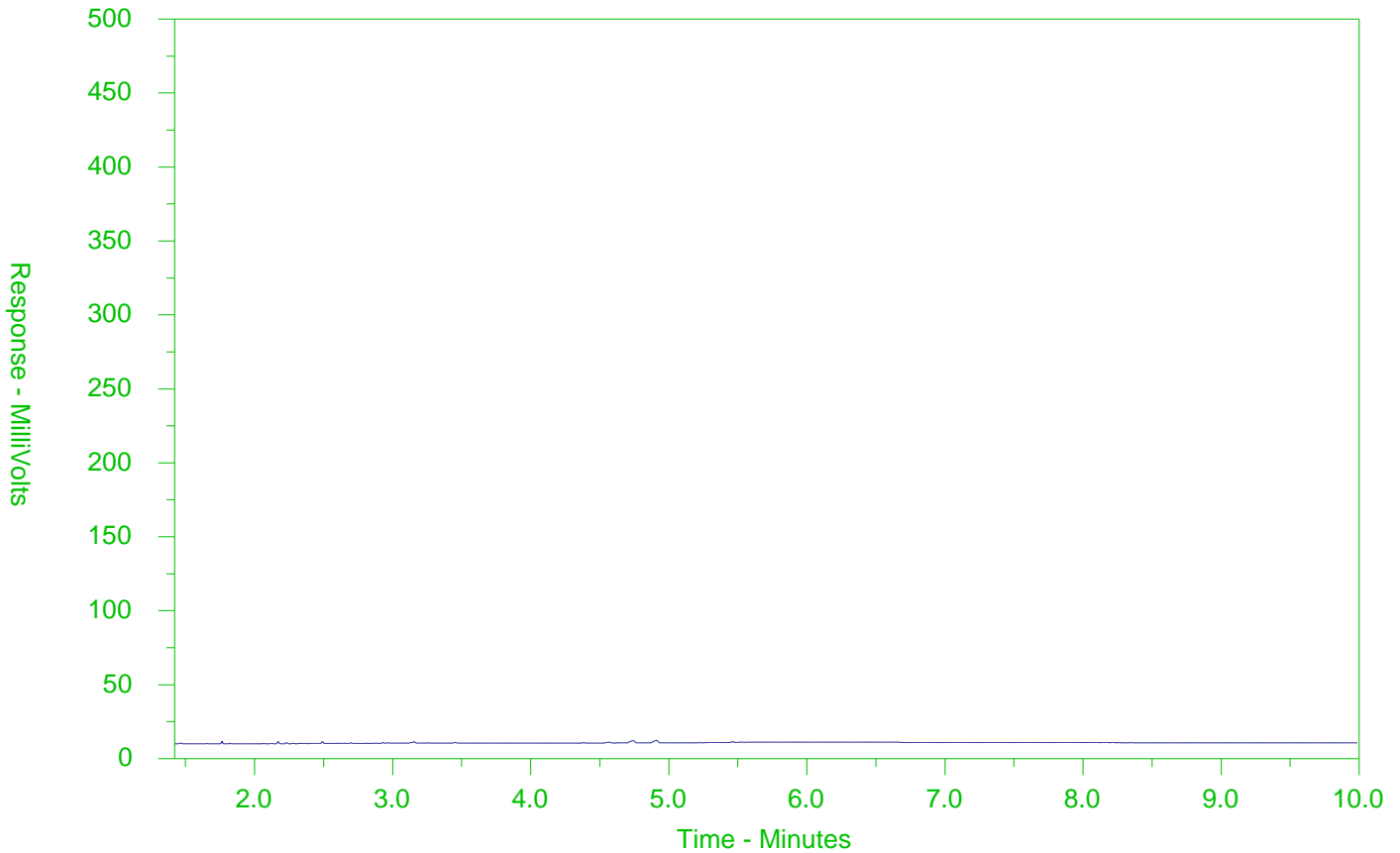
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2165216-4  
 Client Sample ID: MW206



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

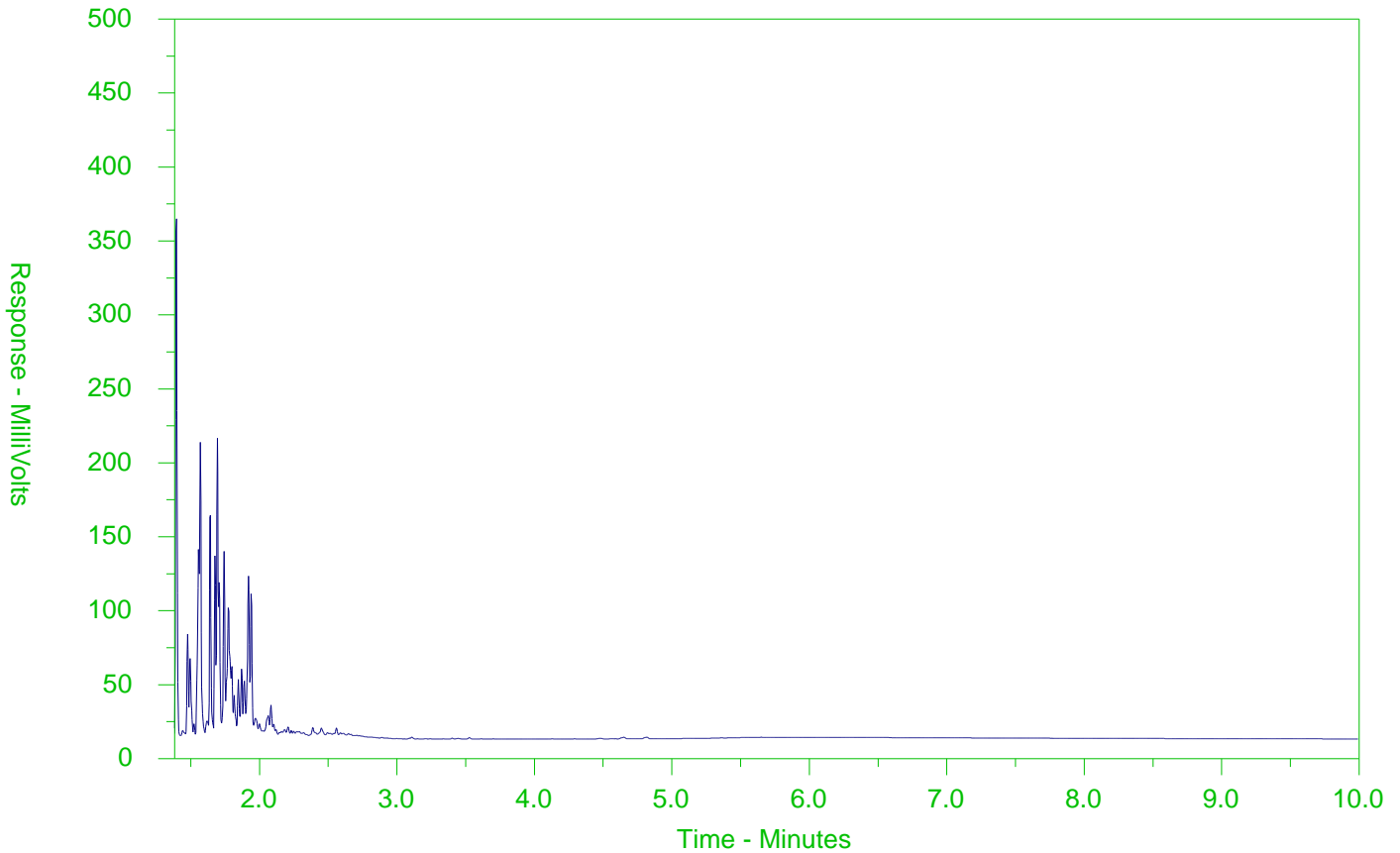
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2165216-5  
 Client Sample ID: MW207



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

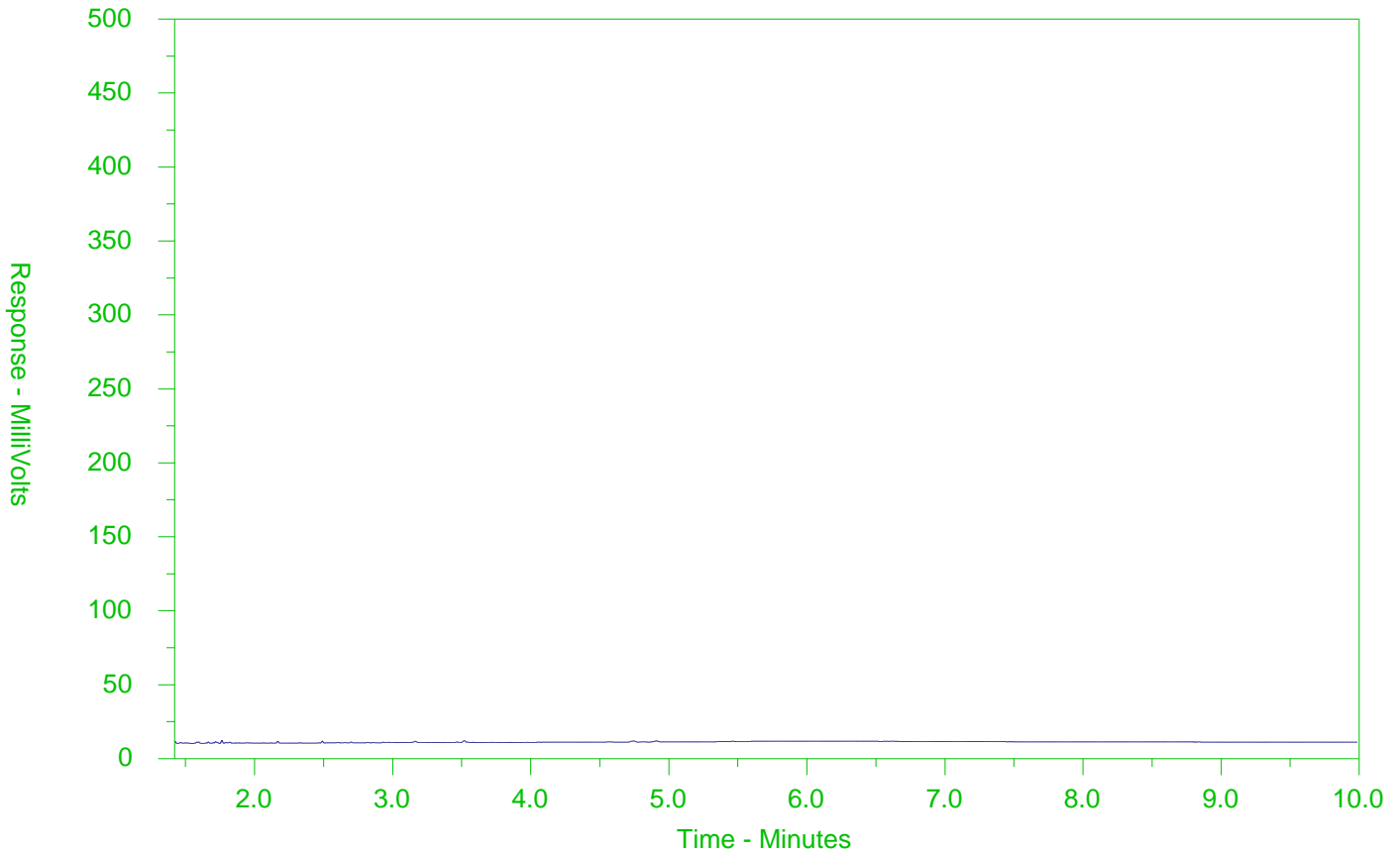
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2165216-6  
 Client Sample ID: MW208



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

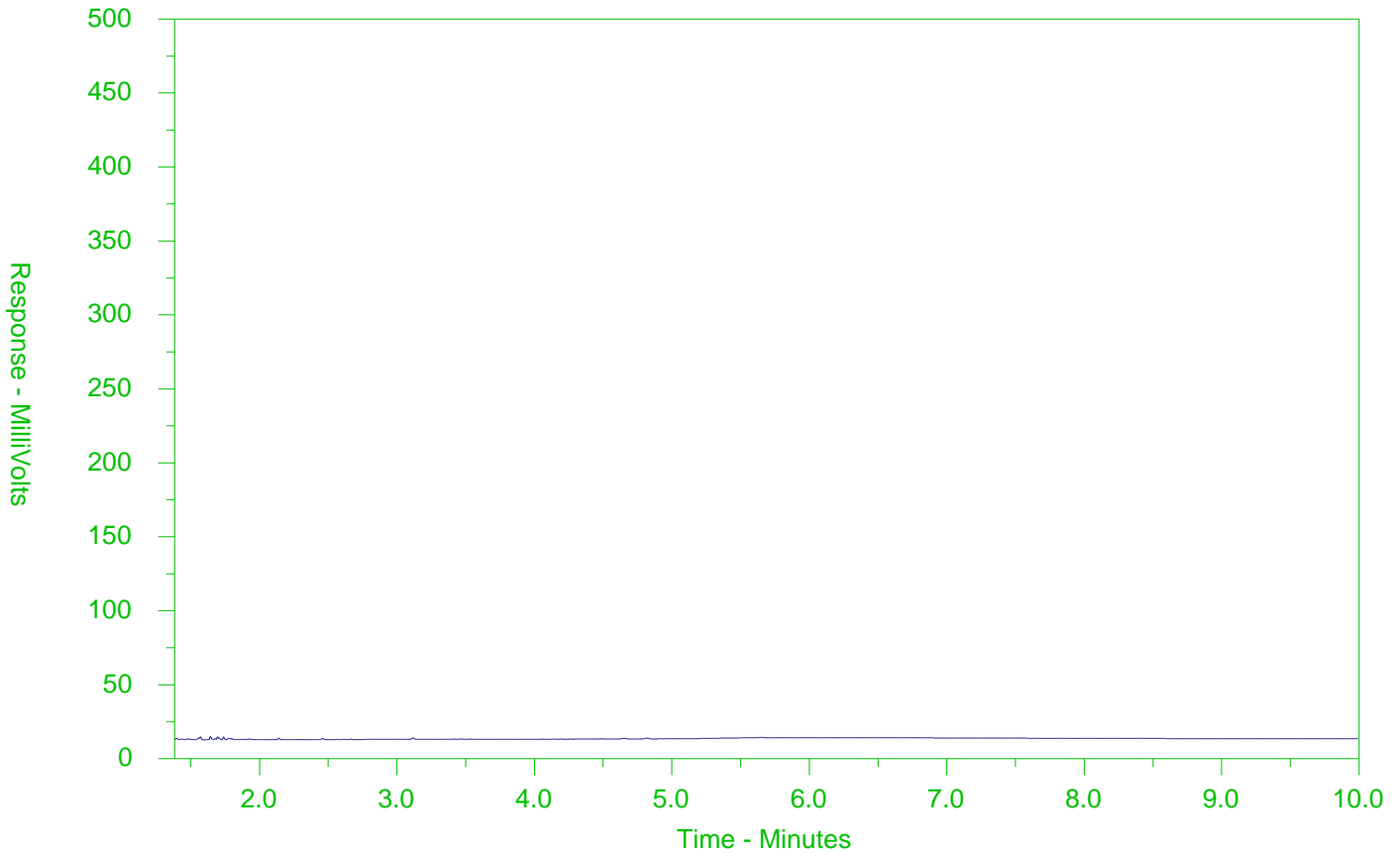
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2165216-7  
 Client Sample ID: MW209



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

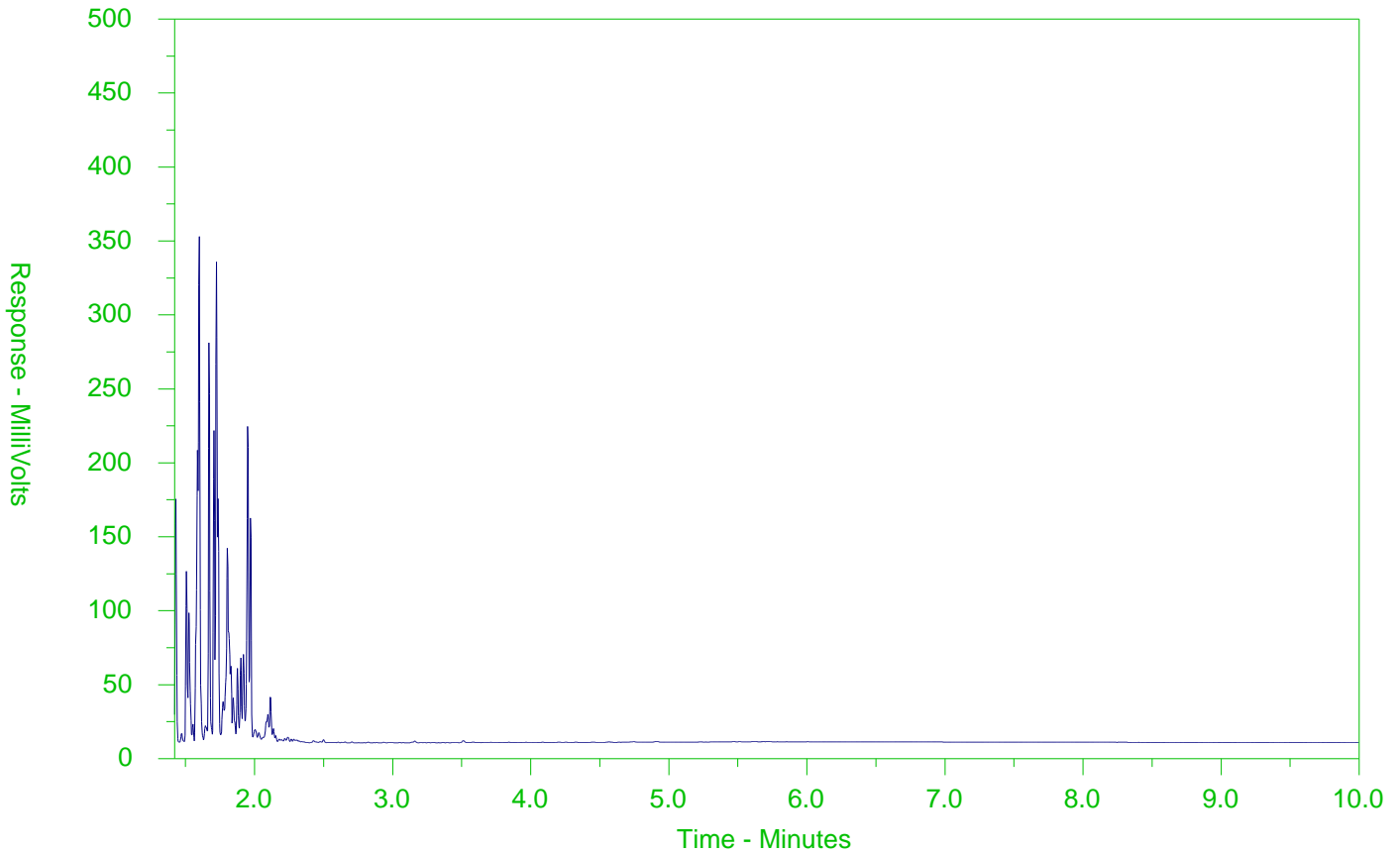
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2165216-8  
 Client Sample ID: MW210



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

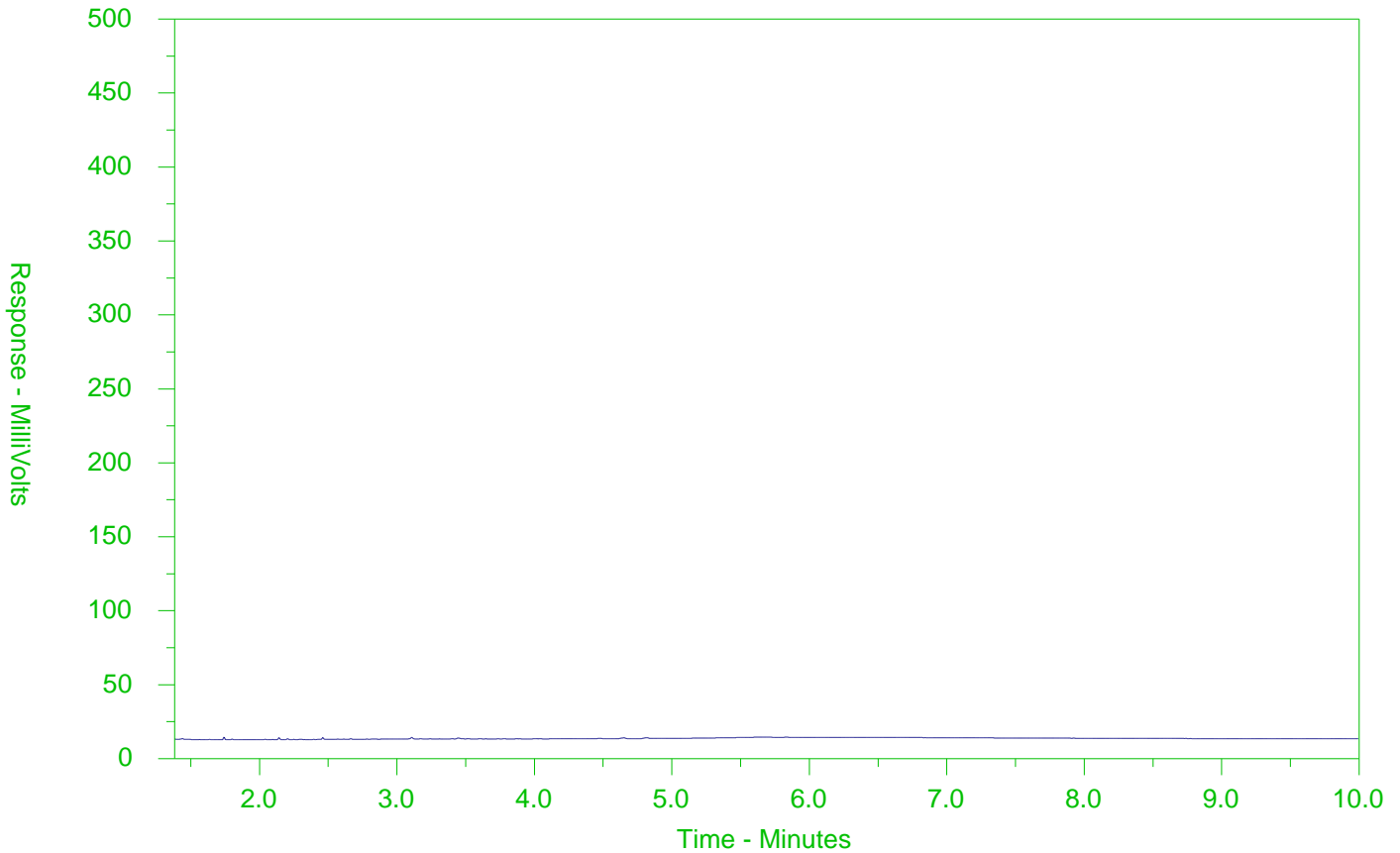
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2165216-9  
 Client Sample ID: DUP-W201



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at [www.alsglobal.com](http://www.alsglobal.com).





# APPENDIX E

**SIRATI** & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

PLAN OF SURVEY OF  
 PART OF LOT 4  
 CONCESSION 5  
 WEST OF HURONTARIO STREET  
 (GEOGRAPHIC TOWNSHIP OF TORONTO, COUNTY OF PEEL)  
 CITY OF MISSISSAUGA  
 REGIONAL MUNICIPALITY OF PEEL  
 SCALE 1: 500

David B. Searles Surveying Ltd.  
 ONTARIO LAND SURVEYORS

METRIC  
 DISTANCES SHOWN ON THIS PLAN ARE IN METRES  
 AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BEARING NOTE

BEARINGS ARE GRID BEARINGS DERIVED FROM GPS OBSERVATIONS USING THE SMARTNET NETWORK AND ARE REFERRED TO THE CENTRAL MERIDIAN OF UTM ZONE 17 (81°00' WEST), NAD83 (CSRS 2010).

BEARINGS ON PLAN OF SURVEY BY B.J. STASSEN, O.L.S., DATED JUNE 8, 1990 (P1) AND PLAN 43R-16616 (P6) HAVE BEEN ROTATED 01°01'10" COUNTERCLOCKWISE TO MAKE COMPARISONS.

BEARINGS ON PLAN BY C. PEAT O.L.S., DATED OCTOBER 4, 1967 (P3) HAVE BEEN ROTATED 00°53'20" COUNTERCLOCKWISE TO MAKE COMPARISONS.

BEARINGS ON TOPO SURVEY BY TONY STAUASKAS, O.L.S., DATED JUNE 9, 2009 (P4) HAVE BEEN ROTATED 00°52'20" COUNTERCLOCKWISE TO MAKE COMPARISONS.

DISTANCE NOTE

DISTANCES SHOWN HEREON ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.9997255.

NOTE

PROPERTY LIMITS ARE NOT FENCED UNLESS OTHERWISE NOTED ON THE FACE OF THE PLAN.

LEGEND

■	DENOTES MONUMENT FOUND
□	DENOTES MONUMENT SET
IB	DENOTES IRON BAR
SIB	DENOTES STANDARD IRON BAR
OSIB	DENOTES SHORT STANDARD IRON BAR
OU	DENOTES ORIGIN UNKNOWN
1672	DENOTES TONY STAUASKAS, O.L.S.
1059	DENOTES WILLIAM M. TONTON O.L.S.
M	DENOTES MEASURED
P1	DENOTES PLAN OF SURVEY BY B.J. STASSEN, O.L.S., DATED JUNE 8, 1990
P3	DENOTES PLAN BY C. PEAT O.L.S., DATED OCTOBER 4, 1967
P4	DENOTES TOPO SURVEY BY TONY STAUASKAS, O.L.S., DATED JUNE 9, 2009
P6	DENOTES PLAN 43R-16616
ANC	DENOTES ANCHOR
BB	DENOTES BELL BOX
BC	DENOTES BACK OF CURB
BOLL	DENOTES BOLLARD
BRED	DENOTES BELL PEDESTAL
CB	DENOTES CATCH BASIN
CCUT	DENOTES CURB CUT
CLF	DENOTES CHAIN LINK FENCE
CP(H)LS	DENOTES CONCRETE POLE (HYDRO) WITH LIGHT STANDARD
CPAD	DENOTES CONCRETE PAD
CPP	DENOTES CULVERT (PLASTIC PIPE)
CRTW	DENOTES CONCRETE RETAINING WALL
CSP	DENOTES CULVERT (STEEL PIPE)
CSW	DENOTES CONCRETE SIDE WALK
CUL	DENOTES CULVERT
HW	DENOTES MONITORING WELL
DS	DENOTES DOOR SILL
EP	DENOTES EDGE OF PAVEMENT
FF	DENOTES FINISHED FLOOR
FH	DENOTES FIRE HYDRANT
GDR	DENOTES GUARDRAIL
GM	DENOTES GAS METER
HM	DENOTES HYDRO METER
LS	DENOTES LIGHT STANDARD
MHC(B)	DENOTES MAINTENANCE HOLE COVER (BELL)
MHC(SAN)	DENOTES MAINTENANCE HOLE COVER (SANITARY)
MHC(STM)	DENOTES MAINTENANCE HOLE COVER (STORM)
MHC(W)	DENOTES MAINTENANCE HOLE COVER (WATER)
SP	DENOTES SIGN POST
SPR	DENOTES SPRINKLER
TLCB	DENOTES TRAFFIC LIGHT CONTROL BOX
SRTW	DENOTES STONE RETAINING WALL
WP(H)	DENOTES WOODEN POLE (HYDRO)
WP(H)LS	DENOTES WOODEN POLE (HYDRO) WITH LIGHT STANDARD
WR(W)	DENOTES WOODEN RETAINING WALL
WV	DENOTES WATER VALVE
φ	DENOTES DIAMETER
OHW	DENOTES OVERHEAD WIRE
OS	DENOTES OVERHEAD WIRE
○	DENOTES CONFEROUS TREE
○	DENOTES DECIDUOUS TREE
—	DENOTES TREE LINE

BENCHMARK NOTE

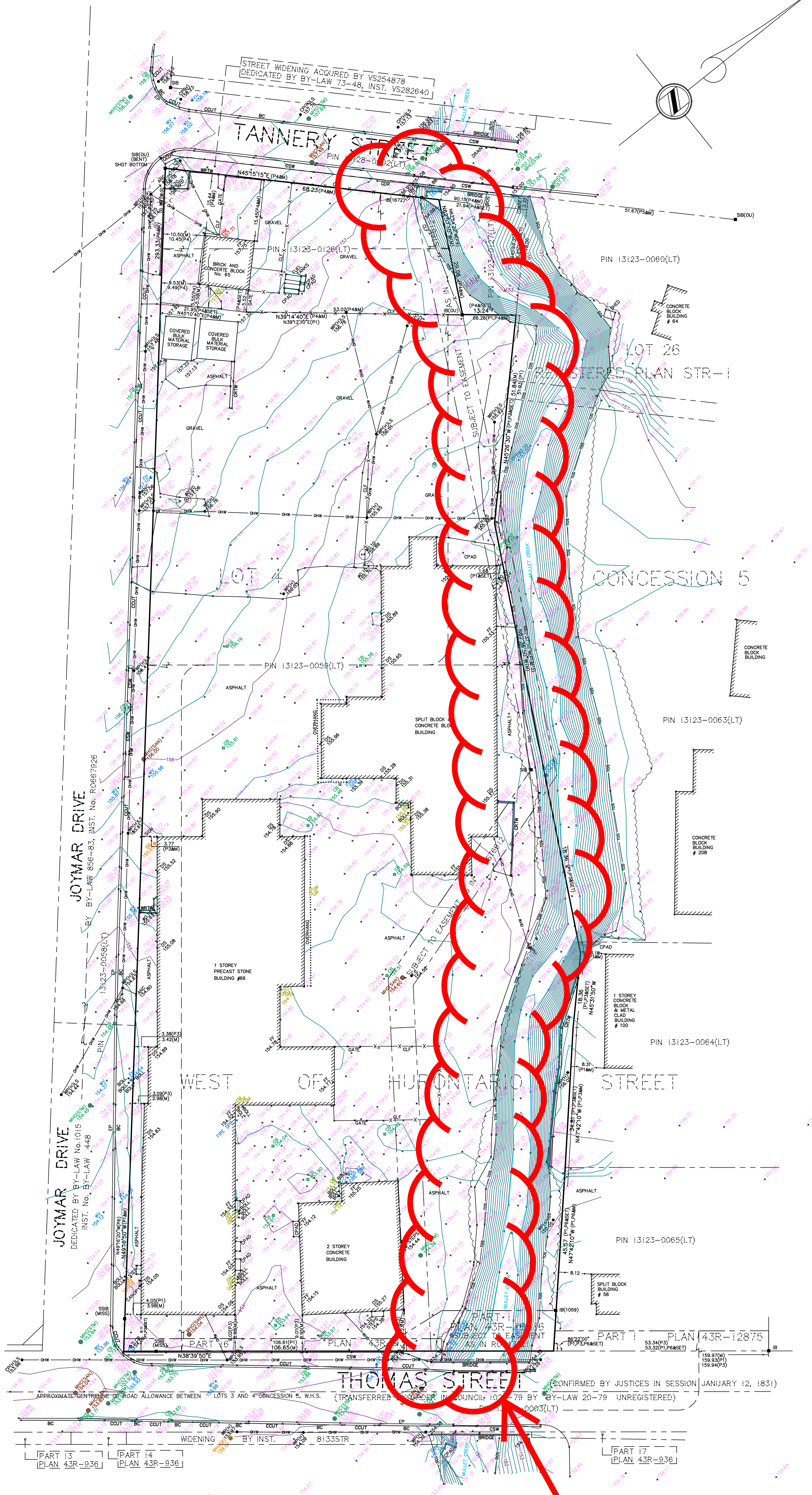
ELEVATIONS ARE REFERRED TO THE CITY OF MISSISSAUGA BENCHMARK No. 257 LOCATED ON THE SOUTH FACE, 0.61 METRE WEST OF THE EAST CORNER OF THE RED BRICK BUILDING AT THE NORTHWEST CORNER OF THOMAS STREET AND QUEEN STREET, HAVING AN ELEVATION OF 162.08m.  
 CANADIAN GEODETIC VERTICAL DATUM 1928: PRE 1978 ADJUSTMENT.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:  
 1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYORS ACT, THE SURVEYORS ACT, AND THE AND THE REGULATIONS MADE UNDER THEM.  
 2. THE SURVEY WAS COMPLETED ON THE DAY OF

PRELIMINARY

DATE	AUGUST 11, 2017	ASST. SURVEYOR	AJUSTER SANKEY
ONTOARIO LAND SURVEYOR		Calculator	BJ
ONTOARIO LAND SURVEYORS		Draftsperson	IV
4255 Sherwoodtowne Blvd., Suite 206, Mississauga, Ontario L4Z 1Y5		Editor	BJ
Tel: (905) 273-6840 Fax: (905) 896-4410		Plan Index No.	D 16
Email: info@bssearles.ca		File No.	116-0-16
Calculation File	116-16CALC.DWG	Drawing File	116-0-16.DWG



AREA OF INTEREST  
 (SOUTHWEST SIDE OF  
 CREEK ONLY)