55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, ON

Phase Two Environmental Site Assessment

March 5, 2021

City of Guelph

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, ON

Project No:	CE751900
Document Title:	Phase Two Environmental Site Assessment
Document No.:	FES1202201128KWO
Revision:	
Document Status:	Final
Date:	March 5, 2021
Client Name:	City of Guelph
Project Manager:	Ed Taves
Authors:	Tania McCarthy, Victoria Peters

Jacobs Canada Inc.

72 Victoria Street South, Third Floor
Kitchener, Ontario N2G 4Y9
Canada
T +1.519.579.3500

www.jacobs.com

Contents

Appendices

Exhibits

Tables

Figures

Acronyms and Abbreviations

°C	degree(s) Celsius
µg/g	microgram(s) per gram
µg/L	microgram(s) per litre
µm	micrometre(s)
Aardvark	Aardvark Drilling Inc.
ABN	acid, base, and neutral compound
ALS	ALS Canada Limited
APEC	area of potential environmental concern
ARA	Archeological Research Associates Ltd.
BTEX	benzene, toluene, ethylbenzene, and xylenes
CALA	Canadian Association for Laboratory Accreditation Inc.
City	City of Guelph
cm	centimetre(s)
COA	certificate of analysis
COC	contaminant of concern
COPC	contaminant of potential concern
D&F	dioxin and furan
DO	dissolved oxygen
DQE	data quality evaluation
EC	electrical conductivity
ESA	environmental site assessment
eV	electron-volt
F	fraction
FD	field duplicate
FIP	fire insurance plan
ha	hectare(s)
HWS boron	hot-water-soluble boron
ID	identification
Jacobs	Jacobs Engineering Group Inc.
K	hydraulic conductivity
km	kilometre(s)
L	litre(s)
LCS	laboratory control sample
m	metre(s)

m/m	metre(s) per metre
m/s	metre(s) per second
m/y	metre(s) per year
masl	metre(s) above sea level
mbgs	metre(s) below ground surface
MECP	Ontario Ministry of the Environment, Conservation and Parks
mg/L	milligram(s) per litre
mm	millimetre(s)
MS	matrix spike
mS/cm	milliSiemen(s) per centimetre
NAPL	nonaqueous phase liquid
O. Reg.	Ontario Regulation
OnSite	OnSite Locates Inc.
ORP	other regulated parameter
PAH	polycyclic aromatic hydrocarbon
PCA	potentially contaminating activity
PCB	polychlorinated biphenyl
Phase Two Property (or Site)	55 Baker Street, 152 Wyndham Street North, 160 Wyndham Street North, and the right-of-way known as Park Lane in Guelph, Ontario
PHC	petroleum hydrocarbon
PID	photoionization detector
Plan	Grand River Source Protection Plan
ppm	part(s) per million
PVC	polyvinyl chloride
QA	quality assurance
QC	quality control
QPESA	Qualified Person for ESA
RA	risk assessment
RL	reporting limit
RPD	relative percent difference
RSC	Record of Site Condition
SAP	Sampling and Analysis Plan
SAR	sodium adsorption ratio
SCS	Site Condition Standard

Site (or Phase Two Property)	55 Baker Street, 152 Wyndham Street North, 160 Wyndham Street North, and the right-of-way known as Park Lane in Guelph, Ontario
SOP	standard operating procedure
Table 2 SCS	*Table 2 Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for coarse grained soil and residential/parkland/institutional land use*
VOC	volatile organic compound

1. Executive Summary

The City of Guelph (City) retained CH2M HILL Canada Limited (CH2M), now Jacobs Engineering Group Inc. (Jacobs), to provide environmental services for the properties located at 55 Baker Street, 152 Wyndham Street North, 160 Wyndham Street North, and the right-of-way known as Park Lane in Guelph, Ontario (Phase Two Property or Site). Jacobs understands the current plan is to redevelop the Site for a mix of residential, commercial, community, and institutional use.

The Site is in downtown Guelph, southwest of the Speed River (Figures 2-1 and 2-2a). It is approximately 1.14 hectares (ha) in size, is currently used as a commercial parking lot, and includes one laneway. There are no buildings onsite; however, buildings were historically present and associated with the use of portions of the Site for parkland, commercial, and industrial purposes. From approximately 1827 to 1879, the parcel associated with 55 Baker Street was used as a public burial ground (community land use) (Pinchin 2018).

Jacobs developed the field program for the Phase Two Environmental Site Assessment (ESA) based on the results of the Phase One ESA (Pinchin 2018), as well as the results of previous environmental investigations (Kewen 2001; XCG 2008), to provide general spatial coverage across the Site. The field components of the project included utility locates, archaeological clearances, drilling and monitoring well installation, soil and groundwater sampling, surveying, and water level elevation measurements. Jacobs and its subcontractors completed these field components, which are documented in this report.

This report was completed to summarize Phase Two investigations conducted at the Site, and to complete the following tasks:

- Meet current Ontario Regulation (O. Reg.) 153/04 (MECP 2011a), regulatory requirements to support Record of Site Condition (RSC) filing.
- Investigate or further investigate areas of potential environmental concern (APECs) identified during the Phase One ESA (Pinchin 2018).
- Provide data to support a potential risk assessment (RA).

According to Section 168.3.1 of the *Environmental Protection Act* (MECP 1990a), an RSC is required because the land use will be changed from commercial to a mixed land use that includes more sensitive uses (that is, residential or institutional, or both).

To assess the subsurface conditions, Jacobs examined the lithologies recorded from 27 investigative locations (that is, boreholes and monitoring wells) advanced as part of the current Phase Two ESA activities. Geological conditions, as characterized from the dataset at the Phase Two Property, include the following:

- Asphalt at ground surface (extending to 0.15 metres below ground surface [mbgs]).
- Fill materials (mainly sand, sand and gravel or silty sand) to a maximum depth of 3.91 mbgs, with an average thickness of 1.87 metres (m).
- Native overburden (sand) that exists roughly from the bottom of fill to the bedrock, with interbedded layers of gravel and silt.
    - A silt layer was encountered in the northern portion of the Site. The depth to silt ranged from 2.13 to 3.94 mbgs and the average thickness of the layer was 3.58 m. In most locations where the silt was encountered, it underlay a layer of sand and directly overlies bedrock.
    - A small silt lens, observed in the southern portion of the Site, was disconnected from the larger silt layer in the northern portion of the Site. The depth to this silt layer ranged from 2.21 to 3.72 mbgs, with an average thickness of 1.37 m.

  - A gravel and sand layer was encountered in the southern portion of the Site. The depth to this gravel and sand layer ranged from 1.52 to 5.94 mbgs, and the average thickness of the layer was 2.16 m. Generally, the sand and gravel extends to the bedrock, but in the southeastern portion of the Site it terminates above a layer of sand.
  - A clay lens was encountered in the middle of the Site (MW109). The clay was encountered from 1.14 to 2.44 mbgs, which is generally consistent with the depth of the fill layer and is expected to be very small laterally.
- Guelph Formation dolostone with a top of bedrock contact ranging from 4.57 to 8.46 mbgs (average depth at 5.99 mbgs); the bedrock was described as being highly weathered and fractured within the first 0.3 to 0.6 m, and was noted to be vuggy, with calcite mineralization.

Local groundwater is expected to flow eastward, toward the Speed River. The Site-specific groundwater was interpreted to flow radially, from a high elevation on the western boundary of the Site towards the north, and east to southeast. The higher groundwater elevations at the western portion of the Site appear to be correlated with higher bedrock elevation. Perched groundwater is also observed at the northern end of the Site, above the low-permeability silt aquitard layer. The full extent of the perched groundwater is currently not fully understood but may have a similar extent to the silt layer.

Based on the available information, Jacobs selected the Table 2 Site Condition Standards (Table 2 SCS), as outlined in the Ontario Ministry of the Environment, Conservation and Parks' (MECP's) *Soil, Groundwater, and Sediment Standards* for Use under Part XV.1 of the *Environmental Protection Act* adopted under Ontario Regulation 153/04 (MECP 2011c) for a potable groundwater, residential/parkland/institutional property use for coarse-textured soil to apply to the Site.

Most of the soil beneath the Phase Two Property was found to be impacted with salt-related parameters (electrical conductivity [EC] and sodium adsorption ration [SAR] in soil; and sodium and chloride in groundwater). Limited localized metal impacts were also present (lead and mercury in soil; cadmium in groundwater).

The presence of elevated EC and SAR in soil and sodium, as well as chloride in groundwater, is widespread across most of the Site and is interpreted to be related to the application of deicing materials on the parking lot surfaces (APEC-4). Section 49.1 of O. Reg. 153/104 states the SCS is deemed not to be exceeded for the purpose of Part XV.1 of the Environmental Protection Act when a substance that has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice, or both, exceeds the SCS. Therefore, at the discretion of the Qualified Person for Environmental Site Assessment (QPESA) and based on the revised regulation, these parameters were not considered to be contaminants of concern (COCs) at the Phase Two Property.

Metals exceedances in soil were identified in the southeastern portion of the Phase Two Property at one location (MW101), and were limited to lead and mercury. These impacts are likely limited to the fill in the existing laneways, based on results and observations during drilling and test-pitting activities, and extend to an estimated maximum of 3.0 mbgs based on fill depth in this area. The poor-quality fill was not observed at other locations.

Metals exceedances in groundwater were limited to cadmium. Cadmium exceedances were noted in two monitoring wells along the western property boundary (MW107 and MW113) with maximum concentrations found at MW113 screened in the bedrock aquifer (at 5.3 to 8.4 mbgs). The cadmium exceedances at these locations were not shown to extend vertically to MW107B (screened in the deep bedrock, at 13.7 to 15.5 mbgs). Groundwater moves from these locations towards the southeastern portion of the Site. Sampling results from downgradient wells from the identified cadmium exceedances (MW110A and MW101, both less than the Table 2 SCS) indicate the cadmium impacts in groundwater are not anticipated to migrate offsite. Cadmium impacts may

be related to the APECs associated with offsite and upgradient potentially contaminating activities (to the west) (for example, APEC-11 for Industrial Operations and APEC-12 for Historical Automotive Garage) or other unknown sources.

Based on extensive sampling over the Phase Two Property, it has been concluded that the horizontal and vertical extents of soil and groundwater impacts have been sufficiently defined for Phase Two purposes, as well as to support the RA and evaluation of risk management measures.

Jacobs completed an RA (Jacobs 2020) to assess the existing concentrations of COCs on Site, develop property-specific standards, and determine what risk management measures would need to be implemented. The RA (MGRA1896-20, IDS# 7882-BRYP6L) was accepted by the MECP on December 21, 2020.

Based on the results of the Phase Two ESA, as of the certification date of April 29, 2020, the concentrations of contaminants in soil and groundwater at the Phase Two Property meet the property-specific standards as defined in the RA (Jacobs 2020). An RSC can be developed and submitted to the MECP, to permit the proposed change in land use for the Site.

2. Introduction

The City of Guelph (City) retained Jacobs Engineering Group Inc. (Jacobs), to provide environmental services for the properties located at 55 Baker Street, 160 Wyndham Street North (including the former 152 Wyndham Street North), and the right-of-way known as Park Lane in Guelph, Ontario (Phase Two Property or Site) (Figure 2-1).

The Site is in downtown Guelph, southwest of the Speed River (Figure 2-1). The Site is approximately 1.14 hectares (ha) and is currently in use as a commercial parking lot and one laneway. There are no buildings onsite; however, buildings were historically present and associated with the use of portions of the Site for parkland, commercial, and industrial purposes. Figures 2-2a and 2-2b show building outlines and identified utilities, respectively, on the Phase Two Property. From approximately 1827 to 1879 the parcel associated with 55 Baker Street was used a public burial ground (community land use) (Pinchin 2018).

The Site underwent various subsurface environmental investigations between 1993 and 2019. The objectives of the Phase Two Environmental Site Assessment (ESA) are to:

- Meet current Ontario Regulation (O. Reg.) 153/04, (MECP, 2011a), regulatory requirements to support Record of Site Condition (RSC) filing.
- Investigate or further investigate areas of potential environmental concern (APECs) identified during the Phase One ESA (Pinchin 2018).
- Provide data to support a potential risk assessment (RA).

This report is also intended to support the future redevelopment of the Phase Two Property. Jacobs understands the current plan is to redevelop the Site for a mix of residential, commercial, community, and institutional use (City 2019).

2.1 Site Description

The Phase Two Property is approximately 1.14 ha, and is surrounded by a mix of commercial, institutional, and residential land uses. The Site is south of Woolwich Street, east of Baker Street, north of Quebec Street, and west of Wyndham Street North. Exhibit 2-1 identifies the municipal address, property identifier numbers, and legal descriptions of the parcels that form part of the Phase Two Property.

Exhibit 2-1. Property Information

Municipal Address	Property Identification Number	Legal Description
55 Baker Street	71287-0119 (LT) [a]	Part Burying Ground; Plan 8; Part Lane through Burying Ground; Plan 8, Closed by MS80255; as in MS78644, MS20082, CS58221; subject to Interest, if any, in CS58221; Part Burying Ground, Plan 8 as in CS51962; City of Guelph
N/A (Park Lane)	71287-0099 (LT)	Unnamed Lane, Plan 8, (AKA Park Lane, Plan 8) lying south of Part Closed by CS31228, Save and Except RO755787, ROS546721 & ROS220056; Guelph

Exhibit 2-1. Property Information

Municipal Address	Property Identification Number	Legal Description
160 Wyndham Street North (includes former 152 Wyndham Street North)	71287-0118 [b]	Part Lots 73 And 74, Part of Burying Ground and Part of Lane at the rear of Lots 73 And 74 (aka Park Lane), Closed by CS31228, Plan 8, Designated as Parts 1, 2, 3 and 4, Reference Plan 61R-21815, subject to and together with ROS557919 and ROS573090, City of Guelph

Notes:

N/A = not applicable

[a] Recently consolidated from former PIN numbers 712870038 (LT) and 71287-0058 (LT)

[b] Recently consolidated from former PIN numbers 712870044 (LT) and 712870045 (LT); the latter being associated with former municipal address 152 Wyndham Street North

Appendix A includes the Plan of Survey for the Site.

2.2 Property Ownership

The City currently owns the Phase Two Property; Exhibit 2-2 presents contact information for the owner.

Exhibit 2-2. Contact Information for Owner of Phase Two Property

Agency	Role	Contact Information
City of Guelph	Owner Representative	Prasoon Adhikari, M.Sc., P.Eng., PMP Environmental Engineer City of Guelph, Engineering and Transportation Services, Infrastructure, Development and Environmental Engineering 1 Carden Street Guelph, Ontario, N1H 3A1 Ph: 519.822.1260 ext. 2946 Email: Prasoon.Adhikari@guelph.ca

2.3 Current and Proposed Future Uses

The Phase One ESA (Pinchin 2018) provides current and historical information about the Phase Two Property. The Site currently consists of a paved municipal parking lot and a paved laneway. Most of the Site is currently operating as a paid parking lot. Jacobs understands the current plan is to redevelop the Site for a mix of residential, commercial, community, and institutional use.

According to Section 168.3.1 of the *Environmental Protection Act* (MECP 1990a), an RSC is required because the land use will be changed from commercial to a mixed land use that includes more sensitive uses (that is, residential or institutional, or both).

2.4 Applicable Site Condition Standards

O. Reg. 153/04 (MECP 2011a), under Part XV.1 of the *Environmental Protection Act*, addresses the assessment, cleanup, and filing of an RSC for brownfield sites in Ontario and applies to the Phase Two Property. Jacobs evaluated the Site based on several criteria to decide which of the generic standards in the Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act* (MECP 2011b) applied for a comparison of soil and groundwater results from the Phase Two ESA investigation.

The items in Exhibit 2-3 were considered during the selection of the standards, as outlined in O. Reg. 153/04 (MECP 2011a).

Exhibit 2-3. Items Considered for Site Condition Standards Selection

Condition	Evaluation
Land use	The current land use is commercial and community. The proposed future land use is a mix of residential, commercial, community, and institutional.
Potable or non-potable groundwater	The Site and adjacent properties within 250 m are serviced by a municipal water source. However, as the City relies on groundwater for its water supply (City 2018), the potable groundwater condition will be applied.
Proximity to surface water body	No waterbodies are located on the Site. The Speed River is the nearest downgradient waterbody, and is located approximately 130 m northeast of the Site.
Proximity to areas of natural significance or environmentally sensitive areas	The Site is not considered an area of natural significance or to be within the proximity of an area of natural significance, based on the information reviewed as part of the Phase One ESA (Pinchin 2018, Jacobs 2021).
Depth to bedrock	A property is considered a shallow soil property if one-third or more of the area consists of soil depths of 2 mbgs or less, excluding nonsoil surface treatment (that is, asphalt, concrete, or aggregate) (MECP 2011a). The depth to bedrock is greater than 2 m, as bedrock was encountered between 4.93 mbgs and 8.43 mbgs.
pH of soil	Jacobs' investigations included 45 soil samples analyzed for pH from 17 locations across the Phase Two Property and reported soil pH ranged from 7.37 to 9.46 (Figure 2-3). Soil pH was within the MECP's acceptable range for samples collected in both surface soil (from between surface and 1.5 mbgs, with a pH value in surface soil less than 5 or greater than 9) and subsurface soil (more than 1.5 mbgs with a pH value in subsurface soil less than 5 or greater than 11). Historical investigations identified elevated pH (greater than 9) in surface soil; however, many of the borehole logs reported brick fragments or concrete present in the soil descriptions where samples with elevated pH were collected. This information suggests that nonsoil materials may have been sampled, potentially biasing the historical soil pH results. Therefore, the historical results may not be representative of actual soil pH conditions. Considering this information, Jacobs has relied solely on the soil pH data collected during recent investigation to determine the applicable SCS for soil pH. On this basis, soil pH is within the MECP's acceptable range.

Exhibit 2-3. Items Considered for Site Condition Standards Selection

Condition	Evaluation
Soil texture	The soil condition standards for coarse-grained soils were used, based on the grain-size results, to be conservative and to account for the extensive presence of heterogeneous fill materials across the surface of the Site.

Notes:

m = metre(s)
mbgs = metre(s) below ground surface

MECP = Ontario Ministry of the Environment, Conservation and Parks

SCS = Site Condition Standard

Based on this information, which has been reviewed by the Qualified Person for ESA (QPESA), the Table 2 Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for coarse grained soil and residential/parkland/institutional land use (Table 2 SCS), as outlined in the MECP's Soil, Groundwater, and Sediment Standards for use under Part XV.1 of the Environmental Protection Act adopted under O. Reg. 153/04 (MECP 2011b) was applied to the Site.

3. Background Information

3.1 Physical Setting

The topography over most of the Phase Two Property is moderately flat, with ground surface elevations ranging from 328.34 metres above sea level (masl) (MW113) at the southwestern corner of the Site to 330.16 masl (BH201) in the west. The Site slopes slightly from the western border towards the south, north, and east. Surface runoff at the Phase Two Property is expected to flow radially from the west in these directions, but is directed towards onsite catchbasins. Figure 3-1 shows the regional topography and surface water drainage features.

The Phase Two Property is not within 30 m of a water body. The Speed River is the nearest downgradient waterbody, approximately 130 to 150 m north-northeast of the Site, and ground surface tends to slope north towards the river. Groundwater from the region is likely to eventually discharge to Speed River. Based on the information reviewed as part of the Phase One ESA (Pinchin 2018, Jacobs 2021), the Site is not considered part of an area of natural significance or to be within the proximity of an area of natural significance.

The City categorizes regions of Guelph within Wellhead Protection Areas (City 2012). The Site is within Wellhead Protection Area B (2-year travel time) for several of the City's municipal water supply wells.

The nearest municipal groundwater supply wells to the Site include the Water Street, Edinburgh, Membro, and Dean Wells (approximately 1.4 to 2.0 kilometres [km] south of the Site past the Eramosa River), and the Park and Emma Wells (approximately 1.3 to 1.5 km north of the Site past the Speed River).

The municipal groundwater resource is drawn primarily from the Gasport Formation, estimated to occur at least 45 mbgs. A lower-permeability Reformatory Member and Vinemount Member of the Eramosa Formation are generally understood to serve as a regional aquitard, situated above the Gasport and limestone formations of the Goat Island Formation (Brunton 2009). The source of some of the water in the Gasport Formation is through slow recharge across the aquitard from the shallow bedrock groundwater.

The City is also part of the Grand River Source Protection Plan (Plan) (Lake Erie Region Source Protection Committee 2019). The Plan assigns Drinking Water Threat Vulnerability Scores across the region based on various risk factors, and the Phase Two Property is assigned a Vulnerability Score of 10, the highest possible. According to the Plan mapping (Figure 3-2), the Site is also in a highly vulnerable aquifer and issues-contributing area, but is not in a significant groundwater recharge area or in a source water intake protection zone.

3.2 Past Investigations

Before the current Phase Two investigation, three subsurface investigations took place at the Site in 1993 (XCG), 2001 (Kewen), and 2008 (XCG). Table 3-1 summarizes the following tasks associated with each investigation:

- Completion of field program associated with each historical subsurface investigation, including the analyses conducted in soil, groundwater, or both.
- Comparison of the historical subsurface investigation results to the current SCS.
- Evaluation of whether data or information from the historical subsurface investigation are considered reliable for inclusion in the current Phase Two ESA for RSC purposes.
- Completion of tasks to confirm or update data or information not considered reliable.

In general, Jacobs noted the following observations during this evaluation:

- Parameters, such as benzene, toluene, ethylbenzene, and xylenes (BTEX); and volatile organic compounds (VOCs), were characterized more adequately by current standards, using appropriate sample collection and laboratory analysis methods. BTEX and VOC analyses from before 2004 are considered unreliable because of changes in analytical methods.
- Historical laboratory scans for metals did not include complete parameter group analyses in accordance with the current requirements of O. Reg. 153/04. Missing metal parameters have the potential to be contaminants of concern (COCs) on the Site.
- Groundwater concentrations older than 10 years from the commencement of the Phase Two ESA activities were considered not representative of current conditions.
- The results from previous investigations in areas reported to be remediated (specifically, polychlorinated biphenyls [PCBs] in the transformer area) may not represent current conditions.

Where these observations were noted, a portion of the historical data could not be fully relied upon to reflect current environmental conditions at the Site. Therefore, Jacobs used these data for screening purposes during the Phase Two ESA to focus on certain areas to resample and assess the possible presence of contaminants (refer to Section 6.6). The screening data were not used in the final Phase Two ESA dataset to confirm concentrations meeting the applicable standards in APECs, nor were they used to confirm maximum concentrations on the Phase Two Property.

As Table 3-1 specifies, the following soil and groundwater data from the historical investigations were unreliable for RSC purposes:

- Elevated concentrations of PCBs in the former transformer area (XCG 1993) had been reported by Kewen (2001) to have been remediated in 1998. Documentation, including the confirmatory sampling of these activities, was not provided to Jacobs. The 1993 PCB data were therefore excluded from the Phase Two ESA dataset, but used for the focus of the Phase Two ESA investigations (the location was resampled in November 2019).
- Soil data from 2001 (Kewen 2001) are not considered valid for RSC purposes due to historical laboratory methods and incomplete parameter group analyses. Data were used for screening purposes for the Phase Two ESA investigations, and areas of historical impacts were resampled to confirm the presence or absence of contaminants.
- Soil pH data from the XCG (2008) investigation were not considered valid, because a review of borehole logs indicates concrete or brick fragments may have been included in soil samples submitted for pH. Therefore, soil pH results may be biased high and not representative of actual conditions. Additional soil analysis across the Site for pH was included as part of the Phase Two ESA investigations.
- Historical groundwater data (Kewen 2001; XCG 2008) were not considered representative of current Site conditions and, therefore, not reliable for RSC purposes. Additional groundwater sampling was conducted across the Site as part of the current investigation, including areas where historical groundwater exceedances were reported.

The soil data from the XCG (2008) investigation are considered valid for RSC purposes. Sampling and laboratory analyses were conducted in accordance with the requirements of O. Reg. 153/04 at the time, which did not include uranium. Uranium has not been specifically identified as a COC for the Site; as such, the remaining metals analyses from the XCG (2008) investigation are considered usable and reliable. Additional soil sampling for metals, including uranium, took place across the Site as part of the Phase Two ESA investigation.

4. Scope of Investigation

4.1 Overview of Site Investigation

Jacobs conducted Phase Two ESA field activities between July 2019 and April 2020 to evaluate the subsurface environmental conditions at the Phase Two Property, and to investigate the APECs identified in the Phase One ESA (Pinchin 2018). As part of the Phase One ESA, Pinchin identified areas where potentially contaminating activities (PCAs) have occurred on the Phase Two Property and on lands within 250 m of the Phase Two Property. PCAs occurring on the Phase Two Property were subsequently carried through the investigation as APECs, as required by O. Reg. 153/04. Jacobs has reinterpreted some of the APECs identified by Pinchin and also identified additional APECs based on a review of fire insurance plans (FIPs). These changes were documented in an update to the Phase One ESA report (Jacobs 2021), completed to support RSC filing. Further details on the PCAs and APECs are provided in Section 6.10.

The Pinchin (2018) Phase One ESA and Jacob (2021) Phase One ESA Update identified 22 APECs on the Phase Two Property, eight of which are attributed to onsite PCAs and 14 which are attributed to offsite PCAs. These APECs and PCAs were the focus of the Phase Two ESA activities. Figures 4-1a and 4-1b show the onsite and offsite PCAs, respectively, along with the resulting APECs on the Phase Two Property. Figure 4-2 shows the APECs identified in the Phase One ESA for the Phase Two Property, as well as the Phase Two ESA investigation locations.

The principal objective of the Phase Two ESA is to enable the assessment and update of current Site conditions, to identify general and current subsurface impacts that will need to be managed during Site redevelopment. The Phase Two ESA activities included the following main tasks:

- Arrange for public and private underground utility locates.
- Arrange for related to the historical use of the Site as a burial ground.
- Develop a Sampling and Analysis Plan (SAP) based on Phase One ESA findings and historical subsurface investigations.
- Drill boreholes during several field events:
    - July to August 2019 – Jacobs advanced 17 boreholes (BH200 through BH206 and MW100, MW101, MW102A, MW102B, MW103 through MW105, and MW107 through MW109) to a maximum depth of 13.64 mbgs. Soil samples were collected for chemical analysis. Ten boreholes were completed as monitoring wells.
    - September to December 2019 – Jacobs advanced eight boreholes (BH208 through BH211 and MW107B, MW110A, MW110B, MW111) to a maximum depth of 15.54 mbgs. Soil samples were collected from 5 of the locations. Four boreholes were completed as monitoring wells.
    - April 2020 – Jacobs advanced two boreholes (BH2017 and MW113) to a maximum depth of 8.38 mbgs. Soil samples were collected and one borehole was completed as a monitoring well.
- Collect at least two rounds of groundwater samples from the newly installed monitoring wells for COCs to address identified APECs.
- Conduct single-well hydraulic tests on five monitoring wells to improve the understanding of the subsurface materials' hydraulic properties across the Phase Two Property.
- Determine the applicable SCS.
- Survey the monitoring wells to a geodetic benchmark.

Figure 4-2 shows the locations of the borings and wells advanced as part of this Phase Two ESA, as well as during historical investigations. The results of historical environmental studies were used as a screening method to focus the current Phase Two ESA work. Where reliable (refer to Section 3.2), the historical results were used to supplement the Phase Two ESA results. In general, the historical soil data from 2008 were considered valid for inclusion in this Phase Two ESA.

4.2 Media Investigated

Soil and groundwater were the only media investigated during this Phase Two ESA work. The investigation of sediment was not applicable due to the absence of surface water bodies on the Site.

Soil quality at the Site was determined using various sampling techniques, including test-pitting and conventional hollow-stem drilling methods. The selected method was determined based on sample depth, likely subsurface conditions, overhead access, and space for drilling equipment. Section 5 provides further detail regarding soil sampling methods. Section 6 provides soil sampling results.

Groundwater samples from newly installed monitoring wells, as well as existing monitoring wells, were collected and submitted for analysis. The sampling method for groundwater used low-flow purging and sampling techniques (for example, peristaltic pump, water quality meter, and dedicated tubing) based on the turbidity of the samples and analysis required. Section 5 provides further detail regarding groundwater sampling methods. Section 6 provides results of the groundwater sampling.

4.3 Phase One Site Conceptual Model

Table 4-1 summarizes the Phase One conceptual site model from the Pinchin (2018) Phase One ESA, supplemented with additional information from Jacobs. An update to the Phase One ESA will be required before the RSC is filed. Table 4-2 summarizes the identified APECs and the COCs associated with each APEC used as the basis for the Phase Two ESA investigation.

4.4 Deviations from Sampling and Analysis Plan

Before the investigation at the Phase Two Property was completed, a detailed SAP was prepared. Appendix B provides the SAP that applies to the work Jacobs has completed at the Site. No deviations occurred from the project SAP over the course of the Phase Two ESA activities.

4.5 Impediments

The main impediment during the Phase Two ESA was the presence of utilities, both overhead and underground, in areas where borings and wells were planned. As such, borehole and monitoring well locations were adjusted to maintain safe distances from overhead power and cable lines, and underground sanitary and storm sewer locations. Figure 2-2b shows identified utilities on the Phase Two Property. However, all borings and wells were installed in the areas where sampling was planned.

In addition, as the Site is an active parking lot, including laneways, managing vehicle traffic required additional planning during the investigation; however, all planned investigation locations was completed.

5. Investigation Method

5.1 General

Various environmental field and subsurface investigation methods were used to assess soil and groundwater quality during the Phase Two ESA, including:

- Test pits for archeological investigation and soil sampling, including field screening measurements and observations
- Drilling with soil sampling, including field screening measurements and observations
- Installing groundwater monitoring wells and groundwater sampling
- Analytical testing of soil and groundwater samples
- Managing investigation-derived waste
- Implementing quality assurance (QA) and quality control (QC) measures, including the collection and analysis of field duplicate (FD) and trip blank samples

The Phase Two ESA activities were guided by individual SAPs for each investigation (Appendix B). The SAP was designed to investigate the contaminants of potential concern (COPCs) within of the APECs identified as a part of the Phase One ESA (Pinchin 2018) review.

Figure 4-2 shows the sampling locations associated with the Phase Two investigation.

Jacobs retained third-party contractors to conduct or assist with field investigations. Jacobs field staff, under the direction of the project QPESA, supervised field activities and recorded field activities, soil characteristics, groundwater sampling results, and other general field investigation notes.

Jacobs developed standard operating procedures (SOPs) and field forms to comply with O. Reg. 153/04 (MECP 2011a). The SOPs guided Jacobs staff in conducting, performing, and documenting Phase Two ESA investigative work. The following is a list of Jacobs SOPs relevant to the Phase Two ESA activities at the Site:

- Decontamination of Heavy Equipment
- Decontamination of Field Sampling Equipment
- Logging of Soil Borings
- Measurement of Soil Vapour Headspace
- Soil Sampling for VOCs using Methanol Preservation
- Installation of Shallow Monitoring Wells
- Water Level Measurements
- Aquifer Testing – Slug Tests
- Monitoring Well Development
- Groundwater Purging and Measurement of Field Parameters
- Low Flow Groundwater Purging and Sampling
- Sample Packaging, Storage, and Transport to Laboratory

The methods employed did not deviate from the SOPs and are described in detail in the following subsections.

5.2 Drilling and Excavating

Before drilling activities, borehole and monitoring well locations required archeological clearance of the upper soils to confirm the absence of items of archeological significance. As areas of the Site had previously been used

as a burial ground, the clearances were required to confirm human remains or artifacts were not present in the drilling locations before drilling activities. Archeological Research Associates Ltd. (ARA) was present onsite to complete the archeological investigation alongside Jacobs staff who collected samples of the fill (and upper native soils, where present) during excavations. ARA prepared a report noting the items found during the archeological excavations and clearing the locations for further drilling work (ARA 2020).

Drilling was conducted at the Site to facilitate the evaluation of subsurface conditions via the collection of environmental samples. Jacobs retained Aardvark Drilling Inc. (Aardvark) of Guelph, Ontario, to undertake drilling activities at the Site for the field program. Aardvark is an MECP-licensed driller. A CME truck-mounted hollow-stem auger rig was used to advance boreholes. Drilling activities were completed under the supervision of Jacobs field personnel. The frequency of soil sample collection for field screening and for submission for chemical analysis is detailed on the borehole logs included in Appendix C. All drilling equipment was decontaminated in accordance with the SOPs.

5.2.1 Utility Locates

Before excavation and drilling activities began for each field event, Jacobs contacted Ontario One Call to arrange clearances of public utility services, including:

- Telephone
- Cable television
- Natural gas
- Hydroelectricity
- Water
- Sanitary lines
- Storm sewers

As an additional precaution, Jacobs also retained OnSite Locates Inc. (OnSite), a private utility contractor located in Newmarket, Ontario, to clear all proposed drilling locations of the same private utility services by using radio detection and electrical isolation for utilities. The resulting locate clearance documents were retained at the Site by Jacobs for the duration of the drilling activities.

5.3 Soil Sampling

Archeological test pits were advanced using a Case 580 backhoe to varying depths at the discretion of ARA representatives. Test pits ranged from approximately 1.0 to 2.2 mbgs. Soils from the test pits were excavated on a layer-by-layer basis to allow for proper sample collection and documentation. Test pits were backfilled, soils compacted, and areas asphalted before drilling. Care was taken to place soils back into the test pit in reverse order of how they were removed. Soil documentation and sampling was completed using the same methods of collection as the drilling investigation.

Soil borings were advanced using a hollow-stem auger CME rig. Boreholes were advanced to bedrock, and rock coring was completed to facilitate monitoring well installation. Final borehole depths completed across the Site were variable and ranged between 4.72 and 13.94 mbgs. Final depths depended on the actual subsurface conditions encountered at the time of drilling.

During the advancement of each soil boring using hollow stem auger methods, samples were collected using 0.61-m-long, 50-millimetre (mm)-outside-diameter split-spoon samplers.

Once the soil sample sleeve was extracted from the hollow-stem auger, a drilling contractor representative opened the split spoon to expose the soil. Once a new soil layer was exposed during excavation, the operator

collected a bucket of soil from the new layer to be examined and sampled. The soil was then examined in the field by Jacobs field staff for:

- Soil type
- Discolouration
- Olfactory evidence or signs of impacts
- General soil properties

Soil samples to be analyzed for petroleum hydrocarbon (PHC) Fraction (F)1 or F2, VOCs, or BTEX were collected using laboratory-supplied soil syringes; the soil core was then placed in vials containing methanol. New, disposable nitrile gloves were used when handling samples from different depths at the same sample location to minimize the potential for sample cross-contamination.

The following soil types were identified during the investigation:

- Fill
- Sand with silt
- Sand
- Sand and gravel
- Silty sand and sandy silt
- Gravelly silty sand
- Clayey sandy silt till

Appendix C provides borehole logs. These logs provide a geological description of overburden samples collected during the investigation.

Collected soil samples were split for field screening and potential laboratory analysis. Field screening was conducted as described in Section 5.4.

5.4 Field Screening Measurements

Collected samples were divided into two portions: one for field vapour screening and the other for laboratory submission (which were immediately placed in the appropriate laboratory-supplied sample containers). The soil samples for field vapour screening were placed in a clean, self-sealing, plastic bag, labelled, and set aside to equilibrate to approximately 15 degrees Celsius (°C) for conducting head space screening using a MiniRAE 3000 photoionization detector (PID). Soil vapour headspace and ambient measurements, as well as instrument calibration, were performed per the SOP.

The frequency of field screening measurements during the intrusive drilling investigation was typically at 0.6-m intervals. During the archeological test pits, field screening measurements were collected at a frequency of at least one per material type. Frequency and results of soil vapour headspace measurements in parts per million (ppm) were also recorded in the borehole logs included in Appendix C, as discussed in Section 6.5.

Field staff used the MiniRAE 3000 PID equipped with an 10.6-electron-volt (eV) discharge lamp for field screening. The MiniRAE 3000 has a detection range of 0 to 2,000 ppm. The accuracy of the unit is ±2 ppm or 10 percent of the reading for readings of 0 to 2,000 ppm. The resolution of this unit is 0.1 ppm for readings less than 99 ppm, and 1.0 ppm for readings between 100 and 2,000 ppm.

Isobutylene, at a concentration of 100 ppm, was used as the calibration gas, and the instruments were calibrated according to the manufacturer's recommendations prior to use each day. Each instrument's calibration was checked by exposing the instrument to the calibration gas with a known concentration and comparing with the actual reading.

Field screening techniques were used during the Phase Two ESA to identify soils impacted by volatile compounds, such as VOCs, certain polycyclic aromatic hydrocarbons (PAHs), and PHCs. The field screening techniques included visual and olfactory observations and the use of a PID to measure soil vapour headspace concentrations. The field screening results guided the selection of soil samples per the SAPs (for example, the collection of worst-case or delineation samples).

Sections 5.1 and 5.3 summarize the measures taken to minimize the potential for cross-contamination during soil sampling.

5.5 Groundwater: Monitoring Well Installation

As part of this investigation, Aardvark installed monitoring wells according to the requirements specified in O. Reg. 903 (MECP 1990b), in a subset of the advanced soil borings, to assess groundwater quality and to assist in determining groundwater flow rates and directions at the Phase Two Property. Section 5.2 describes the drilling equipment used for monitoring well installation.

The monitoring wells were installed so the screened portion straddles and intercepts seasonal fluctuations at the water table, unless otherwise indicated by the SAP (for example, monitoring wells in perched groundwater). The saturated screen thickness of each well did not exceed 3.05 m. Each monitoring well was constructed per the SOP. The monitoring well construction consisted of the following:

- Approximately 5-centimetre (cm)-diameter, Schedule 40 polyvinyl chloride (PVC) risers
- 5-cm-diameter, Schedule 40, No. 10 slot PVC screen with a preferred screen length of 3.05 m (variations in screen length occurred)
- Appropriate sand pack to 0.3 m above top of screen
- 0.6 m of bentonite seal above sand pack composed of a 0.6-cm hydraulic hole plug
- Protective flush mount well casings secured with concrete

Monitoring well installation details are provided in the borehole logs in Appendix C. Monitoring wells onsite were tagged as a Well Cluster. The Well Tag number is pending from Aardvark.

Dedicated Waterra polyethylene tubing with an inertial lift foot valve was installed in each newly installed monitoring well. Wells were developed using this equipment to remove particulates or fluids that may have collected in the screen or sand pack during well installation activities. Well development was considered complete in the field under one of the following conditions:

- Removal of three complete well volumes, including sand pack
- The monitoring well was developed dry three times
- Groundwater was clear and relatively free of particulates

All monitoring wells for each sampling event were examined for nonaqueous phase liquid (NAPL) using an interface probe. The presence or absence of NAPL was recorded in the monitoring well development field form. The monitoring well was then developed in accordance with the SOPs. Once the monitoring well had recovered to static conditions, the monitoring well was examined for NAPL using an interface probe.

5.6 Groundwater: Field Measurement of Water Quality Parameters

The field measurement of water quality parameters was performed during well purging and before the collection of groundwater samples. These measurements were required to provide an indication that the samples collected

were stable and representative of the groundwater in the formation, and to evaluate groundwater quality at the time of sampling.

This task was performed per the SOP. Water quality parameters were measured using the Horiba U-52 water quality meter. This instrument measures: groundwater temperature, pH, oxidation reduction potential, dissolved oxygen (DO), electrical conductivity (EC), and turbidity. Before taking the field measurements, the water quality meters used were calibrated according to the manufacturer's instructions using standard calibration solutions. Water quality meters were calibrated prior to use each day.

Water quality meter readings were collected approximately every 3 to 5 minutes and recorded in the field book and in groundwater sampling field tracking sheets for the following parameters: groundwater temperature, pH, oxidation reduction potential, DO, EC, and turbidity. These field parameters provided an indication of stabilized groundwater conditions before sampling occurred. Indicator parameters were deemed to be stable when an average of three consecutive measurements met the following criteria:

- pH = ±0.1 unit
- Temperature = ±10 percent
- DO = ±10 percent or ±0.1 milligrams per litre (mg/L) if reading is less than 1 mg/L
- EC = ±10 percent
- Oxidation reduction potential = ±10 millivolts

Once stabilization had been reached, samples were collected in the appropriate sample containers for laboratory analysis.

5.7 Groundwater: Sampling

A decontaminated 30-m interface probe was used to measure the depth of groundwater and presence or absence of NAPL below the top of the monitoring well casing or other reference point. To prevent cross-contamination between monitoring wells, the interface probe was decontaminated per the SOP.

Before sampling, the monitoring wells were purged using a low-flow method so representative samples of the water-bearing formation were obtained. Purging was generally conducted using a peristaltic pump and dedicated polyethylene tubing at each well.

The field measurement of water quality parameters was performed routinely throughout the purging process and immediately before the collection of groundwater samples (Section 5.6).

Groundwater samples were collected immediately following the completion of purging and the stabilization of the groundwater parameters, via Waterra inertial foot valves or peristaltic pump and dedicated polyethylene tubing.

New laboratory-supplied containers were used to collect groundwater samples for the parameters of interest. Sampling glassware was prepared by the laboratory with the required preservatives added to the parameter-specific sample bottles. When filling the sample bottles, field staff verified that a minimal level of particulate matter was entrained into the sample. Samples with more than 1-cm of particulate in the sample bottle (after it had settled) were considered unsuitable for chemical analysis and were discarded; groundwater samples were recollected in new laboratory-supplied bottles, confirming that less than 1 cm of particulate was in the sample bottle prior to analysis.

Field filtering was conducted for certain parameters consistent with the SOPs. Field filtering of dissolved metals was conducted using dedicated 0.45 micrometre (µm) filters. PAH groundwater samples were not field-filtered; however, benzo(a)pyrene analysis samples may be filtered by the laboratory (in compliance with MECP [2011c]).

Field-filtering of samples was documented in the groundwater sampling forms. VOC and PHC F1 sample containers were completely filled, with no headspace.

Section 6.7 describes groundwater quality based on the analytical results.

5.8 Sediment: Sampling

The Phase Two Property does not contain a water body as defined under O. Reg. 153/04; therefore, sediment was not present in the investigation area, and no sampling was conducted.

5.9 Analytical Testing

ALS Canada Limited (ALS), a laboratory accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA), provided the offsite laboratory analyses. ALS, and subcontractor labs overseen by ALS, performed the chemical analysis in compliance with the MECP document titled *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act* (MECP 2011c).

5.10 Residue Management Procedures

Excess soil cuttings generated from the field activities were contained in 200-litre (L) drums, and fluids generated during equipment decontamination, monitoring well development, and groundwater sampling were contained in either 1,000 L totes or 200 L drums, all of which were temporarily stored on the Phase Two Property. A composite soil sample was collected from the soil cuttings generated and submitted for Toxicity Characteristic Leaching Procedure analysis for environmental waste characterization and future waste management purposes. Wastes were managed per the requirements of O. Reg. 347 (MECP 1990c).

Sample results were compared to O. Reg. 347, Schedule 4 (MECP 1990c), which indicated t the investigation-derived waste would be classified as nonhazardous.

Jacobs coordinated the removal of soil and groundwater drums from the Phase Two Property as follows:

- On September 16, 2019, 32 drums of soil and one drum of water were removed from the Phase Two Property, and seven 1,000-L totes were pumped out by Aevitas Inc.
- On February 21, 2020, 21 drums of soil and 1,000 L of water were removed from the Phase Two Property by Aevitas Inc.
- On July 24, 2020, two drums of soil and one drum of water were removed from the Phase Two Property by Aevitas Inc. Appendix D provides the waste management documentation.

5.11 Elevation Surveying

Jacobs contracted West & Ruuska, a licensed Ontario Land Surveyor, of Brantford, Ontario, to perform an elevation survey to a geodetic benchmark following the completion of the subsurface investigations. The survey was performed on September 18, 2019. The survey referencing benchmark number and associated elevation is pending from West & Ruuska.

The elevation survey included the coordinates and elevations of the ground surface and top-of-riser pipe (as applicable) for the monitoring well and borehole locations advanced as part of Jacobs' investigation.

5.12 Quality Assurance and Quality Control Measures

The following sample handling, equipment cleaning, and field QC measures were followed during the Phase Two ESA investigation:

- Soil samples were collected in sample containers provided by the analytical laboratory, which were pre-charged with the appropriate preservatives and sized relevant to the analyses requested.
- Sample container labels included the project No., sample identification (ID), and parameters for chemical analysis. Unique sample IDs were assigned to correspond with the field notes or field forms associated with each sampling location.
- Once labelled, sample containers were placed in ice-filled coolers.
- Samples were transported to an offsite analytical laboratory; a chain-of-custody form was completed and accompanied each sample shipment.
- Deviations from the SAPs were noted and discussed with the QPESA, as applicable. Section 4.4 discusses SAP deviations.
- Equipment decontamination procedures were carried out per Jacobs' SOPs, which were developed in accordance with O. Reg. 153/04, and include (as applicable):
  - Cleaning tools for sample collection by removing particulate matter with a brush (as needed), rinsing with potable water, rinsing with methanol, rinsing with potable water, and drying with clean paper towel
  - Cleaning heavy equipment by removing particulate matter with a brush, pressure washing, or both, as required
- The SAPs included a QA/QC program that specified the following minimum field QC measures:
  - One laboratory-prepared trip blank was included in each cooler shipment containing volatile organics (for example, VOCs, BTEX, or PHC F1) samples.
  - Duplicate soil samples were collected and submitted at a minimum frequency of one duplicate for each 10 samples submitted. Duplicate samples were submitted 'blind' to the laboratory, and field staff documented in their field books each duplicate sample location.
  - Calibration checks on field instruments were completed daily and reported in the field book or SOP calibration forms.
  - Deviations from the QA/QC program were noted and discussed with the QPESA, as applicable. Section 4.4 discusses SAP deviations.

6. Review and Evaluation

6.1 Geology

The drilling program completed during the field investigations included advancing 27 boreholes to a maximum depth of 15.62 mbgs, which provided information about the subsurface materials. Jacobs created three geological cross-sections to show the Site stratigraphy. Figure 6-1 shows the locations of the cross-sections, and Figures 6-1a to 6-1d show the geological cross-sections A-A,' B-B,' C-C,' and D-D,' respectively.

The Site-specific geology generally consisted of the following characteristics:

- A thin layer of asphalt overlies the Site (up to 0.15 mbgs).
- Fill materials were observed from beneath the asphalt to a maximum depth of 3.91 mbgs, with an average thickness of 1.87 m. The fill is variable in composition; however, the majority of fill is sand, sand and gravel, or silty sand. Silty clay and clayey silt were also observed. Anthropogenic materials, such as brick, glass, metal products, and wood were commonly reported, as was iron oxide staining on the soil.
- Native overburden underlying the fill consists of a sand matrix that exists roughly from the bottom of fill to the bedrock, with interbedded layers of gravel and silt; generally, sand directly underlies the fill layer, and gravel and silt layers are found underlying some sand (the gravel and silt are described below). The sand is generally brown, dense, and moist; in the northern portion of the Site, the sand tends to have some silt content (ranging from trace silt to silty sand), and in the southern portion of the Site, the sand generally shows trace gravel. These differences are likely associated with the silt and gravel layers.
- A silt layer was encountered in the northern portion of the Site. The depth to silt ranged from 2.13 to 3.94 mbgs, and the average thickness of the layer was 3.58 m. The silt was generally described as brown or grey, fine to coarse sand, low to high plasticity, with traces of gravel. At two locations (BH201 and BH202), a high sand content was reported for part of the silt layer. In most locations where the silt was encountered, it underlies a layer of sand and directly overlies bedrock. The silt is considered an aquitard due to its low hydraulic conductivity (Section 6.3).
- A second, small silt lens was observed in the southern portion of the Site, characterized by BH203 and BH204. This lens is apparently disconnected from the larger silt layer in the northern portion of the Site. Depth to this silt layer ranged from 2.21 to 3.72 mbgs, with an average thickness of 1.37 m. This silt lens contacts bedrock at one location, and in the other terminates above a sand layer. The silt in this lens was described as brown, hard, and moist, with dolostone bedrock fragments observed.
- A layer of gravel and sand was encountered in the southern portion of the Site. The depth to this gravel and sand layer ranged from 1.52 to 5.94 mbgs, and the average thickness of the layer was 2.16 m. Generally, the sand and gravel extends to the bedrock, but in the southeastern portion of the Site, it terminates above a layer of sand. The material was generally described as brown and dense, with fine to medium sand, trace clay, and occasional cobbles and dolostone fragments. The gravel and sand layer is depicted in cross-sections A-A,' B-B,' and C-C' (Figures 6-1a through 6-1c).
- A clay lens was encountered in the middle of the Site (MW109). The clay was encountered from 1.14 to 2.44 mbgs, which is generally consistent with the depth of the fill layer, and is expected to be very small laterally. As some other fill materials were described as being clayey, it is possible this is layer is also anthropogenic.
- Bedrock at the Site is Guelph Formation dolostone. Depth to the overburden/bedrock contact ranged from 4.57 to 8.43 mbgs, with an average depth at 5.99 mbgs. The highest bedrock elevations were encountered along an approximate southwest-to-northeast transect of the Site (MW107, MW100, BH202, MW109, BH206; see Figure 6-1 for plan of borehole locations). Bedrock is described as being generally highly

weathered and fractured within the first 0.3-0.7 m of bedrock. It was also noted to be vuggy, with calcite mineralization.

A detailed description of geology encountered during the drilling program is included in the borehole logs provided in Appendix C.

6.2 Groundwater: Elevations and Flow Direction

The Phase Two Property is interpreted to consist of a predominantly sandy overburden overlying Guelph Formation dolostone bedrock. Within the northern portion of the Site, there is a thick silt deposit. There are two main hydrogeological units encountered at the Site: (1) perched groundwater above a silt strata in the northern portion of the Site, and (2) a shallow unconfined aquifer generally in the upper bedrock, but extending in places up into the overburden soil. These two hydrogeological units are referred to as 'the perched groundwater' and 'the bedrock aquifer,' respectively. The Site has been paved as a parking lot and is likely to receive low groundwater recharge from precipitation.

Groundwater conditions and characteristics were assessed using 18 monitoring wells (15 wells installed as part of the field investigation for the Phase Two Property, and three existing historical monitoring wells):

- Three of these wells (BH17-MW5S, MW102A and MW103) are screened entirely within the overburden in the northern portion of the Site and were used to evaluate the perched groundwater.
- Twelve wells are screened within the upper bedrock to delineate the water table, two of which (MW104 and MW105) straddle the overburden and bedrock contact.
- Three wells (MW107B, MW110B, and MW111) are installed in the deeper in the bedrock aquifer.

Table 6-1 provides the construction details for the newly installed and historical groundwater monitoring wells.

Groundwater elevations were measured in various wells during the Phase Two investigation as follows:

1) September 11, 2019: All 11 wells were monitored for groundwater elevation. Depth to groundwater in the bedrock aquifer wells ranged from 6.45 to 8.48 mbgs (321.19 to 322.72 masl). Depth to the perched groundwater in the overburden wells ranged from 4.11 to 4.31 mbgs (325.19 to 325.41 masl).
2) September 18, 2019. All 11 wells were monitored for groundwater elevation. Depth to groundwater in the bedrock aquifer wells ranged from 6.48 to 8.56 mbgs (321.14 to 322.69 masl). Depth to the perched groundwater in the overburden wells ranged from 4.14 to 4.48 mbgs (325.12 to 325.38 masl).
3) December 18, 2019. All 15 wells and one historical well were monitored for groundwater elevation. Depth to groundwater in the bedrock aquifer wells ranged from 6.46 to 8.66 mbgs. Depth to the perched groundwater in the overburden wells ranged from 4.0 to 4.45 mbgs.
4) April 15, 2020. All 15 wells and one historical well were monitored for groundwater elevation. Depth to groundwater in the bedrock aquifer wells ranged from 6.27 to 8.33 mbgs. Depth to the perched groundwater in the overburden wells ranged from 3.78 to 3.92 mbgs.

Table 6-2 presents a record of the available groundwater elevations. Figures 6-2a, 6-2b, and 6-2c present the September 2019, December 2019, and April 2020, interpreted groundwater elevation contours and flow directions within the bedrock aquifer for the Phase Two Property, respectively.

The bedrock aquifer water table elevation was observed to vary by 1.77 m in elevation across the Site. Local groundwater is expected to flow east, toward the Speed River; however, Site specific groundwater flow was interpreted to be radial, from a high elevation on the west boundary of the Site towards the north, and east to

southeast. The higher groundwater elevations at the western portion of the Site appear to be correlated with higher bedrock elevation.

The perched groundwater was observed at BH17-MW-5S, MW102A, and MW103 above a low-permeability silt aquitard layer. The full extent of the perched groundwater is currently not fully understood but may have a similar extent to the silt layer.

The bedrock was observed to have a variable hydraulic conductivity and water-bearing capacity during Site investigations (refer to Section 6.3.1).

The minimum depth to groundwater observed at the Site was 3.78 mbgs (perched) and 5.82 (bedrock). Underground utilities are not expected to extend to that depth (refer to Figure 2-2b; depths of utilities are unknown), and therefore not expected to significantly influence the groundwater flow directions.

6.3 Groundwater: Hydraulic Gradients

6.3.1 Horizontal and Vertical Gradients

Jacobs estimated the hydraulic conductivity (K) of the low-permeable silt layer and bedrock units based on slug testing in five wells (MW102A and MW103 for the silt; MW101, MW107 and MW109 for the bedrock). Table 6-3 presents the hydraulic conductivity values collected on Site. The K for the silt layer ranged from 3.6×10^{-8} to 7.4×10^{-7} metres per second (m/s), with a geometric mean of 1.6×10^{-7} m/s. The K for the bedrock unit ranged from 4.6×10^{-7} to 2.0×10^{-4} m/s, with a geometric mean of 6.0×10^{-6} m/s.

The horizontal hydraulic gradient within the bedrock aquifer was estimated for the September 18, 2019, December 18, 2019, and April 15, 2020 monitoring events. The horizontal hydraulic gradient within the bedrock aquifer was similar in September and December 2019, with estimated average gradients of 0.018 metres per metre (m/m) and 0.017 m/m, respectively. The range of hydraulic gradients for these two events were between 0.016 m/m and 0.025 m/m.

The horizontal hydraulic gradients for April 2020 were lower across the Site, estimated between 0.009 m/m and 0.015 m/m, and had an average gradient of 0.013 m/m. The maximum groundwater elevations within the bedrock aquifer were measured during this monitoring event, likely associated with increased precipitation and runoff in the spring. Elevated groundwater levels may have "flattened" the gradient compared to fall and winter. Horizontal hydraulic gradient calculations are presented in Appendix E, Table E-1a.

The horizontal linear groundwater flow velocity was estimated for the bedrock aquifer using the calculated geomean K value of 6.0×10^{-6} m/s, the estimated horizontal hydraulic gradient range of 0.009 to 0.025 m/m, and an estimated porosity of 0.1 representing bedrock. The horizontal groundwater velocity within the bedrock aquifer was estimated between 24 and 47 metres per year (m/y). Calculations are presented in Appendix E, Table E-2.

Vertical gradients were calculated at three nested monitoring well sets using the September 18, 2019, December 18, 2019, and April 15, 2020 groundwater snapshots. All calculated vertical gradients were downward. The vertical hydraulic gradients observed at two nested well pairs (MW107/MW107B, and MW110A/MW110B) ranged between 0.042 and 0.063 m/m. Stronger vertical gradients were observed at MW102A and MW102B, ranging between 0.621 and 0.634 m/m, likely due to the influence of the perched groundwater above the silt layer observed at this well nest. Calculations are presented in Appendix E, Table E1-b.

6.4 Fine-to-medium Soil Texture

Under O. Reg. 153/04, "coarse textured soil" contains more than 50 percent by mass of particles that are 75 µm or larger in mean diameter (MECP 2011a). According to the regulation, if one-third of the soils at the Phase Two Property are coarse-grained, the more-stringent coarse-textured soil standards apply to the Site; otherwise, the medium-/fine-grained soil standards may apply.

Grain-size analysis was performed on twenty soil samples. Of these, 11 samples were classified as coarse-grained and 9 samples were classified as fine- to medium-grained. Grain size curves for the selected samples are provided at the end of Appendix F. The soil condition standards for coarse-grained soils were used at Phase Two Property, to account for the extensive presence of heterogeneous fill materials across the surface of the Site.

6.5 Soil: Field Screening

Field screening techniques were used during the Phase Two ESA to identify soils impacted by VOCs. PID measurements were performed during the investigation using the procedures and equipment described in Section 5.4.

PID results from the current investigation (by soil unit) are summarized as follows:

- Fill: PID readings from the fill material onsite were generally less than 10 ppm, except for BH204 and BH205. The maximum PID reading from this unit was measured at BH205 (40.2 ppm).
- Sand: PID readings from this unit were generally less then 10 ppm with some greater values detected. The maximum PID reading from this unit was measured at BH200 (75.3 ppm).
- Silt: The PID readings from this unit (located in the northern portion of the Site) were generally less than 10 ppm. The maximum PID reading from this unit was measured at BH201 (9.9 ppm).
- Sand and Gravel: The PID readings from this unit (in the southern portion of the Site) were generally less than 10 ppm, with some greater values detected. The maximum PID reading from this unit was measured at BH205 (64.5 ppm).

Visual and olfactory observations and soil vapour headspace measurements (in ppm) were recorded in the borehole logs provided in Appendix C.

6.6 Soil Quality

Through current and historical investigations, the nature and extent of potential soil contamination were investigated for each identified APEC and for the Phase Two Property in its entirety. Figure 4-2 shows the APECs and associated sample locations. Investigative locations, including the analysis completed at each location, are summarized on an APEC-by-APEC basis in Table 6-4. Figure 6-3 presents historical data that were considered unreliable for RSC purposes, but used to direct the Phase Two ESA investigations. Table 6-5 provides the analytical results of the Phase Two ESA investigation, along with sampling depth, and compares these to the Table 2 SCS (MECP 2011b). Figures 6-4 through 6-12 present the distribution of soil concentrations exceeding the Table 2 SCS by analytical group in plan view for all stratigraphic units.

The inferred horizontal extent of soil concentrations greater than the Table 2 SCS are also shown. Where there are exceedances of the applicable SCS (except for parameters relying on an exemption [Section 6.10.7.7]), Jacobs has prepared at least one cross-section by analytical group, which follows the plan view figure. The cross-sections present the inferred vertical extent of soil concentrations greater than the Table 2 SCS. Maximum concentrations of each detected parameter are provided in Table 6-6 and shown in red text on the respective plan view and cross-sectional figures.

Soil quality across the Site was evaluated using a total of 95 soil samples collected from various depths from 36 sampling locations across the Site. Samples were submitted for laboratory analysis for one or more of the following analytes:

- Other regulated parameters (ORPs) (hot-water-soluble boron [HWS boron], hexavalent chromium, cyanide, mercury, EC, and sodium adsorption ratio [SAR])
- Metals and hydride-forming metals
- BTEX
- PHCs
- PAHs
- VOCs
- Acid, Base, Neutral Compounds (ABNs)
- PCBs
- Dioxins and furans (D&Fs)

Soil at the Phase Two Property was found to be generally impacted with ORPs; specifically, salt-related analytes (that is, EC and SAR). Localized impacts of metals, specifically lead and mercury, were also identified. The following subsections provide details about the frequency, distribution, and identification of COCs.

6.6.1 Other Regulated Parameters (Electrical Conductivity, Sodium Adsorption Ratio, Hot-water-soluble Boron, and Cyanide)

SAR and EC exceedances in soil were widespread across the Site, with 56 of 64 samples (88 percent) from 15 of 17 locations (88 percent) exceeding the Table 2 SCS. Exceedances of EC and SAR were identified to a maximum depth of 7.92 mbgs (MW102B) and were present at depths extending from the ground surface to the bedrock surface. Maximum concentrations were identified at MW102B (2.95 milliSiemens per centimetre [mS/cm]) and MW113 (108) for EC and SAR, respectively. At MW102B, EC concentrations decreased with depth, but were still above the Table 2 SCS in the sample collected just above the bedrock surface. At MW113, the maximum concentrations of SAR were found at 1.98 to 2.59 mbgs. SAR and EC exceedances were present across all areas of the parking lot, except for the northeastern portions of the 152 and 160 Wyndham Street North parcels. The presence of EC and SAR are likely a result of the application of deicing materials (that is, road salts) on the parking lot surfaces (APEC-4). At the discretion of the QPESA and based on the revised regulation, these parameters are not considered to be COCs at the Phase Two Property.

Correlated ORP parameters in groundwater, sodium and chloride, were also identified at the Phase Two Property, indicating that these parameters in soil are likely acting as a contaminant source contributing to groundwater.

Cyanide and HWS-boron were analyzed in 48 samples collected from 17 locations at the Site, with no exceedances of the Table 2 SCS.

Figure 6-4 presents (in plan view) the locations and sample depths for the ORP soil samples at the Phase Two Property, showing the horizontal extent of impacts.

6.6.2 Metals, Hydride-forming Metals, and Select ORPs (Mercury, Methylmercury, and Hexavalent Chromium)

Metals, hydride-forming metals, and select ORPs were assessed across the Site using data from the current investigation, supplemented with data from 2008 (XCG 2008). Metals data from 1993 and 2001, not considered

reliable for the Phase Two ESA (samples were not collected or analyzed using O. Reg. 153/04 protocols, or may not represent current condition; refer to Section 3.2), were used as screening data to plan the Phase Two ESA investigation.

Historical metals exceedances (for cadmium, copper, lead, and zinc) were identified from data collected in 1993 and 2001, reported in the central portion of the Site at BH-K3, SA9, and BH-K2 see Figure 6-3) within the surficial fill. One sample from BH-06, collected in 2008, exceeded the Table 2 SCS for lead with a concentration of 199 µg/g at 3.1 to 3.7 mbgs.

Jacobs collected an additional 20 samples for metals during the current investigation to expand on the distribution of metals at the Site, and included reanalysis at select historical locations where the historical exceedances were identified (Figure 6-3). A total of 69 samples from 33 locations were analyzed for metals at the Phase Two Property. Samples met the Table 2 SCS across the Site, except for one location: elevated concentrations of lead and mercury were identified in a sample collected from MW101 (0.46 to 0.61 mbgs), located in the existing laneway in the southeastern portion of the Site. Based on observations during the drilling and test-pitting activities, the exceedances were estimated to be localized to the poor-quality fill in this area. Exceedances extended to a maximum depth of 3.0 mbgs, based on a deeper sample meeting the Table 2 SCS. Maximum concentrations of lead and mercury of 207 and 0.889 µg/g, respectively were reported at MW101. The poor quality fill was not observed at other locations within the Phase Two Property.

The exceedance at BH-06 was reinvestigated by collecting a sample during the current investigation (BH211), from within 2 m of the original location at the same depth of the previous exceedance. A concentration of 18.7 µg/g was reported, and therefore the soil at this location was determined to meet the Table 2 SCS, with an averaged concentration of 109 µg/g.

Metals exceedances were determined to be isolated to the fill materials in the southeastern portion of the Site. All samples collected from native materials met the Table 2 SCS. Metals impacts are potentially related to historical industrial activities associated with the manufacture of sewing machine accessories and wire coils/springs (APEC-1) or general impacts associated with the fill identified on Site (APEC-2).

Apart from cadmium, metal exceedances of Table 2 SCS were not identified in groundwater, indicating that the metal impacts in soil (that is, lead and mercury) are not currently acting as a contaminant source contributing to impacts in groundwater.

Figure 6-5 presents (in plan view) the locations and sample depths for the soil samples collected for metals, hydride-forming metals, and select ORPs at the Phase Two Property, showing the horizontal extent of impacts. Figures 6-5a and 6-5b present the cross-sections, showing the vertical extent of metals impacts on the Phase Two Property.

6.6.3 Benzene, Toluene, Ethylbenzene, and Xylenes

BTEX was analyzed in soil in 53 samples from 20 locations, with no exceedances of the Table 2 SCS identified. BTEX were COPCs associated with various APECS across the Site associated with onsite PCAs, including APEC-3 (Historical Transformers), APEC-18 (Former Oil Shed), APEC-19 (Former Oil House), and APEC-21 (Former Garage).

Figure 6-6 presents (in plan view) the locations and sample depths for the BTEX soil samples collected at the Phase Two Property.

6.6.4 Petroleum Hydrocarbons

PHCs were analyzed in soil in 61 samples from 27 locations, with no exceedances of the Table 2 SCS identified from the current investigation. Historical PHC exceedances were identified in a surficial sample collected from BH-10 (0.0 to 0.6 mbgs) in 2008, which exceeded the Table 2 SCS for PHC F3 and F4 (Figure 6-3). Concentrations exceeded the free phase threshold for PHC F4 (MECP 2011d) however, no odours or staining were noted in the borehole log for this historical location. A borehole (BH207) was installed at this location during the current investigation, and no petroleum odours or staining were noted during the drilling activities. Samples from this location reported concentrations less than the Table 2 SCS, confirming the absence of PHCs where historical exceedances were identified. Based on the available information, the historical exceedance is likely related to the potential presence of asphalt in the soil sample and not representative of the current conditions on the Site; therefore, the PHC results were considered to be unreliable and were removed from the Phase Two ESA dataset.

PHCs as COPCs were associated with various APECs across the Site associated with onsite and offsite PCAs, including APEC-2 (Unknown Fill Quality), APEC-3 (Historical Transformers), APEC-14 (Historical Gasoline Spill), APEC-18 (Former Oil Shed), APEC-19 (Former Oil House), and APEC-21 (Former Garage).

Figure 6-7 presents (in plan view) the locations and sample depths for the PHC soil samples collected at the Phase Two Property.

6.6.5 Polycyclic Aromatic Hydrocarbons

PAHs were analyzed in 55 samples from 22 locations, with no exceedances of the Table 2 SCS from the current investigation. One historical sample from 2008, located in the west-central portion of the Site, exceeded the Table 2 SCS for dibenzo(a,h)anthracene (BH-14) with a concentration of 0.13 µg/g, from a depth of 0.8 to 1.4 mbgs. This exceedance was reinvestigated during the current investigation (BH208), from within 2 m of the original location. A concentration of 0.05 µg/g was reported from a depth of 0.91 to 1.07 mbgs; therefore, soils in this location were determined to meet the Table 2 SCS, with an averaged concentration of 0.09 µg/g. It is the QPESA's opinion that the exceedance was most likely related to the asphalt at the surface of the sampling location and is not been considered representative of current site conditions.

PAHs were COPCs associated with various APECs onsite, including APEC-2 (Unknown Fill Quality), APEC-3 (Historical Transformers), APEC-14 (Historical Gasoline Spill), APEC-18 (Former Oil Shed), APEC-19 (Former Oil House), APEC-20 (Former Coke Storage), and APEC-21 (Former Garage).

Figure 6-8 presents (in plan view) the locations and sample depths for the PAH soil samples collected at the Phase Two Property.

6.6.6 Volatile Organic Compounds

VOCs (excluding BTEX) in soil were investigated at the Site via 53 samples from 20 locations, with no exceedances of the Table 2 SCS identified. VOCs were COPCs associated with various APECS across the Site, including APEC-1 (Former Industrial Property Use), APEC-2 (Unknown Fill Quality), APEC-3, APEC-14 (Historical Gasoline Spill), APEC-18 (Former Oil Shed), APEC-19 (Former Oil House), APEC-20 (Former Coke Storage), and APEC-21 (Former Garage).

Figure 6-9 presents (in plan view) the locations and sample depths for the VOC soil samples collected at the Phase Two Property.

6.6.7 Acid, Base, Neutral Compounds

ABN compounds at the Site were investigated via four samples from one location, with no exceedances of the Table 2 SCS identified. ABNs were COPCs associated with APEC-20 (Former Coke Storage).

Figure 6-10 presents (in plan view) the locations and sample depths for the ABN soil samples collected at the Phase Two Property.

6.6.8 Polychlorinated Biphenyls

PCBs in soil were investigated via nine samples from five locations, with no exceedances of the Table 2 SCS identified. One historical sample along the eastern property boundary (SA9) exceeded the Table 2 SCS from 0.0 to 0.15 mbgs (XCG 1993). As Section 3.2 discussed, these data were excluded for use in the Phase Two ESA, but were used to direct the current investigation. PCBs were resampled (BH209) at this historical location at two separate intervals between ground surface and 1 mbgs, and all results were reported as nondetect concentrations of 0.02 µg/g.

Kewen (2001) indicated the transformer area (APEC-3) may have been previously remediated. Although additional documentation has not been provided to Jacobs, based on the recent soil samples collected in the vicinity of SA9, PCB exceedances were not identified at the Site.

Figure 6-11 presents (in plan view) the locations and sample depths for PCB soil samples collected at the Phase Two Property.

6.6.9 Dioxins and Furans

D&Fs in soil at the Site were investigated via two samples collected from two locations at the Site, with no exceedances of the Table 2 SCS. D&Fs were potentially associated with 152 and 160 Wyndham Street North, where a historical fire was reported to have occurred; however, no impacts were identified onsite during the Phase Two investigation.

Figure 6-12 presents (in plan view) the locations and sampling depths for the dioxins and furans soil samples collected at the Phase Two Property.

6.6.10 Contaminants of Concern in Soil

O. Reg. 153/04 (MECP 2011a) defines COCs as chemicals with concentrations that exceed the applicable SCS or chemicals with no applicable SCS that are associated with a PCA. The MECP document entitled *Procedures for Use of Risk Assessment under Part XV.1 of the Environmental Protection Act* (Procedures Document) (MECP 2005) indicates at the discretion of the QPESA, chemicals without an applicable SCS may be included or excluded as COCs based on an understanding of geoscience, the potential for the chemical to limit the use of the Site, or both.

Maximum concentrations (Table 6-6) of each chemical analyzed in soil at the Phase Two Property were screened against the Table 2 SCS (Table 6-7a). In general, where concentrations were found detected greater than the Table 2 SCS, the parameters were retained as a COC to be evaluated in the RA.

Additional review was conducted for parameters, specifically sodium, which has no Table 2 SCS, but has an available Ontario Typical Range value, and was found at elevated concentrations. SAR assesses the risks of sodium in soil; therefore, at the discretion of the QPESA, sodium was not specifically assessed or carried forward as a COC. The rational for the removal of sodium in soil is presented in Table 6-7b. Parameters that were not

considered as COCs based on averaging from additional sampling or exceptions in Section 49.1 of O. Reg. 153/04 are presented in Table 6-10c.

All analytes with a Table 2 SCS that were reported as nondetect had laboratory reporting limits (RLs) less than the SCS. No analytes associated with a PCA and without a MECP SCS were reported as detected in onsite soils.

Table 6-7d summarizes the chemicals retained as COCs in soil for the Phase Two Property based on the evaluation provided.

6.7 Groundwater Quality

The nature and extent of potential groundwater contamination was investigated for the identified APECs. Figure 4-2 shows the APECs and associated sample locations. Table 6-8 summarizes the analytical results of the investigation, along with the well screen interval, and compares these to the applicable Table 2 SCS (MECP 2011b). Figures 6-13 through 6-19 present the groundwater concentrations exceeding the applicable Table 2 SCS by analytical group in plan view for all groundwater units. For this report, cross-sections showing the inferred vertical extent of groundwater concentrations greater than the Table 2 SCS have been produced for the metals analytical group only (cadmium).

Groundwater across the Site was evaluated using a total of 39 groundwater samples collected from 15 groundwater monitoring wells. Samples were submitted for laboratory analysis for one or more of the following analytes:

- ORPs (chloride, cyanide, and sodium)
- Metals (field filtered)
- BTEX
- PHCs
- PAHs
- VOCs
- ABNs

Groundwater impacts at the Phase Two Property associated with sodium and chloride were widespread across the Site. Cadmium exceedances were noted in two monitoring wells along the western property boundary. Sample results were compared to the MECP Table 2 SCS.

6.7.1 Other Regulated Parameters (Chloride, Sodium, and Cyanide)

Chloride and sodium exceedances in groundwater were widespread across the Site, with 24 of 32 samples (75 percent) from 13 of 15 locations (87 percent) exceeding the Table 2 SCS. Maximum concentrations of chloride and sodium were identified at the northern end of the Site in MW102B, with reported values of 9,610,000 micrograms per litre (µg/L) and 6,100,000 µg/L, respectively. Based on the soil results for EC and SAR in soil, these soil impacts are likely acting as a source of contaminant mass contributing to the groundwater at the Phase Two Property. Chloride and sodium are associated with APEC-4 (Use of Road Salts). Changes to O. Reg. 153/04 include exceptions for exceedances of the SCS for salt-related substances; specifically, Section 49.1 states the SCS is deemed not to be exceeded for the purpose of Part XV.1 of the Act when a substance that has been applied to surfaces for the safety or vehicular or pedestrian traffic under conditions of snow or ice or both exceeds the SCS. Refer to Table 6-10c and Section 6.10.9 (Reliance on Exemption on SCS Exceedances) for additional details and rationale.

Cyanide was analyzed in 25 samples collected from 11 locations at the Site, with no detected exceedances of the Table 2 SCS. Cyanide was not identified at concentrations greater than the Table 2 SCS in soil; therefore, there is no source in soil to act as a source contaminant mass to the groundwater at the Phase Two Property.

Figure 6-13 presents (in plan view) the locations and screen depths for the ORP groundwater samples collected at the Phase Two Property.

6.7.2 Metals, Hydride-forming Metals, and Select ORPs (Mercury and Hexavalent Chromium)

Metals parameters, including hydride-forming metals, mercury, and hexavalent chromium, were analyzed in groundwater at the Site. The detected concentrations met the Table 2 SCS, apart from cadmium, with 7 of 36 samples (19 percent) from 2 of 15 locations (13 percent) exceeding the Table 2 SCS.

Cadmium exceedances in groundwater were found at MW107 and MW113, both screened from 5.3 to 8. 4 mbgs and located along the southwestern property boundary. The maximum concentration was reported at MW113, which has been vertically delineated by MW107B (13.5 to 15.4 mbgs), with concentrations less than the Table 2 SCS. Wells located downgradient towards the east (MW110A, MW110B and MW101) reported concentrations of cadmium less than the Table 2 SCS. Additionally, available data from MW106 (5.5 to 8.5 mbgs), which is located offsite on adjacent City-owned property to the south, had reported concentrations of cadmium five times less than the Table 2 SCS. This along, with reported concentrations less than the Table 2 SCS at MW101 and MW110A/B, indicates onsite exceedances in groundwater are not likely migrating offsite.

The RLs for nondetect concentrations were greater than the Table 2 SCS for one or more parameters (antimony, beryllium, cobalt, silver, and vanadium) in samples from four locations (MW100, MW102A, MW102B, and MW110A). The laboratory Certificate of Analysis (COA) indicates the following for each of these samples: "Detection Limit Raised: Dilution required due to high concentration of test analyte(s)." The RLs were likely elevated due to the elevated concentrations of sodium and chloride in the samples. These metals are, therefore, not considered COCs for the Site. Refer to Table 6-10b for additional details and rationale.

Metals as COPCs were associated with 15 of the 21 APECs across the Phase Two Property; however, limited impacts were identified in groundwater at the Site (cadmium), which do not correspond with the shallow metal impacts in soil (lead and mercury). Therefore, it is unlikely that metals impacts in soil are acting as a source of contaminant mass contributing to the groundwater quality at the Phase Two Property. Given the location of the onsite cadmium impacts and no cadmium exceedances found in soil at the Site, the elevated concentrations may be related to offsite and upgradient PCAs (to the west) (for example, APEC-11 for Industrial Operations, APEC-12 for Historical Automotive Garage) or other unknown sources.

Figure 6-14 presents the plan view for metals groundwater sample locations and screen depths at the Phase Two Property. Figures 6-14a through 6-14c present the cross-section views of the cadmium impacts in groundwater.

6.7.3 Benzene, Toluene, Ethylbenzene, and Xylenes

BTEX parameters in groundwater were analyzed using 27 samples collected from 11 locations at the Site, with no detected exceedances of the Table 2 SCS. BTEX was associated with 7 of the 21 APECs across the Phase Two Property; however, no impacts were identified in groundwater at the Site, and no areas of BTEX impacted soil were identified. Therefore, for BTEX, soil does not appear to be acting as a source of contaminant mass contributing to the groundwater quality at the Phase Two Property.

Figure 6-15 presents (in plan view) the locations and screen depths for the BTEX groundwater samples collected at the Phase Two Property.

6.7.4 Petroleum Hydrocarbons

PHCs in groundwater were analyzed using 25 samples collected from 11 locations at the Site with no detected exceedances of the Table 2 SCS. PHCs are associated with 16 of the 21 APECs across the Phase Two Property;

however, no impacts were identified in groundwater at the Site, and concentrations in soil were confirmed to not be present based on the current investigation. Therefore, for PHCs, soil does not appear to be acting as a source of contaminant mass contributing to the groundwater quality at the Phase Two Property.

Figure 6-16 presents (in plan view) the locations and screen depths for the PHC groundwater samples collected at the Phase Two Property.

6.7.5 Polycyclic Aromatic Hydrocarbons

PAHs in groundwater were analyzed using 25 samples collected from 11 locations at the Site, with no exceedances of the Table 2 SCS. PAHs as COPCs were associated with 16 of the 21 APECs across the Phase Two Property; however, no impacts were identified in groundwater at the Site, and PAHs in soil were determined not to be present based on the resampling of historical locations as part of the current investigation. Therefore, for PAHs, soil does not appear to be acting as a source of contaminant mass contributing to the groundwater quality at the Phase Two Property.

Figure 6-17 presents (in plan view) the locations and screen depths for the PAH groundwater samples collected at the Phase Two Property.

6.7.6 Volatile Organic Compounds

VOCs (excluding BTEX) in groundwater were investigated at the Site using 27 samples collected from 11 locations. The detected concentrations of VOCs met the Table 2 SCS, except chloroform. Concentrations of chloroform were greater than the Table 2 SCS in 12 samples from 5 locations; however, the chloroform exceedances are believed to be attributable to the introduction of municipal water during the subsurface drilling activities. Changes to O. Reg. 153/04 includes exemptions relating to contaminants related to municipally-treated water; specifically, Section 49.1 (2) states the SCS is deemed not to be exceeded for the purpose of Part XV.1 of the Act when the QPESA has determined, based on a Phase One ESA of Phase Two ESA, that there has been a discharge of drinking water. Chloroform is, therefore, not considered a COC for the Site. Refer to Table 6-10c and Section 6.10.9 (Reliance on Exemption on SCS Exceedances) for additional details and rationale. VOCs were associated with 18 of the 21 APECs across the Site; however, no impacts were identified in groundwater (or soil) at the Site. Therefore, for VOCs, soil does not appear to be acting as a source of contaminant mass contributing to the groundwater quality at the Phase Two Property.

Figure 6-18 presents (in plan view) the locations and screen depths for the VOC groundwater samples collected at the Phase Two Property.

6.7.7 Acid, Base, Neutral Compounds

ABNs in groundwater were analyzed in four samples from one location associated with APEC-20 (Former Coke Storage), with no exceedances of the Table 2 SCS. ABN impacts were not identified in soil at the Site, and therefore, could not act as a contaminant source mass for impacts in groundwater.

Figure 6-19 presents (in plan view) the locations and screen depths for the ABN groundwater samples collected at the Phase Two Property.

6.7.8 Polychlorinated Biphenyls

As PCBs in soil were confirmed to be absent within the one associated APEC (APEC-3: Historical Transformers), PCBs were not analyzed in groundwater. Therefore, for PCBs, soil does not appear to be acting as a source of contaminant mass contributing to the groundwater quality at the Phase Two Property.

6.7.9 Dioxins and Furans

D&Fs were not identified in soil at the Site, and therefore, could not act as a contaminant source mass for impacts in groundwater. D&Fs were not sampled in groundwater, considering the soil results and the physical/chemical properties of these compounds (that is, they tend to sorb to soils and are unlikely to be found in groundwater in the absence of a soil source).

6.7.10 Contaminants of Concern in Groundwater

O. Reg. 153/04 (MECP 2011a) defines COCs as chemicals with concentrations that exceed the applicable SCS or chemicals with no applicable SCS associated with a PCA. The MECP Procedures Document (MECP 2005) indicates that at the discretion of the QPESA, chemicals without an applicable SCS may be included or excluded as COCs based on an understanding of geoscience, the potential for the chemical to limit the use of the Site, or both.

Maximum concentrations (Table 6-9) of each chemical analyzed in groundwater at the Phase Two Property were screened against the Table 2 SCS (Table 6-10a). In general, where concentrations were found detected greater than the Table 2 SCS, the parameters were retained as a COC and evaluated in the RA.

An additional review was conducted for parameters that were reported as nondetect with laboratory RLs greater than the Table 2 SCS. At the discretion of the QPESA, some of these parameters were not carried forward as COCs if there was enough evidence to indicate the chemical was likely not present onsite at concentrations greater than the SCS, or would not interfere with the use of the Site, and should not be retained as a COC for carrying through to the RA. The rationale for the exclusion of these individual parameters in groundwater is presented in Table 6-10b. Parameters that were not considered as COCs based on the exceptions in Section 49.1 of O. Reg. 153/04 are presented in Table 6-10c.

Table 6-10c summarizes the chemicals retained as COCs in groundwater for the Phase Two Property based on the evaluation provided.

6.8 Sediment Quality

The Phase Two Property does not include a water body within its boundary as defined under O. Reg. 153/04. Therefore, sediment was not present in the investigation area.

6.9 Quality Assurance and Quality Control Results

As part of the field QA/QC program, the types of QA/QC samples collected included duplicate samples and trip blanks (for groundwater volatile analytes). Blind duplicate soil and groundwater samples were collected at a frequency of 1 duplicate sample for each 10 field samples submitted. Trip blanks for VOCs were submitted to the laboratory for chemical analysis with each VOC groundwater batch submittal. These QA/QC samples are important in determining whether field, transport, or analytical activities/conditions may have biased the reported soil and groundwater results (for example, cross-contamination). Accurate soil and groundwater results are required to appropriately evaluate the Phase Two Property for the applicable SCS.

Jacobs received soil and groundwater COAs from the laboratory electronically to reduce the possibility of transcription errors. Each sample collected by Jacobs as part of this Phase Two ESA investigation has an associated COA. Table F-1 in Appendix F provides a list that correlates each sample ID with a laboratory COA number. The COAs received from the analytical laboratory comply with the reporting requirements outlined in Section 47(3) of O. Reg. 153/04 and are provided in Appendix F.

For the current investigations, results were evaluated though a data quality evaluation (DQE) by the Jacobs project chemist. All samples were handled in accordance with the MECP *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act* related to the following considerations:

- Holding times
- Preservation method
- Storage requirement
- Container type

In combination with the field QA/QC program, the laboratory QA/QC program was evaluated to verify the accuracy, precision, and validity of the data reported by the laboratory. Various elements of the laboratory QA/QC program are used to evaluate the data:

- Blanks are analyzed to detect laboratory contaminations that can cause data to be biased high.
- Laboratory control samples (LCS) are used to evaluate the laboratory performance.
- Laboratory duplicates are used to measure precision in the laboratory.
- Matrix spikes (MS) are used to identify high or low bias caused by matrix interference.
- Surrogate spikes are used to evaluate the method performance that can cause high or low bias in the data.

The laboratory QA/QC program was evaluated by examining blanks, LCS, MS, and surrogate spike samples.

The precision of the data was verified through the review of the laboratory and field data quality indicators that include laboratory duplicate and field duplicate relative percent differences (RPDs). All field (FD) and laboratory duplicate RPDs calculated for the Baker Street samples were within the acceptable limits (below 30% for groundwater and 50% for soil) except the following:

- Three FD pairs due to RPD exceedances for three metal analytes; 6 results were qualified.
- One FD pair due to RPD exceedance for moisture; 2 results were qualified.

Detected results associated with the RPD exceedance were flagged "J" and are considered estimated.

The accuracy of the data was verified through the review of the LCS, MS and surrogate recoveries, as well as the evaluation of laboratory method blanks, trip blank data, and other method specific criteria. The overall accuracy reported in this DQE is considered acceptable but was affected by the following:

- Three PAH and five D&F sample results in a combined three samples from COAs L2318180, L2320007, and L2328062 were flagged due gas chromatography/mass spectrometry (GC/MS) qualifier ion ratio not meeting criteria
- Eleven D&F results were flagged due to concentrations less than the calibration range but greater than the EDL; the estimated maximum concentrations are reported
- Four SAR results were flagged due to nondetection for both calcium and magnesium; the lowest possible concentration is reported as a minimum value
- Nineteen SAR result were flagged due to nondetection for sodium or one of calcium or magnesium; the highest possible concentration is reported as a maximum
- Two sample results for n-hexane from COA L2336718 were flagged due to LCS recovery less than the lower control limit
- Four sample results for dichlorodifluoromethane were flagged due to LCS recovery less than the lower control limit; two samples each from COA L2320007 and COA L2436005
- Three F1 (C6-C10) result from COA L2333129 were flagged due to surrogate recoveries less than the lower control limit

- Two D&F sample results in sample MW108-5-6' from COA L2318180 were flagged due to associated laboratory blank contamination

Detected and nondetected results associated with these QC issues were flagged "J" and "UJ," respectively, and are considered estimated. There were also two sample results that were flagged "U" and are considered nondetected due to detections in the laboratory blank.

The representativeness of the data was verified through the samples' collection, storage, and preservation procedures and the verification of holding-time compliance. The samples shipped to the laboratory arrived below the recommended 10°C and were analyzed within the required holding time, except for a moisture result in sample BH203-0.5-2, which was analyzed beyond the recommended holding time. This result was flagged "J" and is considered estimated.

The comparability of the data was verified using standard analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Valid data are defined as all data that are not rejected for project use. No data have been rejected. All data are considered valid.

The soil and groundwater analytical data evaluated as part of the DQE are considered valid and can be used to support the project decision-making process.

6.10 Phase Two Conceptual Site Model

Based on recent and historical Phase Two ESA work completed at the Phase Two Property, this section provides a Phase Two conceptual site model, as required by O. Reg. 153/04 (MECP 2011a). The Site is in downtown Guelph, southwest of the Speed River (Figure 2-1) and is approximately 1.14 ha in size. The Site is currently in use as a commercial parking lot and includes one laneway.

There are no buildings onsite; historical buildings (Figure 2-2a) were associated portions of the Site being used for parkland, commercial, and industrial purposes. From approximately 1827 to 1879 the parcel associated with 55 Baker Street was used a public burial ground (community land use). In 1892, a curling club was completed on the southern portion of the Site, and between the late 1890s and early 1900s, an industrial building (sewing machine and accessory manufacturer) was constructed in the central western portion of the Site. The industrial building and curling club were demolished in the early to mid-1960s and mid- to late 1960s, respectively. Subsequently, the Site was redeveloped into an asphalt parking lot (Pinchin 2018).

Historically, 152 and 160 Wyndham Street North were developed with commercial buildings during the mid-1800s. The northern portion of the parcel contained the American Hotel and a movie theatre, and an undertaker used the southern portion of the parcel. These properties were redeveloped for commercial retail use between 1916 and 1938, and remained so until between 2009 and 2013, at which point the buildings were demolished and replaced with an asphalt parking lot (Pinchin 2018).

6.10.1 Potentially Contaminating Activities

The Phase One ESA (Pinchin 2018) identified several PCAs within and outside the Site. Based on Jacobs' review of Pinchin 2018, as well as available historical environmental reports, aerial photographs, and FIPs, the following PCAs were identified on the Site, and resulted in an APEC (Figure 4-1a):

- 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles
- 28 - Gasoline and Associated Products Storage in Fixed Tanks
- 30 - Importation of Fill Material of Unknown Quality
- 34 – Metal Fabrication
- 48 - Salt Manufacturing, Processing and Bulk Storage
- 55 - Transformer Manufacturing, Processing and Use

The following PCAs were identified in the Phase One ESA (Pinchin 2018) and Phase One ESA Update (Jacobs 2021) outside the Phase Two Property, but on lands within 250 m the Site (that is, Phase Two Study Area) (Figure 4-1b):

- 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles
- 28 - Gasoline and Associated Products Storage in Fixed Tanks
- 31 – Ink Manufacturing, Processing and Bulk Storage
- 34 – Metal Fabrication
- 37 - Operation of Dry Cleaning Equipment (where chemicals are used)
- 55 – Transformer Manufacturing, Processing and Use

The specific descriptions of each PCA are provided in Table 4-2, including a rationale for whether the PCA results in an APEC on the Phase Two Property.

6.10.2 Areas of Potential Environmental Concern

Table 4-3 identifies the 8 APECs identified from onsite PCAs and the 14 APECs identified from offsite PCAs at the Phase Two Property. The following 22 APECs were identified within the Phase One ESA (Pinchin 2018) and supplemented by Jacobs as part of the Phase One ESA Update (Jacobs 2021) for the Phase Two Property (note, these are grouped by area, rather than in numerical order).

- **APECs from Onsite PCAs**
  - APEC-1: Historical Industrial Property Use: Coil wire springs, sewing machines, and accessories were historically manufactured at 55 Baker Street. (PCA 1)
  - APEC-2: Unknown/Poor Quality Fill Material: – The XCG Phase II ESA (XCG 2008) identified fill material to 3.0 mbgs at 55 Baker Street, and this is also likely located for the Wyndham properties, based on when they were developed (1862) after historical buildings had been demolished. (PCA 2)
  - APEC-3: Historical Transformers: The 1960 FIP depicted an area of 55 Baker Street labelled as 'transformers.' (PCA 3)
  - APEC-4: Use of Road Salts at the Property: The Site is currently used as a parking lot, and road salts are applied for vehicular and pedestrian safety. (PCA 56)
  - APEC-18: Former Oil Shed: The 1911 FIP showed a small oil shed in the southwestern corner of the White Sewing Machine of Canada parcel of land on 55 Baker Street. (PCA 57)
  - APEC-19: Former Oil House: The 1911 FIP showed a small oil house on the former White Sewing Machine of Canada parcel, now the western portion of 152 Wyndham Street. (PCA 58)
  - APEC-20: Former Coke Storage: The 1911 FIP showed a garage located on the northeastern portion of 55 Baker Street. (PCA 59)

- APEC-21: Former Garage: The 1960 FIP showed a garage located on the northeastern portion of 55 Baker Street. (PCA 60)

- **APECs from Offsite PCAs to the North**
  - APEC-5: Historical Dry Cleaning: Potential dry cleaners were identified at 164 Woolwich Street. (PCA 5)
  - APEC-6: Historical Retail Fuel Outlet and Automotive Repair/Servicing: identified at 160 Woolwich Street (PCA 4 and PCA 79); Historical Iron Foundry (PCA 78); Historical USTs: two gasoline USTs at 164-166 Woolwich (PCA 80)
  - APEC-7: Historical Dry Cleaning: Potential dry cleaners were identified at 152 Woolwich Street. (PCA 12); Historical Garage: the 1929 FIP identified a garage at 166 Wyndham Street North (PCA 76); Historical UST: The 1929 FIP showed a gasoline UST at 168 Wyndham Street North (PCA 77)
  - APEC-8: Historical Dry Cleaning: Potential dry cleaners were identified at 172 Wyndham Street North. (PCA 52)
  - APEC-9: Historical Fuel Oil Underground Storage Tank: A historical underground storage tank was identified at 176 Wyndham Street North. (PCA 13)
  - APEC-10: Historical Automotive Repair: A former automotive repair shop was identified at 176 Wyndham Street. (PCA 53)
  - APEC-17: Historical Service Station: the 1946 and 1960 FIPs showed a service station with 3 associated gasoline USTs at 25 Suffolk (PCA 50); Historical Dry Cleaning: identified at 84 Yarmouth Street in 1955 (PCA 51); Historical Automotive Repair: identified at 27 Suffolk Street East (PCA 55); Historical Coach and Body Manufacturing: The 1946 FIP identified operations at 9-21 Suffolk Street East (PCA 81); Historical Industrial Property Use: sewing machine manufacturing was identified on the 1878 and 1892 FIPs at the corner of Suffolk and Yarmouth Streets (PCA 82).
- **APECs from Offsite PCAs to the East**
  - APEC-13: Historical Automotive Garage: A former garage was identified at 146 Wyndham Street North from 1930 to 1949. (PCA 18)
  - APEC-15: Historical Dry Cleaning: Former dry cleaning operations were identified at 108 Wyndham Street North from 1917 to 1922. (PCA 19)
- **APECs from Offsite PCAs to the South**
  - APEC-14: Historical Gasoline Spill: Based on database searches, a historical gasoline spill at the intersection of Chapel Lane and Baker Street occurred, with possible environmental impacts to land and water. The quantity and exact location are unknown. (PCA 27)
  - APEC-16: Historical Aboveground Storage Tank: Vent and fill pipes associated with an aboveground storage tank were observed at the corner of 20 Quebec Street (PCA 43); Historical UST: the 1946 FIP identified one UST under the roadway at 7 Quebec Street (PCA 25).
- **APECs from Offsite PCAs to the West**
  - APEC-11: Historical Offsite Industrial Operations: Cooke & Denison Machine and Tool Works was identified at 40 Baker Street from 1946 to 1960 (PCA 8); Historical UST: one UST identified on the 1946 FIP at 40 Baker Street (PCA 9); Historical Fuel Oil Tank: identified between 25 Yarmouth and 32-34 Baker Street properties on the 1960 FIP (PCA 71).
  - APEC-12: Historical Automotive Garage: A former garage was identified at 45 Baker Street from 1946 to 1960 (PCA 6); Historical USTs: two USTS identified on Yarmouth Street (behind 45 Baker Street) on the 1929 and 1946 FIPs (PCA 7); Historical Industrial Operations: sewing machine manufacturing was identified between Yarmouth and Baker Streets on the 1878m 1892 and 1911 FIPs (PCA 70).

- APEC 22: Historical Dry Cleaning: Potential dry cleaning operations were identified at 2 Quebec Street in 1975 (PCA 11); Historical UST: identified at 2 Baker Street on the 1946 FIP (PCA 10); Former Coal Yard: identified on the 1892 FIP on the northwest corner of Quebec and Baker Streets (PCA 72).

Figure 4-2 shows the locations of the APECs and the current and historical borehole and monitoring wells. Table 6-4 shows, the Phase Two Property APECs have been investigated for the associated COPCs. Figure 2-2b shows several underground and overhead utilities are present in this area, including a gas line, water line, storm sewer, and several overhead hydro lines.

6.10.3 Subsurface Utilities and Construction Features

Utilities (including sanitary and storm sewers and water lines) were active and connected during the Phase Two ESA investigation, and are still present in the subsurface. Based on these utility connections, there is potential for the preferential flow of COCs within utility corridors. However, based on the following factors, COCs are most likely to be transported (that is, to migrate) via groundwater:

- Depth of groundwater (at least 3.78 mbgs [perched] and 5.82 mbgs [bedrock])
- Suspected depth of underground utilities (1.5 mbgs or deeper)
- Presence of permeable materials onsite (fill, sand, and sand and gravel identified from surface to bedrock at an average depth of 5.99 mbgs)

Figures 2-2a and 2-2b show building outlines and identified underground utilities, respectively, on the Phase Two Property.

6.10.4 Physical Setting

The topography over the Phase Two Property is moderately flat, with ground surface elevations ranging from 328.34 masl (MW113 in the south) to 330.16 masl (BH201 in the west). The Site slopes slightly from the western border towards the south, north, and east. Surface runoff at the Phase Two Property is expected to flow radially from the west in these directions but is directed towards onsite catchbasins. Figure 3-1 shows the regional topography and surface water drainage features. The Speed River is the nearest downgradient waterbody, located approximately 130 to 150 m north-northeast of the Site, and ground surface tends to slope north towards the river. Groundwater from the region is likely to eventually discharge to Speed River.

The City categorizes regions of Guelph within Wellhead Protection Areas (City 2018). The Site is within Wellhead Protection Area B (2-year travel time) for several of the City's municipal water supply wells. The nearest municipal wells to the Site include the Water Street, Edinburgh, Membro, and Dean Wells (approximately 1.4 to 2.0 km south of the Site past the Eramosa River), and the Park and Emma Wells (approximately 1.3 to 1.5 km north of the Site past the Speed River).

The municipal groundwater resource is primarily drawn from the Gasport Formation, estimated to occur at least 45 mbgs. A lower-permeability Reformatory Member and Vinemount Member of the Eramosa Formation are generally understood to serve as a regional aquitard, situated above the Gasport and limestone formations of the Goat Island Formation (Brunton 2009).

The City is also part of the Plan (Lake Erie Region Source Protection Committee 2021). The Plan assigns Drinking Water Threat Vulnerability Scores across the region based on various risk factors; the Phase Two Property is assigned a Vulnerability Score of 10, the highest possible, indicating it is susceptible to potential contamination. The Site is also in a highly vulnerable aquifer and issues contributing area but is not in a significant groundwater recharge area or in a source water intake protection zone. Figure 3-2 shows the Plan mapping and location of nearest municipal wells.

6.10.4.1 Stratigraphy

The Site is interpreted to consist of a predominantly sandy overburden overlying Guelph Formation dolostone bedrock. Within the northern portion of the Site, there is a thick silt deposit. Exhibit 6-1 summarizes the geological units encountered beneath the Site during the Phase Two ESA activities.

Exhibit 6-1. Site Stratigraphy

Geological Unit	Approximate Depth (mbgs)	Average Thickness (m)	Lithology
Asphalt	Up to 0.15		A thin layer of asphalt was observed.
Fill	0.15 to 3.91	1.87	Sand, sand and gravel, or silty sand were encountered. Silty clay and clayey silt were also observed. Anthropogenic materials such as brick, glass, metal products, and wood were commonly reported, as was iron oxide staining on the soil.
Native Overburden	0.81 to bedrock	See below	A sand matrix was encountered with interbedded layers of gravel and silt (described here), extending to bedrock. The sand is generally brown, dense, and moist.
Silt Layer	2.13 to bedrock	3.58	A silt layer was encountered in the northern portion of the Site. The silt was generally described as brown or grey, fine to coarse sand, low to high plasticity, with traces of gravel.
Silt Lens	2.21 to 3.72	1.37	A smaller silt lens was observed in the southern portion of the Site and is disconnected from the larger silt layer in the north of the Site. The silt in this lens was described as brown, hard and moist, with dolostone bedrock fragments observed.
Gravel and Sand	1.52 to 5.94	2.16	A layer of gravel and sand was encountered in the southern portion of the Site. The material was generally described as brown, dense, with fine to medium sand, trace clay, and occasional cobbles and dolostone fragments.
Clay Lens	1.14 to 2.44	1.30	A clay lens was encountered at a single location in the middle of the Site. As some other fill materials were described as being clayey, it is possible this is layer is also anthropogenic.
Guelph Formation dolostone	4.57 to 8.46 (top of bedrock range)	N/A	Generally, this dolostone was highly weathered and fractured within the first 0.3 to 0.6 m of bedrock contact. It was also noted to be vuggy, with calcite mineralization. The average depth to bedrock is 5.99 mbgs for the Site.

Geological cross-sections were prepared to show the Site stratigraphy. Figure 6-1 presents cross-section locations, and Figures 6-1a to 6-1d present cross-sections A-A,' B-B,' C-C,' and D-D,' respectively.

Based on the Site-specific geology, the main units investigated during the Phase Two ESA were an overburden composed of sand and interbedded silt and gravel, and bedrock.

6.10.4.2 Hydrogeological Characteristics

There are two main hydrogeological units encountered at the Site: (1) perched groundwater above a silt strata in the northern portion of the Site, and (2) a shallow unconfined aquifer generally in the upper bedrock, but extending in places up into the overburden soil (the 'perched groundwater' and 'bedrock aquifer,' respectively).

Twenty-one monitoring wells (18 wells from the current investigation and 3 historical wells) were used at the Phase Two Property to investigate conditions associated with the perched groundwater and the bedrock aquifer:

- Eighteen are installed in the bedrock aquifer.
- Three are installed to access the perched groundwater.

The bedrock monitoring wells are further defined as 'bedrock wells' for the 15 wells installed across or near the water table, and 'deep bedrock wells' for the three wells installed approximately 8 m into the bedrock, from 4.6 to 6.9 m below the water table for site characterization purposes. The site has been paved as a parking lot and is anticipated to receive low recharge from precipitation.

Figures 6-2a, 6-2b, and 6-2c present the interpreted groundwater elevation contours and flow directions within the bedrock (water table) using groundwater elevations collected during the monitoring events on September 11 and 18, 2019; December 18, 2019; and April 15, 2020, respectively.

Exhibit 6-2. Hydrogeological Characteristics

Groundwater Unit	Characteristic	Summary
Bedrock	Flow Direction	Groundwater flows radially from a high elevation on the western boundary of the Site towards the north, and east to southeast. The higher groundwater elevations in the western portion of the Site appear to be correlated with higher bedrock layer elevation, as well as the topographical elevation and regional flow direction towards the Speed River.
	Average Horizontal Hydraulic Conductivity	Range between September 18, 2019 and April 15, 2020: 4.6×10^{-7} to 2.0×10^{-4} m/s Geometric mean: 6.0×10^{-6} m/s The K of the bedrock was estimated based on slug testing in three wells (MW101, MW107, and MW109).
	Average Horizontal Hydraulic Gradient	Estimated range between September 18, 2019 and April 15, 2020: 0.009 to 0.025 m/m Estimated average between September 18, 2019 and April 15, 2020: 0.016 m/m The maximum groundwater elevations within the bedrock aquifer were measured during the April 2020 monitoring event and were likely associated with snow melt and increased precipitation in the spring. Elevated groundwater levels may have "flattened" the gradient compared to fall and winter.
	Groundwater Velocity	The horizontal linear groundwater flow velocity was estimated for the bedrock aquifer using the calculated geomean K value of 6.0×10^{-6} m/s, the estimated horizontal hydraulic gradient range of 0.009 to 0.025 m/m, and an estimated effective porosity of 0.1 for the weathered and fractured rock. The groundwater velocity within the bedrock is estimated to be approximately 24 to 47 m/y.

Exhibit 6-2. Hydrogeological Characteristics

Groundwater Unit	Characteristic	Summary
Bedrock (cont'd)	Vertical Hydraulic Gradients	Vertical hydraulic gradients in the bedrock were calculated at two nested monitoring well sets: (1) MW107 and MW107B, and (2) MW110A and MW110B. The vertical hydraulic gradients observed were downwards and ranged from 0.062 m/m to 0.063 m/m at MW107 and MW107B and 0.042 m/m at MW110A and MW110B.

Notes:

cm/y = centimeters per year
COC = contaminant of concern

The perched groundwater was observed at BH17-MW-5S, MW102A, and MW103 above a low-permeability silt aquitard layer. The K ranging from 3.6×10^{-8} to 7.4×10^{-7} m/s, with a geometric mean of 1.6×10^{-7} m/s. Vertical hydraulic gradients observed in this unit (MW102A and MW102B) were downward, ranging between 0.621 and 0.634 m/m, due to the influence of the perched groundwater above the silt layer observed at this well nest. The flow direction, horizontal hydraulic gradient, and groundwater velocity were not calculated because the perched groundwater was not present across the entire Site. The full extent of the perched groundwater is currently not fully understood but may have a similar extent to the silt layer.

6.10.4.3 Depth to Bedrock

The Guelph Formation Dolostone that underlies the Site was encountered between 4.57 and 8.43 mbgs (321.62 to 324.96 masl), with an average depth to bedrock of 5.99 mbgs (323.46 masl). The highest bedrock elevations were encountered along an approximate southwest-to-northeast transect of the Site (MW107, MW100, BH202, MW109, BH206). Note, higher groundwater elevations are also associated with these locations, and the groundwater contours presented on Figures 6-2a, 6-2b, and 6-2c appear to show a radial flow outward from this bedrock high, following the topography and moving towards the Speed River.

6.10.4.4 Depth to Water Table

The water table within the Phase Two Property is within the Guelph Formation dolostone bedrock unit; in the northern portion of the Site, perched groundwater is associated with a low-permeability silt layer.

The depth to the bedrock aquifer and the perched groundwater were assessed based on three groundwater level monitoring events (September 18, 2019; December 18, 2019; and April 15, 2020).

The depth to the bedrock aquifer ranged from 5.82 to 8.66 (322.90 to 321.13 masl). The depth to the perched groundwater ranged from 3.78 to 4.43 (325.74 to 325.04 masl) based on the three monitoring events.

6.10.4.5 Applicable Site Condition Standards

O. Reg. 153/04 (MECP 2011a), under Part XV.1 of the *Environmental Protection Act,* addresses the assessment, cleanup, and filing of a Record of Site Condition for brownfield sites in Ontario, and applies to the Phase Two Property. Jacobs evaluated the Site based on a number of criteria to decide which of the generic SCS provided in the *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MECP 2011b) applied for a comparison of soil and groundwater results from the Phase Two ESA investigation.

Exhibit 2-3 outlines the items Jacobs considered when selecting the SCS, as outlined in O. Reg. 153/04 (MECP 2011a), discussed here.

The special conditions for environmentally sensitive areas under Sections 41 or 43.1 of O. Reg. 153/04 do not apply to the Phase Two Property:

- The Site is not considered an area of natural significance or to be within the proximity of an area of natural significance, based on the information reviewed as part of the Phase One ESA (Pinchin 2018).
- Jacobs analyzed 45 soil samples for pH from 17 locations across the Phase Two Property (Figure 2-3). Based on the results of the Jacobs investigation, soil pH was found to range from 7.37 to 9.46. Soil pH was within the MECP's acceptable range for samples collected in both surface soil (from between surface and 1.5 mbgs, with a pH value in surface soil less than 5 or greater than 9) and subsurface soil (more than 1.5 mbgs with a pH value in subsurface soil less than 5 or greater than 11). Historical investigations reported elevated pH (greater than 9) in surface soil samples; however, brick fragments or concrete were present in the stratigraphy where samples with elevated pH were collected based on a review of the borehole logs. This information suggests nonsoil materials may have been sampled, potentially biasing the historical soil pH results. Therefore, the historical results may not be representative of actual soil pH conditions. Based on this information, Jacobs has relied solely on the soil pH data collected during the recent investigation to determine the applicable SCS, and soil pH is within the MECP's acceptable range.
- The special conditions for land within 30 m of a water body under Section 43.1 of O. Reg. 153/04 do not apply to the Phase Two Property; no waterbodies are located on the Site or within 30 m of the Site. The Speed River is the nearest downgradient waterbody, located approximately 130 to 150 m north-northwest of the Site.
- The special conditions for shallow soil properties cited under Section 43.1 of O. Reg. 153/04 do not apply to the Phase Two Property; the depth to bedrock is greater than 2 m, as bedrock was encountered between 4.93 mbgs and 8.43 mbgs.

The adjacent properties within 250 m are serviced by a municipal water source. Since the groundwater near the Phase Two Property does and will serve as a raw water supply for a drinking water system (understood to be the Gasport Formation as the primary reservoir), the potable groundwater condition was applied.

The current land use is commercial and community (roads), and the proposed future land use may include residential/community and commercial uses, provided an RSC acknowledged by the MECP is obtained. Due to the extensive presence of heterogeneous fill materials across the Site, the standards for coarse-grained soils were considered applicable.

Based on this information reviewed by the QPESA, the Table 2 SCS was applied to the Site.

6.10.4.6 Imported Soil

Fill materials were identified across the Site to a maximum depth of 3.91 mbgs, or between 326.32 masl and 329.47 masl, with an average thickness of 1.68 m. The fill is variable in composition; however, the majority of fill is sand, sand and gravel, or silty sand.

The Phase One ESA (Pinchin 2018) reports that "significant quantities of fill material" have been identified onsite through previous Phase Two ESA investigations.

No soil was imported to the Site as part of Jacobs' recent Phase Two ESA activities.

6.10.4.7 Proposed Buildings and Other Structures

The City (2019) indicates the Site's redevelopment will include the following components:

- New Guelph Public Library
- Residential housing
- Commercial/institutional buildings
- Parking
- Urban square

The buildings' configuration is not known at this time.

6.10.5 Contaminants

6.10.5.1 Contaminants Exceeding Applicable Site Condition Standards in Soil and Groundwater

The Phase Two Property was found to be primarily impacted with salt-related analytes (that is, EC and SAR in soil; sodium and chloride in groundwater). Localized metal impacts were identified in soil, and localized cadmium impacts were identified in groundwater. PAH impacts identified from a historical investigation (Kewen 2001) were resampled and determined not to be representative of Site conditions. Elevated concentrations of chloroform in groundwater were attributed to well installation activities and not with PCAs or APECs.

Although identified as COPCs at the Site, the following parameters were not identified with exceedances of the Table 2 SCS onsite, either in soil or groundwater:

- BTEX
- VOCs
- PHCs
- ABNs
- D&Fs

Tables 6-5 and 6-8 summarize the analytical results of the investigation for soil and groundwater, respectively, and compare these compare to the Table 2 SCS. Figures are provided that present the locations of soil samples (Figures 6-4 through 6-12) and groundwater samples (Figures 6-13 through 6-19) analyzed and a comparison to the Table 2 SCS by analytical group. Where exceedances of the Table 2 SCS are present, at least one cross-section has been prepared presenting the inferred vertical extent of impacts by analytical group, and follows the plan view figure. Maximum concentrations of the parameters exceeding Table 2 SCS are shown in red text on the respective plan view and cross-sectional figures.

The following subsections discuss the soil and groundwater conditions found exceeding the Table 2 SCS on the Phase Two Property.

Other Regulated Parameters

EC and SAR exceedances of the Table 2 SCS were identified in soil across most of the Site, apart from the northeastern portions of the 152 and 160 Wyndham Street North parcels. Exceedances of the Table 2 SCS were also identified in groundwater for sodium and chloride across most of the Site (all monitoring wells were sampled, apart from MW109).

Exceedances of EC and SAR in soil were identified to a maximum depth of 7.92 mbgs (MW102B) and were present at depths extending from the ground surface to the bedrock surface. Maximum concentrations were identified at MW102B (EC) and MW113 (SAR) in the fill. Maximum concentrations of chloride and sodium in groundwater were identified at the northern end of the Site in MW102B.

Figures 6-4 and 6-13 show the detected exceedances and locations analyzed for other regulated parameters for soil and groundwater, respectively.

The presence of EC and SAR in soil and sodium and chloride in groundwater is likely a result of the application of deicing materials on the parking lot surfaces (APEC-4). Section 49.1 of O. Reg. 153/104 states the SCS is deemed not to be exceeded for the purpose of Part XV.1 of the Environmental Protection Act when a substance that has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice, or both, exceeds the SCS. Results are details in Tables 6-7c and 6-10c; at the discretion of the QPESA and based on the revised regulation, these parameters are not considered to be COCs at the Phase Two Property.

Metals (including Mercury, Methylmercury, and Hexavalent Chromium)

Based on the current investigation, metals exceedances of the Table 2 SCS in soil were identified within the southeastern portion of the Phase Two Property at one location (MW101; Figure 6-5) and were limited to lead and mercury. These impacts are likely limited to the fill in the existing laneways, based on results and observations during drilling and test pitting activities, and extend to an estimated maximum of 3.0 mbgs based on fill depth in this area (Figures 6-5a and 6-5b). The poor-quality fill was not observed at other locations.

Metals exceedances in groundwater were limited to cadmium. Exceedances occurred in two wells (MW107 and MW113) in the southwestern corner of the site (Figure 6-14), with maximum concentrations (6.16 µg/L) found at MW113 (screened in the bedrock aquifer at 5.3 to 8.4 mbgs). The cadmium exceedances at these locations have been vertically delineated by MW107B (screened in the deep bedrock, at 13.7 to 15.5 mbgs), where concentrations were less than the Table 2 SCS (Figures 6-14a, 6-14b, and 6-14c).

Based on groundwater flow around monitoring wells MW107 and MW113, groundwater moves from these locations towards the southeastern portion of the Site. MW110A and MW101, located downgradient from the identified cadmium exceedances, have cadmium concentrations less than the Table 2 SCS. The identified cadmium impacts in groundwater are therefore not anticipated to migrate offsite.

Additional available downgradient data from MW106 (5.5 to 8.5 mbgs), which is located offsite, on adjacent City-owned property to the south, had reported concentrations of cadmium five times less than the Table 2 SCS. This, along with reported concentrations less than the Table 2 SCS at MW101 and MW110A, indicate onsite exceedances in groundwater are not likely migrating offsite to the nearest downgradient human receptors.

Metals exceedances in soil (lead and mercury) were identified within the fill (that is, not within native soils) and are potentially associated with historical industrial activities associated with the manufacturing of sewing machine accessories, and wire coils and springs (APEC-1) or general impacts associated with the fill identified onsite (APEC-2). Limited impacts were identified in groundwater at the Site (cadmium), which do not appear to correlate to the identified shallow metal impacts in soil. Therefore, it is unlikely that metal impacts in soil are acting as a source of contaminant mass contributing to the groundwater quality at the Phase Two Property. The onsite cadmium impacts may be related to the APECs associated with offsite and upgradient PCAs (to the west) (for example, APEC-11 for Industrial Operations, APEC-12 for Historical Automotive Garage) or other unknown sources.

Polycyclic Aromatic Hydrocarbons

PAH exceedances of the Table 2 SCS in soil were identified at one sample (historical BH-14, at 0.8 to 1.4 mbgs) within the west-central portion of the Site, containing an elevated concentration of dibenzo[a,h]anthracene within the fill materials. No exceedances of the Table 2 SCS were identified in native soils or in groundwater at the Site.

BH208 was advanced and sampled in the same location as historical BH-14, with PAH samples collected at 0.91-1.07 mbgs and 2.29 to 2.44 mbgs. The results were less than the Table 2 SCS, resulting in the combined average of the samples collected at the same depth interval also meeting the Table 2 SCS. It is the QPESA's opinion that the historical exceedance was likely related to the presence of asphalt directly above the sampling location and is not considered representative of soil conditions on the Site (Table 6-7c). PAHs are not considered a COC on the Phase Two Property.

Figures 6-8 and 6-17 show locations investigated for PAHs in soil and groundwater, respectively, in plan view.

Volatile Organic Compounds

Concentrations of chloroform in groundwater samples were reported exceeding the SCS, and the source of the exceedance was believed to be related to the municipal water that was used during the bedrock coring process. Jacobs encountered similar issues during a previous drilling program in Guelph in 2018. For that project, two samples (one from the water truck and one from the water truck hose that was used during the coring activities) were analyzed for VOCs. The VOCs were nondetect in the municipal water samples, apart from bromodichloromethane (12.5 to 12.9 µg/L), dibromochloromethane (11.5 to 11.8 µg/L), and chloroform (9.8 to 10.1 µg/L). These analytes are trihalomethanes that are typically present in municipally treated water, substantiating that municipal water introduced during drilling activities was the likely source of trihalomethanes in groundwater. For the current project, VOCs were nondetect in groundwater apart from the same three analytes, and from one sample with low detections of 1,1-dichloroethane less than the Table 2 SCS.

Based on the available information, the QPESA determined there was a discharge of drinking water (within the meaning of the *Safe Drinking Water Act* [2002]), resulting in chloroform exceeding the SCS. Under Paragraph 2 of Section 49.1 of the revised O. Reg. 153/04, the SCS is deemed to not be exceeded for the purpose of Part XV.1 of the Act. Results are detailed in Table 6-10c, and at the discretion of the QPESA and the revised regulation, chloroform was not considered to be a COC for the Phase Two ESA.

6.10.5.2 Migration of Contaminants of Concern

COCs in soil were limited to lead and mercury in the fill unit, with no exceedances of the Table 2 SCS identified below approximately 3.7 mbgs (Figure 6-5b). As the minimum water table in the bedrock at the Site was measured at 5.82 mbgs, soil impacts are above the water table (Figure 6-5b); therefore, the potential for migration is limited.

Groundwater exceedances of the Table 2 SCS were limited to cadmium in two locations (MW113 and MW107) along the southern and western boundaries, respectively, where a groundwater high is located with radial groundwater flow from this area. Cadmium meets the Table 2 SCS at MW107B, providing vertical delineation for MW107 and MW113, along with two other wells (MW110B and MW111) screened in the deeper unconfined bedrock. Cadmium impacts have not been identified in downgradient or cross-gradient locations (MW105, MW100, MW110, and MW101 [Figure 6-14]), including available data from an offsite well (MW106) located adjacent to the southern edge of the property boundary. Based on this information, it is unlikely that the impacts are migrating off the Phase Two Property and the Site therefore meets the MECP drinking water component value (GW1) at the nearest offsite human receptors.

As there is no apparent soil source of the cadmium impacts onsite and groundwater impacts are found in the most upgradient locations onsite, these may be a result of migration from offsite sources from the west, or other urban fill (offsite); however, there is currently no direct evidence to confirm.

6.10.5.3 Climatic Conditions

Climatic or meteorological conditions that may have influenced the distribution and migration of COCs at the Phase Two Property include temporal fluctuations in groundwater levels. No atypical weather events that would be expected to influence COC transport are known to have occurred during Jacobs' investigation of the Phase Two Property. Changes in water elevations can affect the migration of contaminants.

6.10.5.4 Soil Vapour Intrusion

Vapour intrusion was not evaluated during this Phase Two ESA. No buildings are currently located on the Site. Buildings are planned as part of the redevelopment, but Jacobs understands all soil at the Phase Two Property will be removed to bedrock to facilitate the creation of underground parking. Therefore, soil vapour related to the existing concentrations in soil onsite will not be a concern under these future conditions.

Current or abandoned utilities may be a preferential pathway for potential contaminants, if present; however, as the utilities would be expected to be found in the depths corresponding to the presence of permeable fill and native sand and gravel (as discussed), the utility corridors are not expected to function as preferential pathways at the Phase Two Property.

6.10.6 Distribution of Contaminants

As Section 3 discussed, only metals in soil and groundwater exceeded the Table 2 SCS. As Figure 6-5 shows, soil exceedances for lead and mercury are limited to the southeastern corner of the Site. Similarly, groundwater exceedances of cadmium are localized to the southwestern portion of the Site (Figure 6-14). Cross-section Figures 6-5a and 6-5b for soil, and Figures 6-14a through 6-14c for groundwater, provide the vertical distribution of the metal exceedances at the Site and the water table elevations. In soil, metals exceedances are inferred to extend to approximately 3.5 mbgs within the fill, while in groundwater exceedances are inferred to extend to approximately 14.0 mbgs.

Figures 2-2a and 2-2b show building outlines and identified underground utilities on the Phase Two Property, respectively. As depth to utilities are unknown, these were not included on the applicable cross-section figures.

6.10.7 Contaminant Exposure Assessment

Figures 6-20a-b and 6-21a-b present the human health and ecological contaminant pathway and receptor models, respectively, based on current and potential future Site conditions. Figures 6-20a and 6-20b present the human health CSMs, with and without risk management measures, respectively. Figures 6-21a and 6-21b present the ecological conceptual site models, with and without risk management measures, respectively. The proposed future land use of the Site is residential, commercial, community, and institutional. The models present preliminary assessments of the exposure pathways that were further investigated as part of the risk assessment completed for the Phase Two Property (Jacobs 2020).

These figures identify the following five exposure pathways:

1) **Release mechanisms** – The Phase Two Property became impacted as a result of historical Site operations (refer to the discussion on PCAs and APECs), when COCs were released to the ground (for example, via a spill or leak) or when contaminated soil was imported to the Site and placed as fill.
2) **Contaminant transport pathways** – COCs released to soil may adsorb to soil or infiltrate deeper into the soil column. COCs in soil may also desorb and leach to groundwater or migrate vertically to the water table. COCs in soil can also be transported in the following ways: they can become airborne via wind or traffic erosion, be eroded by overland water flow, be taken up by vegetation planted in the soil, or volatilize to

outdoor air or indoor enclosed spaces. COCs in groundwater can be transported via vertical or horizontal groundwater flow, volatilization to outdoor air or indoor enclosed spaces, and uptake by vegetation.

3) **Human and ecological receptors located on, in, or under the Phase Two Property** – Receptors currently present or expected to be present in the future at the Phase Two Property include:
   - Human Receptors – residents, visitors, indoor workers, outdoor workers, construction workers, and utility workers
   - Ecological Receptors - soil organisms, terrestrial plants, birds, and mammals
4) **Receptor exposure points** – COCs can be contacted directly in soil or indirectly in outdoor and indoor air. COCs were not identified in groundwater.
5) **Routes of exposure** – The primary routes of exposure by receptor type include:
   - Human Receptors
     - Direct contact with potable groundwater (ingestion or direct contact)
     - Direct contact with either soil or groundwater (incidental ingestion and dermal contact)
     - Inhalation of particulates (dust)
     - Inhalation of volatiles originating from a soil or groundwater source (indoor and outdoor air)
     - Ingestion of garden produce
   - Ecological Receptors
     - Direct contact with either soil or groundwater (ingestion and dermal)
     - Terrestrial plant root uptake from either soil or groundwater
     - Ingestion via terrestrial biota and prey

6.10.8 Nonstandard Delineation

Nonstandard delineation per O. Reg. 153/04 Schedule E, Section 7.1, was not conducted at the Site. Delineation was conducted to the requirements of O. Reg. 153/04 Schedule E, Section 7, for all COCs identified at the Site in soil and groundwater.

6.10.9 Reliance on Exemption on Site Condition Standard Exceedances

EC, SAR, sodium, chloride, and chloroform exceeded the Table 2 SCS; however, were not considered to be COCs at the Property based on the exemptions in Section 49.1 of O. Reg. 153/04 for meeting the site condition standards.

EC, SAR, chloride, and sodium were found widespread across the majority of the Site, at elevated concentrations. As the Site currently is in use as a commercial parking lot and laneway, the presence of EC, SAR, chloride, and sodium are related to the application of salt on the parking lot surface during winter conditions. The application of salt has been used for the safety of vehicular and pedestrian traffic. Under Paragraph 1 of Section 49.1 of the revised O. Reg. 153/04, the SCS is deemed to not be exceeded for the purpose of Part XV.1 of the *Environmental Protection Act* should a substance be applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. Therefore, at the discretion of the QPESA, EC and SAR were not considered to be COCs for the Phase Two Property.

Concentrations of chloroform in groundwater exceeded the SCS, and the source of the exceedance was believed to be related to the municipal water that was used during the bedrock coring process. Based on a similar issue for a separate City project in 2018, water samples from the water truck and hose used during the coring activities reported elevated trihalomethanes: bromodichloromethane (12.5 to 12.9 µg/L), dibromochloromethane (11.5 to 11.8 µg/L), and chloroform (9.8 to 10.1 µg/L). These analytes are trihalomethanes that are typically

present in municipally treated water, substantiating that municipal water introduced during drilling activities was the likely source of trihalomethanes in groundwater.

Based on the available information, the QPESA determined there was a discharge of drinking water (within the meaning of the *Safe Drinking Water Act*, 2002), resulting in chloroform exceeding the SCS. Under Paragraph 2 of Section 49.1 of the revised O. Reg. 153/04, the SCS is deemed to not be exceeded for the purpose of Part XV.1 of the Act. Therefore, at the discretion of the QPESA, chloroform was not considered to be a COC for the Phase Two ESA.

6.10.10 Reliance on Exemption Related to Excess Soils

Jacobs did not rely on Paragraph 3 of Section 49.1 of the revised O. Reg. 153/04.

7. Conclusions

Jacobs offers the following conclusions, based on the findings of the Phase Two ESA.

7.1 Site Characterization

Most of the soil beneath the Phase Two Property was found to be impacted with salt-related parameters (EC and SAR in soil; sodium and chloride in groundwater). Limited localized metal impacts were also present (lead and mercury in soil; cadmium in groundwater).

The presence of elevated EC and SAR in soil and sodium and chloride in groundwater is widespread across the majority of the Site, and is related to the application of de-icing materials on the parking lot surfaces (APEC-4). Section 49.1 of O. Reg. 153/104 states the SCS is deemed not to be exceeded for the purpose of Part XV.1 of the *Environmental Protection Act* when a substance that has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice, or both, exceeds the SCS. Therefore, at the discretion of the QPESA and based on the revised regulation, these parameters were not considered to be COCs at the Phase Two Property.

Metals exceedances in soil were identified within the southeastern portion of the Phase Two Property at one location (MW101) and were limited to lead and mercury. These impacts are likely limited to the fill in the existing laneways, based on results and observations during drilling and test pitting activities, and extend to an estimated maximum of 3.0 mbgs based on fill depth in this area. The poor-quality fill was not observed at other locations.

Metals exceedances in groundwater were limited to cadmium. Exceedances occurred in two wells (MW107 and MW113) in the southwestern corner of the site, with maximum concentrations found at MW113 screened in the bedrock aquifer (at 5.3 to 8.4 mbgs). The cadmium exceedances at these locations were not shown to extend vertically to MW107B (screened in the deep bedrock, at 13.7 to 15.5 mbgs). Based on groundwater flow around monitoring wells MW107 and MW113, groundwater moves from these locations towards the southeastern portion of the Site. Results from MW110A and MW101 (less than the Table 2 SCS), located downgradient from the identified cadmium exceedances, indicate the cadmium impacts in groundwater are not anticipated to migrate offsite.

Cadmium impacts may be related to the APECs associated with offsite and upgradient PCAs (to the west) (for example, APEC-11 for Industrial Operations and APEC-12 for Historical Automotive Garage) or other unknown sources.

Based on extensive sampling over the Phase Two Property, it has been concluded that the horizontal and vertical extents of soil and groundwater impacts have been sufficiently defined for Phase Two purposes, as well as to support the RA and an evaluation of risk management measures.

7.2 Phase Two Property Certification

Based on the results of the Phase Two ESA, concentrations of contaminants in soil and groundwater at the Phase Two Property did not meet the applicable standards. Property-specific standards were developed as part of an RA for the Phase Two Property (MGRA1896-20, IDS# 7882-BRYP6L), which was accepted by the MECP. Therefore, as of the certification date of April 29, 2020, the concentrations of contaminants in soil and groundwater at the Phase Two Property meet the property-specific standards as defined in the RA (Jacobs 2020). An RSC can be developed and submitted to the MECP, to permit the proposed change in land use for the Site.

7.3 Signatures

7.3.1 Report Preparation Procedures

This report was prepared by Ms. Victoria Peters, B.A.Sc., GIT, under the supervision of Ms. Tania McCarthy, P.Eng. QPESA. Senior technical review was conducted by Mr. Ed Taves, M.Sc., P. Geo. (Limited), QPESA.

The findings and conclusions of this report were supervised and reviewed by the undersigned QP.

As QPESA, I (Tania McCarthy) confirm I have supervised the carrying out of the Phase Two ESA, findings, and conclusions of this report.

As Senior Technical Reviewer for this report, I (Ed Taves) confirm I have completed a technical review of the Phase Two ESA and concur with the findings and conclusions of this report.

Sincerely,

Victoria Peters, B.Sc.Env., GIT
Site Assessor

Tania McCarthy, P.Eng., QPESA
Site Assessor

Ed Taves, P.Geo. (Limited), QPESA
Project Manager and Senior Technical Reviewer

8. References

City of Guelph (City). 2018. *Guelph's Water Supply*. November 15. Accessed November 2019: https://guelph.ca/living/environment/water/drinking-water/groundwater/

City of Guelph (City). 2019. *Baker District Redevelopment*. September 6. Accessed November 2019: https://guelph.ca/business/downtown-business/bakerdistrict/

Jacobs Engineering Group Inc. (Jacobs). 2020. *Pre-submission Form and Modified Generic Risk Assessment for 55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario.* (Revision1, Addendum #1, Addendum #2 and associated emails). December 14.

Jacobs Engineering Group Inc. (Jacobs). 2021. *Update to the Phase One Environmental Site Assessment for 55 Baker Street, 152, 160 Wyndham Street North, and Park Lane, Guelph, Ontario, dated October 30, 2018*. Prepared for the City of Guelph. January 27.

Kewen Environmental Limited. 2001. *Baker Street Parking Lot, City of Guelph, Ontario, Phase II Environmental Site Assessment*. Prepared for The City of Guelph. August 7.

Lake Erie Region Source Protection Committee. 2021. *Approved Source Protection Plan. Under the Clean Water Act, 2006 (Ontario Regulation 287/07).* February 2.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 1990a. *Environmental Protection Act.* R.S.O. 1990, Chapter E.19. 2010, as amended. http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90e19_e.htm.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 1990b. "Wells." R.RO. 1990, Ontario Regulation (O. Reg.) 903 under the *Ontario Water Resources Act*, as amended.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 1990c. "General – Waste Management". R.R.O. Ontario Regulation (O. Reg.) 347 under the *Environmental Protection Act*, as amended.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 2005. *Procedures for Use of Risk Assessment under Part XV.1 of the Environmental Protection Act*.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 2011a. Ontario Regulation (O. Reg.) 153/04, made under the *Environmental Protection Act*, Records of Site Condition – Part XV.1 of the Act. As amended.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 2011b. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act.* April 15.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 2011c. *Protocol for Analytical Methods Used in the Assessment of Properties under Past XV.1 of the Environmental Protection Act,* amended as of July 1.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 2011d. *Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario.* April 15.

Pinchin Environmental Ltd. (Pinchin). 2018. *Phase One Environmental Site Assessment (Final), 55 Baker Street, 152, 160 Wyndham Street North, Chapel and Park Lane, Guelph, Ontario*. Prepared for the City of Guelph. October 30.

XCG Environmental Services Inc. 1993. *Guelph Hydro Phase I/Phase 2 Environmental Audits of Five Transformer Station Properties*. Prepared for Guelph Hydro. November.

XCG Consultants Limited. 2008. *Phase II Environmental Site Assessment, Baker Street Redevelopment Site, Guelph, Ontario*. Prepared for The City of Guelph. December 19.

9. Limitations

This Phase Two ESA for the property municipally identified as 55 Baker Street, 152 Wyndham Street North, 160 Wyndham Street North, and the right-of-way known as Park Lane in Guelph, Ontario, was prepared for the City's exclusive use. Third parties cannot rely upon the findings and conclusions presented in this report without the express written consent of Jacobs and the City through an extension of reliance using a reliance letter signed by both parties. Jacobs accepts no responsibility for damages, if any, incurred by any third party as a result of decisions made or actions based on this report.

Note, Phase Two ESAs completed in accordance with the O. Reg. 153/04 have inherent limitations. The findings and conclusions regarding impacts at the Site are based solely on the extent of observations and information gathered during the Phase Two ESA.

The environmental characterization data were collected in general accordance with O. Reg. 153/04 – following the Phase One and Two ESA procedures. The sampling work was completed using standard engineering and scientific judgement, principles, and practices. The findings and conclusions regarding the contamination of the property are based solely on the extent of observations and information gathered during the Phase Two investigations. There are inherent limitations to this type of investigation.

The soil, groundwater, and environmental conditions, events, and observations described in this report are those observed at the time of the investigation. Environmental Site conditions vary. Interpretations of groundwater levels and flow direction are based on water level measurements at selected monitoring well locations and are expected to fluctuate. Borehole and monitoring well observations indicate the approximate subsurface conditions at those locations only. Boundaries between zones are often not distinct; rather, they may be transitional and were interpreted. Subsurface conditions between boreholes, monitoring wells, and sampling locations were inferred and may vary significantly from conditions encountered at those locations.

The City should be aware that, with the nature of this type of work, there are inherent limitations, as outlined in the CSA Group Standard (CAN/CSA-Z769-00), Section 3.9.2:

> *Even when Phase II work is executed with an appropriate standard of care, certain conditions such as substances of concern that are under buildings or of low mobility, can present especially difficult detection problems.*
>
> *It shall be recognized that samples taken represent one discrete portion of any Site at any given time, and may or may not be representative of the entire Site or the portion in question.*

The findings of these characterization activities are based on observations and findings recorded by Jacobs during Site visits and reconnaissance, and also on data and information provided by the City and third parties; this information was not independently verified by Jacobs, and Jacobs has assumed this information to be accurate, complete, reliable, noninfringing, and fit for the intended purpose.

This is a technical report and is not a legal representation or interpretation of environmental laws, rules, regulations, or policies of governmental agencies.

The investigation activities were formed on historical reports and the information gathered during the Phase One ESA activities. However, Jacobs cannot warrant or guarantee that the information provided in this summary is absolutely complete or accurate beyond current environmental engineering consulting standards. Jacobs assumes no responsibility for conditions that it was not authorized to investigate or that were not within its specific scope of work.

Jacobs believes this report to be accurate; however, Jacobs disclaims any warranty of the completeness or accuracy of information supplied to Jacobs that was relied upon in the preparation of this report.

All findings and conclusions stated in this summary are based on facts and circumstances as they existed during the investigation. Any changes in fact or circumstances upon which the summary was based may change the findings reported. Jacobs cannot report on, or accurately predict, events that may change the Site conditions after the described investigation was completed.

Other considerations and limitations applicable to this Phase Two ESA also include the following.

9.1 Standard of Care and Limitation of Liability

a) Jacobs' services are governed by the negligence standard for professional services, measured as of the time those services are performed.

b) Jacobs shall not be liable to the City for any damages where it has exercised a reasonable standard of care.

9.2 No Third-party Beneficiaries

a) This Phase Two ESA Report gives no rights or benefits to anyone other than the City and Jacobs and has no third-party beneficiaries. All work products prepared are for the sole and exclusive use of the City for specific application to the property described in the Agreement, is not for the benefit of any third party, and may not be distributed to, disclosed in any form to, used by, or relied upon by any third party without the prior written consent of Jacobs, which consent may be withheld in its sole discretion.

b) No warranty, expressed or implied, is made regarding the services performed.

c) If the City requests Jacobs' consent for a third party to depend upon an ESA Report as part of the City's financing efforts or in connection with decisions regarding redevelopment, sales, or acquisitions, such consent will be considered given upon the third party's execution of a Reliance Letter as provided by Jacobs.

9.3 Existing Site Conditions

a) Any opinions or recommendations presented apply to Site conditions existing when services were performed. Jacobs cannot report on or accurately predict events that may change the Site conditions after the described services are performed, whether occurring naturally or caused by external forces.

b) Jacobs assumes no responsibility for conditions we are not authorized to investigate, or which are not in our specific Scope of Work. Unknown contamination may be exposed during excavation.

c) Jacobs' services shall not include an independent verification of the quality of work conducted and information provided by independent laboratories or other independent contractors retained by Jacobs in connection with Jacobs' services.

In preparing this Phase Two ESA, Jacobs relied, in whole or in part, on data and information provided by the City and third parties, which information was not independently verified by Jacobs, and which Jacobs has assumed to be accurate, complete, reliable, and current. Therefore, while Jacobs has utilized its best efforts in preparing this Phase Two ESA, Jacobs does not warrant or guarantee the conclusions set forth in this Phase Two ESA that are dependent or based upon data, information, or statements supplied by third parties or the City.

Tables

Table 3-1. Summary of Environmental Reports

55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario

Summary	Field Program	Field Program Results and Other Observations	Data or Information Relied Upon?	Steps Take to Ensure Data or Information is Reliable or Updated (Screening Data)
XCG Environmental Services Inc. 1993. Guelph Hydro Phase I/Phase 2 Environmental Audits of Five Transformer Station Properties. Prepared for Guelph Hydro. November.				
Soil samples were collected from within transformer compounds specifically between transformer bases or between the transformer base and entrance gates. Transformer Station MS12 is associated with the Phase Two Property.	▪ One soil sample (SA9) analyzed for PCBs and Metals	▪ PCBs in soil exceed the current Table 2 SCS ▪ Metals (Cd, Cu, Zn) exceed the current Table 2 SCS	▪ PCB data may not represent current conditions as Kewen report (2001) indicates "cleanup" activities. Data used for screening only. ▪ Metals soil data is not considered suitable for RSC purposes. Data used for screening only.	▪ Additional soil samples collected at and in the vicinity of SA9 (BH200 and BH209) and analyzed for PCBs. ▪ Additional soil samples collected at and in the vicinity of SA9 (BH200 and BH209) and analyzed for metals to update previous results.
Kewen Environmental Limited. 2001. Baker Street Parking Lot, City of Guelph, Ontario, Phase II Environmental Site Assessment. Prepared for The City of Guelph. August 7.				
Investigation in follow-up to a Phase One ESA. Eleven boreholes and three monitoring wells were advanced. Report indicates that the transformer station was removed in 1989 and that "cleanup" activities were completed around the former transformers in 1998. Two of the three monitoring wells installed were dry.	▪ Two soil samples analyzed for VOCs ▪ Eleven soil samples analyzed for pH, EC, and metals ▪ One groundwater sample analyzed for metals, sodium, chloride, and general chemistry	▪ VOCs in soil meet the current Table 2 SCS ▪ Soil pH greater than 9 in five surface samples ▪ EC in soil exceed the current Table 2 SCS (9 samples) ▪ Pb and Zn in soil exceed the current Table 2 SCS (2 samples) ▪ Metals in groundwater met the current Table 2 SCS, with the exception of antimony; sodium and chloride exceed the current Table 2 SCS (1 sample)	▪ VOC soil data is not considered suitable for RSC purposes. Data used for screening only. ▪ Soil pH and EC data is not considered suitable for RSC purposes. Data used for screening only. ▪ Metals soil data is not considered suitable for RSC purposes. Data used for screening only. ▪ Groundwater data from 2001 is not considered suitable for RSC purposes as it is not representative of current conditions. Data used for screening only.	▪ Additional soil analysis for VOCs, pH, EC, and metals has been conducted across the Site to confirm the presence or absence of historical impacts under current conditions using O. Reg. 153/04 protocols. ▪ Additional groundwater analysis for metals, sodium, and chloride has been conducted across the Site to confirm the presence or absence of historical impacts under current conditions using O. Reg. 153/04 protocols.
XCG Consultants Limited. 2008. Phase II Environmental Site Assessment, Baker Street Redevelopment Site, Guelph, Ontario. Prepared for The City of Guelph. December 19.				
Investigation in follow-up to a Phase One ESA. Twenty boreholes and seven monitoring wells were advanced.	▪ Eight soil samples analyzed for BTEX and VOCs ▪ Twenty soil samples analyzed for metals (excluding uranium) ▪ Four soil samples analyzed for PAHs and PCBs ▪ Sixteen samples analyzed for PHCs ▪ Nineteen soil samples analyzed for pH ▪ Eleven groundwater samples for BTEX, VOCs, Metals, sodium, and PHCs ▪ One groundwater sample for PCBs	▪ BTEX and VOCs in soil meet the current Table 2 SCS ▪ Lead in soil exceed the current Table 2 SCS (2 samples) ▪ PAHs in soil exceed the current Table 2 SCS (1 sample) ▪ PCBs in soil meet the current Table 2 SCS ▪ PHCs in soil exceed the current Table 2 SCS (1 sample) ▪ Soil pH greater than 9 in two surface samples ▪ BTEX and VOCs in groundwater meet the current Table 2 SCS ▪ Ba (1 location), Cd (1 location), and Co (1 location) in groundwater exceed the current Table 2 SCS ▪ Sodium (9 locations) in groundwater exceed the current Table 2 SCS ▪ PHC F4 in groundwater (1 location) exceed the current Table 2 SCS ▪ PCBs in groundwater meet the current Table 2 SCS	▪ All soil data from this investigation, apart from the pH data, is considered suitable for RSC purposes. ▪ Metals data is missing uranium analysis, but is considered suitable for RSC purposes. ▪ Groundwater data from 2008 is not considered suitable for RSC purposes as it is not representative of current conditions. Data used for screening only.	▪ Review of borehole logs indicates that concrete or brick fragments may have been included in soil samples submitted for pH. Therefore, soil pH results may be biased high and not representative of actual conditions. Additional soil analysis for pH has been conducted across the Site as part of the current investigation. ▪ COAs are available for all soil samples. ▪ All soil analysis was completed using O. Reg. 153/04 protocols applicable at the time of the investigation. Uranium was not regulated under O. Reg. 153/04 at the time of investigation and is missing from the Metals analysis suite. Uranium has not been specifically identified as a COC for the Site. As such, the Metals analysis from the 2008 investigation is considered usable and reliable. Additional soil sampling for uranium has been conducted across the Site as part of the current investigation. ▪ Additional groundwater analysis for metals, sodium, and PHCs has been conducted across the Site to confirm the presence or absence of historical impacts under current conditions using O. Reg. 153/04 protocols.

Notes:

Ba = barium
BTEX = benzene, toluene, ethylbenzene, and xylenes
Cd = cadmium
COA = certificate of analysis
COC = contaminant of concern
Cu = copper
EC = electrical conductivity
ESA = environmental site assessment
mbgs = metre(s) below ground surface
MECP = Ontario Ministry of the Environment, Conservation and Parks
O. Reg. = Ontario Regulation
PAHs = polycyclic aromatic hydrocarbons
Pb = lead
PCBs = polychlorinated biphenyls
PHCs = petroleum hydrocarbons
RSC = Record of Site Condition
SCS = site condition standard
VOCs = volatile organic compounds
Zn = zinc

Table 4-1. Phase One Conceptual Site Model

Phase One ESA Summary, 55 Baker Street, 152, 160 Wyndham Street North and Park Lane, Guelph, Ontario

Phase One CSM Element	Summary
Existing Buildings and Structures	No buildings exist on the Phase One Property. The Site consists of two asphalt parking lots (55 Baker Street, 152 and 160 Wyndham) and an asphalt laneway (Park Lane).
Identify Water Bodies in the Phase One Study Area	The Speed River is located approximately 130 to 150 m north-northeast of the Phase One Property.
Areas of Natural Significance	No areas of natural significance were identified within the Phase One Study Area.
Presence of Drinking Water Wells	No drinking water wells were identified on the Phase One Property. The Site and surrounding properties are serviced with potable water obtained from municipal groundwater supply wells located within the City of Guelph. Water wells within 500 m of the Site listed in the Ontario Water well records database are shown on Figure 6 of the Phase One ESA Update (Jacobs, 2021).
Identify Roads within the Phase One	Figure 7 of the Phase One ESA Update (Jacobs, 2021) presents the roadways and land uses within the Phase One Study Area.
Adjacent Property Uses	Figure 7 of the Phase One ESA Update (Jacobs, 2021) and Figure 3 of the Phase One ESA (Pinchin 2018) presents the adjacent property use: • To the north: commercial/industrial and residential • To the east: commercial/industrial and mixed use residential/commercial • To the south: residential, commercial/industrial and mixed use residential/commercial • To the west: residential, commercial/industrial and mixed use residential/commercial
Identify PCAs in the Phase One Study Area	A total of 129 PCAs were identified in the Phase One Study Area and are shown on Figure 4-1a and 4-1b along with approximate locations of historical USTs. Details and descriptions of the PCAs are provided in Table 4-2, and indicate which PCAs result in an APEC.
Identify APECs	The Phase One ESA (Pinchin, 2018) and Jacobs identified twenty-two APECs for the Phase One Property, eight attributable to onsite PCAs, and 14 attributable to offsite PCAs. APECs and are listed in Table 4-3 and shown on Figure 4-2.
COPCs	The COPCs identified by Jacobs from a review of the Phase One ESA (Pinchin, 2018) include metals (including hydride-forming metals), other regulated parameters (hot water soluble (HWS) boron, cyanide, EC, SAR, sodium, chloride, mercury, hexavalent chromium), VOCs, BTEX, PHCs, PAHs, dioxins/furans and ABNs.
Presence of Underground Utilities	Underground utilities on the Phase One Property provide electrical services to the light standards and pay meters, in addition to storm sewers which provide the drainage to the parking lots. The Site Representative indicated that a parking attendant building was recently demolished in 2016 on the west central portion of the property. The building was serviced by municipal water and was connected to the sanitary sewer system. Additionally, several buildings were historically present on the Phase One Property as shown on Figure 2-2a. It is unclear if utilities associated with these former buildings remain on the Phase One Property. Estimated depths of the utilities are 1 mbgs for electrical utilities, and 3 mbgs for storm sewers. Previous reports indicate that groundwater was encountered at depths of approximately 3.5 to 8.9 mbgs, therefore utility corridors are expected to be present above the water table and would not act as a preferential pathway for contaminant distribution and transport. It is unclear if historical utilities resulting from the historical industrial use on the Phase One Property are still present. Known utilities are presented on Figure 2-2b.
Regional/Local Geology	The Phase One Property and surrounding properties are located within the physiographical area identified as the Guelph Drumlin Field. Glacialfluvial outwash deposits of sands and gravel occur, underlain in places by fine-graines silts and clays, overlying dolostone bedrock. Native subsurface materials encountered during previous investigations (XCG, 2008), consisted of silty sand, silt and gravel, cobbles, sand and silt. No bedrock outcrops were observed on Site or in the surrounding area. Based on information provided in previous investigations (XCG, 2008), the overburden thickness ranges between approximately 4.3 and 7.3 m.
Regional/Local Hydrogeology	The Phase One Property is relatively flat, with a slight slope to the south. The surrounding area slopes gradually to the south and east towards the Speed River as shown on Figure 3-1. The Speed River is located 130 m north-northeast and 440 m east of the Site, and flows southeast and discharges into the Grand River located approximately 19 kilometres south of the Site. Based on an elevation survey completed as part of previous investigations (XCG, 2008) the groundwater at the Site flows in an east-southeast direction towards the Speed River.
Uncertainties Affecting the Validity of Phase One CSM	On the basis of the uncertainties presented within the Phase One ESA report, it is possible that a PCA/APEC or land use has not been identified within the individual components of the Phase One ESA. Information was gathered from numerous sources (that is, aerial photographs, City Directories, database searches, historical reports, interviews, and site reconnaissance), which decreases the chance that a major PCA or land use was not identified in this Phase One ESA. Many aspects of the CSM have been previously studied and verified through subsurface investigations (for example, groundwater flow direction); these aspects are not directly affected by the noted uncertainties: • Quality of aerial photographs may not allow some features to be clearly identified, and professional judgment was used to relate the historical features identified in the aerial photographs to present day locations • Municipal addresses are known to change • Information provided by interviewed individuals, could be based on hearsay or personal opinion

Notes:

This Phase One Conceptual Site Model was prepared by Jacobs based on the Phase One Environmental Site Assessment prepared by Pinchin (2008) and the information reviewed as part of the Phase One ESA (Jacobs 2021) Update.

ABN = Acid base neutral
APEC = Areas of Potential Concern
BTEX = benzene, ethylbenzene, toluene and xylenes
COPC = Contaminant of Potential Concern
CSM = Contaminated Sites Model
EC = electrical conductivity
ESA = Environmental Site Assessment
masl = metre(s) above sea level
masl = metre(s) above sea level
mbgs = metre(s) below ground surface
PAH = Polycyclic aromatic hydrocarbon
PCA = Potentially Contaminating Activity
Phase One Property = 55 Baker Street, 152 and 160 Wyndham Street N, Park Lane
PHC = Petroleum hydrocarbon
SAR = sodium adsorption ratio
UST = underground storage tanks
VOC = volatile organic compound(s)
VOC = volatile organic compound(s)

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) (1)		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) (2)	Property Address / Location of PCA Onsite	Location of PCA (3)	PCA results in APEC	Resulting APEC	Rationale (4)	Information Source
34	Metal Fabrication	1	Historical Industrial Property Use - Coil wire springs (J. Steele Ltd. / Steele's Wire Spring Ltd.) sewing machines (Raymond Manufacturing Co. Ltd./ White Sewing Machine Co. of Canada), and accessories were historically manufactured at 55 Baker Street.	North and Central Portions of Parcel A	Onsite	YES	APEC-01	PCA on the Phase One Property	FIP
30	Importation of Fill Material of Unknown Quality	2	Unknown/Poor Quality Fill Material – Fill material to 3.0 metres below ground surface (mbgs) was identified at 55 Baker Street in the XCG Phase II ESA (XCG 2008), and is also likely located at the Wyndham properties from demolition of historical buildings, based on when it was developed (1862).	Entire Phase One Property	Onsite	YES	APEC-02	PCA on the Phase One Property	HER
55	Transformer Manufacturing, Processing and Use	3	Historical Transformers – The 1960 FIP identified an area of 55 Baker Street labelled as 'transformers.'	East-Central Portion of Parcel A	Onsite	YES	APEC-03	PCA on the Phase One Property	FIP
48	Salt Manufacturing, Processing and Bulk Storage	56	Use of Road Salts at the Property – The Site is currently used as a parking lot and road salts are known to be applied for vehicular and pedestrian safety.	Entire Phase One Property	Onsite	YES	APEC-04	PCA on the Phase One Property	SR
37	Operation of Dry Cleaning Equipment (where chemicals are used)	5	Historical Dry Cleaning - Potential dry cleaners were identified at 164-166 Woolwich Street on FIPs (1929, 1946). The building is labeled as "Cleaning & Dyeing" on the 1929 FIP with a small area in the back labeled "Dry Cleaning. The 1946 FIP has the building relabeled as "Clothes Cleaning". City directories list Card, JM Co. Cleaners and Dyers and Woolwich Cleaners and Tailors at 164-166 Woolwich between 1917 and 1955.	164-166 Woolwich Street	Offsite	YES	APEC-05	Hydraulically downgradient, but adjacent to the Phase One Property	FIP, CDL
28	Gasoline and Associated Products Storage in Fixed Tanks	4	Historical Retail Fuel Outlet – operations were identified at 160 Woolwich Street and showed four associated gasoline USTs fronting on Woolwich on the 1929 FIP, and two gasoline USTs on the 1960 FIP.	160 Woolwich Street	Offsite	YES	APEC-06	Hydraulically downgradient, but adjacent to the Phase One Property	FIP
32	Iron and Steel Manufacturing and Processing	78	Historical Iron Foundry - The 1878 FIP shows W.H. Mills Stove Mfg at the southwest corner of Woolwich and Wyndham	Corner of Woolwich and Wyndham Streets	Offsite	YES	APEC-06	Hydraulically downgradient, but adjacent to the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	79	Historical Garage - a building labeled 'Garage & Repairs' is identified on the 1929 and 1946 FIPs at 160 Woolwich Street. Newstead and Nicholas Garage (automotive repair/servicing) is listed in the city directories in 1930.	160 Woolwich Street	Offsite	YES	APEC-06	Hydraulically downgradient, but adjacent to the Phase One Property	FIP, CDL
28	Gasoline and Associated Products Storage in Fixed Tanks	80	Historical UST - two gasoline USTs are identified on Baker Street, on the west side of the building at 164-166 Woolwich (Cleaning & Dyeing) on the 1929 FIP	164-166 Woolwich Street / Baker Street	Offsite	YES	APEC-06	Hydraulically downgradient, but adjacent to the Phase One Property	FIP
37	Operation of Dry Cleaning Equipment (where chemicals are used)	12	Potential Historical Dry Cleaning - "Chinese Laundry" was located at 152 Woolwich Street from at least 1911 to 1946 based on FIPs (1911, 1929, 1946) and city directories (Lee, Lee Laundry from 1917 to 1936). It is noted that this laundry service was typically hand-laundry and not likely dry cleaning; in addition, PCE was not	152 Woolwich Street	Offsite	YES	APEC-07	Hydraulically downgradient, but adjacent to the Phase One Property	FIP, CDL
37	Operation of Dry Cleaning Equipment (where chemicals are used)	52	Historical Dry Cleaning - Potential dry cleaners (Langley's Ltd. Cleaners) were identified at 172 Wyndham Street North between at least 1930 and 1939 based on city directories.	172 Wyndham Street North	Offsite	YES	APEC-08	Hydraulically downgradient, but adjacent to the Phase One Property	CDL
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	76	Historical Garage - a building labeled 'Garage & Repairs' is identified on the 1929 FIP at 166 Wyndham Street North	166 Wyndham Street North	Offsite	YES	APEC-08	Hydraulically downgradient, but adjacent to the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	77	Historical UST - a gasoline UST is identified at 168 Wyndham Street North on the 1929 FIP, in the front of an building for auto accessories.	168 Wyndham Street North	Offsite	YES	APEC-08	Hydraulically downgradient, but adjacent to the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	13	Historical Fuel Oil Underground Storage Tank (UST) – A historical UST was identified at 176 Wyndham Street North along the west exterior wall (beside the garage and repairs building) on the 1960 FIP.	176 Wyndham Street North	Offsite	YES	APEC-09	Hydraulically downgradient, but adjacent to the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	53	Historical Automotive Repair – A historical automotive repair shop was identified at the back of 176 Wyndham Street on the 1960 FIP.	176 Wyndham Street North	Offsite	YES	APEC-10	Hydraulically downgradient, but adjacent to the Phase One Property	FIP
34	Metal Fabrication	8	Historical Offsite Industrial Operations - Industrial manufacturing and potential metal fabrication was noted along Yarmouth Street from as early as 1929. Cooke & Denison Machine and Tool Works was identified at 40 Baker Street on FIPs from 1929 to 1960.	40 Baker Street	Offsite	YES	APEC-11	Hydraulically upgradient and adjacent to the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	9	Historical UST - One UST identified on the 1946 FIP on the southwest portion of 40 Baker Street.	South of #29-40 Baker Street	Offsite	YES	APEC-11	Hydraulically upgradient and adjacent to the Phase One Property	FIP

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) (1)		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) (2)	Property Address / Location of PCA Onsite	Location of PCA (3)	PCA results in APEC	Resulting APEC	Rationale (4)	Information Source
28	Gasoline and Associated Products Storage in Fixed Tanks	71	Historical Fuel Oil Tank – A historical above ground fuel oil tank was identified on the 1960 FIP between the Cooke & Denison and Austin Laboratories properties between 25 Yarmouth and 32-34 Baker Street.	25 Yarmouth Street / 32-34 Baker Street	Offsite	YES	APEC-11	Hydraulically upgradient and adjacent to the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	6	Historical Automotive Garage – An automotive garage (Swanston L B Auto Repair and Heffernon Motor Car Co. Garage) was identified at 45 Yarmouth Street from approximately 1929 to 1960 based on FIPs and City directories. A Record of Site condition record was noted to have been filed in July 2020 for a change from	45 Yarmouth Street / 52 Baker Street	Offsite	YES	APEC-12	Hydraulically upgradient and adjacent to the Phase One Property	FIP, ELE
28	Gasoline and Associated Products Storage in Fixed Tanks	7	Historical USTs - Two USTs identified on Yarmouth Street on the 1929 and 1946 FIPs were associated with the historical automotive repair/servicing operations at 45 Baker Street.	On Yarmouth Street/ behind 45 Yarmouth / 52 Baker Street	Offsite	YES	APEC-12	Hydraulically upgradient and adjacent to the Phase One Property	FIP
34	Metal Fabrication	70	Historical Industrial Operations - C. Raymond Sewing Machine Mfg./White Sewing Machine Co. of Canada is present between Yarmouth and Baker Streets on the 1878, 1892 and 1911 FIPs. Buildings include moulding shop, machine shop, iron storage, polishing and plating (3rd floor). Bridge and tunnels noted across Baker Street when operations expanded to the Site.	between Yarmouth and Baker Streets	Offsite	YES	APEC-12	Hydraulically upgradient and adjacent to the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	18	Historical Automotive Repair - Heffernan Motors, a historical garage, was identified at 146 Wyndham Street North (from approximately 1930 until 1946) based on city directories.	146 Wyndham Street North	Offsite	YES	APEC-13	Hydraulically upgradient/ transgradient and adjacent to the Phase One Property	CDL
other	Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	27	Historical Gasoline Spill – Base on database searches, a historical gasoline spill (80 Litres) at the intersection of Chapel Lane and Baker Street occurred in 2003, with possible environmental impact to land and water.	intersection of Chapel Lane and Baker Street	Offsite	YES	APEC-14	Hydraulically upgradient and adjacent to the Phase One Property	ELE
37	Operation of Dry Cleaning Equipment (where chemicals are used)	19	Potential Historical Dry Cleaning - potential dry cleaning operations were identified at 108 Wyndham Street North from 1917 to 1922 based on city directories (Gemmel & Co. Dyers and Cleaners).	108 Wyndham Street North	Offsite	YES	APEC-15	Hydraulically downgradient, but adjacent to the Phase One Property	CDL
28	Gasoline and Associated Products Storage in Fixed Tanks	25	Historical UST - the 1946 FIP identified one UST under the roadway at 7 Quebec Street.	7 Quebec Street	Offsite	YES	APEC-16	Hydraulically upgradient/ transgradient to the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	43	Historical Aboveground Storage Tank (AST): - Vent and fill pipes associated with an AST were observed at the corner of 20 Quebec Street, a southern adjacent property to the Site during the Pinchin Site Visit (in 2018).	20 Quebec Street	Offsite	YES	APEC-16	Hydraulically upgradient and adjacent to the Phase One Property	SR
28	Gasoline and Associated Products Storage in Fixed Tanks	50	Historical Service Station - A service station with 3 associated gasoline USTs is identified at the southwest corner of Suffolk and Yarmouth Streets (25 Suffolk) on the1946 and 1960 FIPs. City directories list Regent C&H Service Station, at 27 Suffolk Street East in 1955.	27 Suffolk Street East	Offsite	YES	APEC-17	Hydraulically upgradient/ transgradient to the Phase One Property	FIP, CDL
37	Operation of Dry Cleaning Equipment (where chemicals are used)	51	Historical Dry Cleaning Operation - Reliable Cleaners, a potential dry cleaning facility was listed at 84 Yarmouth Street in 1955 in city directories.	84 Yarmouth Street	Offsite	YES	APEC-17	Hydraulically upgradient/ transgradient to the Phase One Property	CDL
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	55	Historical Automotive Repair - City directories list Hasting Motors, an automotive repair/servicing facility at 27 Suffolk Street East in 1955.	27 Suffolk Street East	Offsite	YES	APEC-17	Hydraulically upgradient/ transgradient to the Phase One Property	CDL

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) (1)		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) (2)	Property Address / Location of PCA Onsite	Location of PCA (3)	PCA results in APEC	Resulting APEC	Rationale (4)	Information Source
57	Vehicles and Associated Parts Manufacturing	81	Historical Coach and Body Manufacturing - Guelph Coach & Body is located at 9-21 Suffolk Street East on the 1946 FIP. Buildings include Auto accessories, glazing, upholstering, office, glass storage and printing.	9-21 Suffolk Street East	Offsite	YES	APEC-17	Hydraulically upgradient/ transgradient to the Phase One Property	FIP
34	Metal Fabrication	82	Historical Industrial Property Use - Sewing machine manufacturing (Chas Raymond's Sewing machine Mfg) was indicated on the 1878 and 1892 FIP, located at the southeast corner of Suffolk and Yarmouth.	Suffolk and Yarmouth Street	Offsite	YES	APEC-17	Hydraulically upgradient/ transgradient to the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	57	Former Oil Shed – The 1911 FIP showed a small oil shed in the southwestern corner of the White Sewing Machine of Canada parcel of land on 55 Baker Street.	Southwest portion of 55 Baker Street	Onsite	YES	APEC-18	PCA on the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	58	Former Oil House – The 1911 FIP showed a small oil house on the former White Sewing Machine of Canada parcel, now the western portion of 152 Wyndham Street.	Western portion of 152 Wyndham Street North	Onsite	YES	APEC-19	PCA on the Phase One Property	FIP
Other	Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	59	Former Coke Storage – The 1911 FIP showed a garage located on the northeastern portion of 55 Baker Street.	Northeast portion of 55 Baker Street	Onsite	YES	APEC-20	PCA on the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	60	Former Garage – The 1960 FIP showed a garage located on the northeastern portion of 55 Baker Street.	Northeast portion of 55 Baker Street	Onsite	YES	APEC-21	PCA on the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	10	Historical UST - One UST identified within the northwest portion of 2 Baker Street (historically 22 Baker Street), in a building labeled 'auto' occupied by Guelph Creamery (1946 FIP).	2 Baker Street	Offsite	YES	APEC-22	Hydraulically upgradient and adjacent to the Phase One Property	FIP
37	Operation of Dry Cleaning Equipment (where chemicals are used)	11	Historical Dry Cleaning - Ferguson's Cleaners, a potential dry cleaning operation was listed in the city directories at 2 Quebec Street in 1975.	2 Quebec Street	Offsite	YES	APEC-22	Hydraulically upgradient and adjacent to the Phase One Property	CDL
Other	Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	72	Former Coal Yard - A coal yard is identified on the northwest corner of Quebec and Baker Streets.	Quebec and Baker Street	Offsite	YES	APEC-22	Hydraulically upgradient/ transgradient of the Phase One Property	FIP
55	Transformer Manufacturing, Processing and Use	14	Transformer - One pad-mounted oil cooled transformer was identified during the Pinchin Site Visit (in 2018) on the west exterior portion of 138 Wyndham Street North. No staining was observed on the concrete slab in the vicinity of the transformer, and no evidence of leakage was observed during the Site reconnaissance.	Behind 138 Wyndham Street North	Offsite	NO		Hydraulically upgradient/ transgradient of the Phase One Property, but nature of PCA is shallow soil contamination	SR
28	Gasoline and Associated Products Storage in Fixed Tanks	15	Historical Service Station - a former auto servicing and refueling station was located at 145 Woolwich with 4 gasoline USTs located out front, on Woolwich Street. The service station existed from at least 1929 to 1960 based on the FIPs and city directories (Simpson, CT, Service Station).	145 Woolwich Street	Offsite	NO		Hydraulically downgradient of the Phase One Property	FIP, CDL
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	16	Historical Automotive Repair - Auto repair/servicing activities by Muller Bros were present at 135-139 Woolwich Street from at least 1936 until 1960 based on FIPs and city directories.	135-139 Woolwich Street	Offsite	NO		Hydraulically downgradient of the Phase One Property	FIP, CDL
28	Gasoline and Associated Products Storage in Fixed Tanks	17	Diesel AST - One emergency diesel-fired emergency generator with an associated belly-tank was identified on the west exterior portion of 138 Wyndham Street North during the Pinchin Site Visit (in 2018). No staining was observed on the concrete slab in the vicinity of the emergency generator and no evidence of leakage was observed during the Site reconnaissance.	Behind 138 Wyndham Street North	Offsite	NO		Hydraulically upgradient/ transgradient of the Phase One Property, but nature of PCA is shallow soil contamination	SR
31	Ink Manufacturing, Processing and Bulk Storage	20	Historical Printing Operation - Printing indicated in back of 90-96 Wyndham Street North on the 1929 and 1946 FIPs. City directories list Kelso Printing Co., at 96 Wyndham Street North in 1936.	96 Wyndham Street North	Offsite	NO		Hydraulically downgradient of the Phase One Property	FIP, CDL
37	Operation of Dry Cleaning Equipment (where chemicals are used)	21	Potential Historical Dry Cleaning - "Chinese Laundry" was identified at70 Wyndham Street North on the 1911 and 1916 FIP. Based on city directory searches, these operations were present until approximately 1922 under Young Wong Laundry. It is noted that this laundry service was typically hand-laundry and not likely dry cleaning; in addition, PCE was not being readily used in dry cleaning until the 1930s.	70 Wyndham Street North	Offsite	NO		Hydraulically transgradient, and distance is greater than 50 m from the Phase One Property	FIP, CDL

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) (1)		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) (2)	Property Address / Location of PCA Onsite	Location of PCA (3)	PCA results in APEC	Resulting APEC	Rationale (4)	Information Source
37	Operation of Dry Cleaning Equipment (where chemicals are used)	22	Potential Historical Dry Cleaning - "Chinese Laundry" was identified at 55-57 Quebec Street from approximately 1910 to 1946 based on FIPs and city directories (Lee Wing Laundry present from 1910 to 1939). It is noted that this laundry service was typically hand-laundry and not likely dry cleaning; in addition, PCE was not being readily used in dry cleaning until the 1930s.	55-57 Quebec Street	Offsite	NO		Based on site-specific groundwater flow, this location is hydraulically transgradient from the Phase One Property. Distance is greater than 50 m from the Phase One Property	FIP, CDL
37	Operation of Dry Cleaning Equipment (where chemicals are used)	23	Potential Historical Dry Cleaning - "Cleaning and Pressing" at 49 Quebec Street on 1911 and 1916 FIPs, and Chas Kutt cleaner listed in the city directories from 1910 to 1916. It is noted that PCE was not being readily used in dry cleaning until the 1930s.	49 Quebec Street	Offsite	NO		Based on site-specific groundwater flow, this location is hydraulically transgradient from the Phase One Property. Distance is greater than 50 m from the Phase One Property	FIP, CDL
37	Operation of Dry Cleaning Equipment (where chemicals are used)	24	Potential Historical Dry Cleaning - Starkman Cleaning and Pressing, a potential dry cleaning operation was listed at 31 Quebec Street, from 1916 until 1917. It is noted that PCE was not being readily used in dry cleaning until the 1930s.	31-35 Quebec Street	Offsite	NO		Based on site-specific groundwater flow, this location is hydraulically transgradient from the Phase One Property. Distance is greater than 50 m from the Phase One Property	CDL
37	Operation of Dry Cleaning Equipment (where chemicals are used)	26	Potential Historical Dry Cleaning - a building labelled 'cleaning and pressing', a potential dry cleaning operation was identified at 17 Quebec Street in the 1946 FIP.	17 Quebec Street	Offsite	NO		Based on site-specific groundwater flow, this location is hydraulically transgradient from the Phase One Property. Distance is greater than 50 m	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	28	Historical Service Station and USTs - The 1929 and 1946 FIPs identified a gasoline UST at 88 Norfolk Street, in front of the automotive garage on Norfolk Street. The 1960 FIP identifies a gasoline service station in place of the garage, with 3 USTs within the property and an associated address of 90 Norfolk Street.	Norfolk and Commercial Street (88 / 90 Norfolk Street)	Offsite	NO		Hydraulically upgradient/ transgradient, but distance is greater than 100 m from the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	29	Historical UST - the 1946 FIP identified one gasoline UST at 17 Quebec Street	behind 19-23 Quebec Street	Offsite	NO		Based on site-specific groundwater flow, this location is hydraulically transgradient from the Phase One Property. Distance is greater than 50 m from the Phase One Property	FIP
37	Operation of Dry Cleaning Equipment (where chemicals are used)	30	Potential Historical Dry Cleaning - "Chinese Laundry" was indicated at 13 Quebec Street on the 1916 FIP. The city directories indicate Ontario Laundry is present from 1917 to 1930. It is noted that this laundry service was typically hand-laundry and not likely dry cleaning; in addition, PCE was not being readily used in dry cleaning until the 1930s.	13 Quebec Street	Offsite	NO		Based on site-specific groundwater flow, this location is hydraulically transgradient from the Phase One Property. Distance is greater than 50 m from the Phase One Property	FIP, CDL
28	Gasoline and Associated Products Storage in Fixed Tanks	31	Historical Gasoline Service Station - a refueling station with 3 associated USTs is identified on the 1946 FIP at 46-48 Cork Street East.	46-48 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 50 m from the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	32	Historical Automotive Repair - a garage is identified on the 1916 to 1960 FIPs at 23-25 Cork Street East.	23-25 Cork Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	33	Historical UST - the 1929 to 1960 FIPs identify one UST in front of the garage at 23-25 Cork Street East	23 Cork Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
37	Operation of Dry Cleaning Equipment (where chemicals are used)	34	Potential Historical Dry Cleaning - "Chinese Laundry" was indicated at 34 Quebec Street on the 1911 FIP. Elm Bros Laundry was identified in the city directories at 34 Quebec Street from 1910 until 1916. It is noted that this laundry service was typically hand-laundry and not likely dry cleaning; in addition, PCE was not being readily used in dry cleaning until the 1930s.	34 Quebec Street	Offsite	NO		Based on site-specific groundwater flow, this location is hydraulically transgradient from the Phase One Property. Based on the nature of the indicated services, the likelihood that the	FIP, CDL
28	Gasoline and Associated Products Storage in Fixed Tanks	35	Historical Oil Cellar - Bond Hardware Co. Ltd. was located at 42-56 Wyndham Street North. This property was labelled on the 1892, 1911 and 1916 FIPs as containing an 'oil cellar under the sidewalk' at the northwest exterior corner of this building.	St. George Square	Offsite	NO		Hydraulically transgradient, and distance is greater than 50 m from the Phase One Property	FIP
31	Ink Manufacturing, Processing and Bulk Storage	36	Historical Printing Operation - Clark Printer, a historical printing operation was listed in city directories at 14 Wyndham Street North in 1901.	14 Wyndham Street North	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	CDL

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) (1)		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) (2)	Property Address / Location of PCA Onsite	Location of PCA (3)	PCA results in APEC	Resulting APEC	Rationale (4)	Information Source
31	Ink Manufacturing, Processing and Bulk Storage	37	Historical Printing Operation - Turnbull Wright Co. Printers, a historical printing operation was listed in city directories at 13 Wyndham Street North in 1901.	13 Wyndham Street North	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	CDL
28	Gasoline and Associated Products Storage in Fixed Tanks	38	Historical UST - the 1946 FIP identified one UST at 106 Quebec Street	106 Quebec Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	39	Historical Automotive Repair - 'Garage & Repairs' were identified in the 1946 FIP at 106 Quebec Street.	106 Quebec Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
31	Ink Manufacturing, Processing and Bulk Storage	40	Historical Printing Operation - Herald Printing, a historical printing operation was identified at 65 Quebec Street in the 1892, 1897, and 1911 FIPs.	65 Quebec Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
37	Operation of Dry Cleaning Equipment (where chemicals are used)	41	Potential Historical Dry Cleaning - Based on city directories Sam Sing Landry, a potential dry cleaning operation was identified at 146 Quebec Street in 1917 until 1939. It is noted that this laundry service was typically hand-laundry and not likely dry cleaning; in addition, PCE was not being readily used in dry cleaning until the 1930s.	146 Quebec Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	CDL
37	Operation of Dry Cleaning Equipment (where chemicals are used)	42	Potential Historical Dry Cleaning - Chinese Laundry, a potential dry cleaning operation was identified at 101 Quebec Street in 1910 until 1944 on city directories and on the 1911 FIP. It is noted that this laundry service was typically hand-laundry and not likely dry cleaning; in addition, PCE was not being readily used in dry cleaning until the 1930s.	101 Quebec Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP, CDL
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	44	Historical Automotive Repair - a garage is identified at 169 Woolwich Street on the 1929 FIP, with an 'Auto Ignition and Battery Service' under construction on the 1946 FIP.	173 Woolwich Street	Offsite	NO		Hydraulically downgradient of the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	45	Historical Gasoline Service Station - a refueling and auto service station with 4 associated USTs is identified on the 1929 and 1946 FIPs at the southwest corner of Woolwich and Suffolk Streets. City directories indicate service stations (White Rose Service Station, Can Oil Co's Ltd. Service Station and Daley's Tire Shop Ltd & Service Station) present up to 1980.	192 Woolwich Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP, CDL
37	Operation of Dry Cleaning Equipment (where chemicals are used)	46	Dry Cleaning Operations - Dry cleaning operation (4 Raza Inc, Parkers Cleaners, Daniel's Dry Cleaners Ltd.) have been located at 22 Suffolk Street East from 1986 to present based on city directories and MECP waste generator records.	22 Suffolk Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	CDL, ELE
28	Gasoline and Associated Products Storage in Fixed Tanks	47	Historical UST - the CFOT/FST database (ERIS) indicated that a 500 L fuel oil UST (single-wall steel) was installed at 21 Paisley Street in 2005 for Crewgall Properties. A furnace oil spill was reported in 2005 with soil contamination (amount not reported). The tank was delisted in 2013.	21 Paisley Street	Offsite	NO		Hydraulically upgradient/ transgradient, but distance is greater than 100 m from the Phase One Property	ELE
31	Ink Manufacturing, Processing and Bulk Storage	48	Historical Printing Operation - Leaman Printing Co., a historical printing operation was listed in the city directories at 54 Cork Street East, from 1939 until 1944	50 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 50 m from the Phase One Property	CDL
28	Gasoline and Associated Products Storage in Fixed Tanks	49	Historical UST - the CFOT database indicated that a 5,072-L fibreglass reinforced plastic single-wall fuel oil UST was installed at 20 Cork Street East in 1986 for Bell Canada.	20 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	ELE
31	*Ink Manufacturing, Processing and Bulk Storage*	*54*	*Historical Printing Operation - a historical printing operation was reported at 90 Woolwich Street in the Pinchin Phase One from the 1946 FIP; however Jacobs reviewed this FIP and did not see any noted operations at this address, and therefore this PCA is noted to be removed.*	*90 Woolwich Street*	*Offsite*	*NO*		*PCA removed, was not found on source material as reported.*	

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) (1)		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) (2)	Property Address / Location of PCA Onsite	Location of PCA (3)	PCA results in APEC	Resulting APEC	Rationale (4)	Information Source
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	61	Historical l Automotive Repair - a building labeled "Garage" is present on the 1911 to 1946 FIPs at 88 Norfolk Street.	Norfolk and Commercial Street (88 Norfolk Street)	Offsite	NO		Hydraulically upgradient/ transgradient, but distance is greater than 100 m from the Phase One Property	FIP
34	Metal Fabrication	62	Historical Industrial Property Use - Various industrial companies occupied the southwest intersection of Paisley and Norfolk Streets. The 1878 FIP shows Wilkie & Osborne (Guelph Sewing Machine Co.); the 1892 FIP shows Guelph Enterprise Mfg. Co.; the 1911 FIP identifies Guelph Stove Co. (with associated moulding shop, tin shop, tinsmith, office/shipping, packing, mounting, nickel plating, milling, carpentry, sand shed); the 1916 FIP shows Royal City Stone Co.	Paisley and Norfolk Street	Offsite	NO		Hydraulically upgradient/ transgradient, but distance is greater than 100 m from the Phase One Property	FIP
32	Iron and Steel Manufacturing and Processing	63	Historical Iron Foundry - J. Crowe Iron Works/Crowe's Iron Works identified on the 1878 and 1892 FIPs at the southwest corner of Cambridge (now Commercial) and Gordon (Norfolk)	Norfolk and Commercial Street	Offsite	NO		Hydraulically upgradient/ transgradient, but distance is greater than 100 m from the Phase One Property	FIP
31	Ink Manufacturing, Processing and Bulk Storage	64	Historical Printing Operation - a printing company (Central Printing Services) was identified at 72 Norfolk Street based on ERIS Scott's Manufacturing records, indicating an established date of 1961.	72 Norfolk Street	Offsite	No		Hydraulically upgradient/ transgradient, but distance is greater than 100 m from the Phase One Property	ELE
39	Paints Manufacturing, Processing and Bulk Storage	65	Former Paint Shop - a paint shop was identified on the 1916 FIP at 85 Norfolk Street	85 Norfolk Street	Offsite	NO		Hydraulically upgradient/ transgradient, but distance is greater than 100 m from the Phase One Property	FIP
34	Metal Fabrication	66	Historical Tinsmith - Tinsmith operation indicated on the 1946 and 1960 FIP at 85 Norfolk Street	85 Norfolk Street	Offsite	NO		Hydraulically upgradient/ transgradient, but distance is greater than 100 m from the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	67	Historical Garage - an auto garage, and later auto trimming was identified on the 1911 and 1929 FIPs at 85 Norfolk Street	85 Norfolk Street	Offsite	NO		Hydraulically upgradient/ transgradient, but distance is greater than 100 m from the Phase One Property	FIP
55	Transformer Manufacturing, Processing and Use	68	Transformer - One pad-mounted transformer was identified during the Jacobs Site Visit (in 2020) on the west exterior portion of 45 Yarmouth Street North. No staining was observed on the concrete slab in the vicinity of the transformer and no evidence of leakage was observed during the Site reconnaissance.	45 Yarmouth Street	Offsite	NO		Hydraulically upgradient/ transgradient of the Phase One Property, but nature of PCA is shallow soil contamination	SR
55	Transformer Manufacturing, Processing and Use	69	Transformer - One pad-mounted transformer was identified during the Jacobs Site Visit (in 2020) on the south exterior portion of 40 Baker Street North. No staining was observed on the concrete slab in the vicinity of the transformer and no evidence of leakage was observed during the Site reconnaissance.	40 Baker Street	Offsite	NO		Hydraulically upgradient/ transgradient of the Phase One Property, but nature of PCA is shallow soil contamination	SR
57	Vehicles and Associated Parts Manufacturing	73	Historical Wagon Shop - Charles Thain Wagon Shop is shown on Wyndham Street on the 1878 FIP.	Wyndham Street	Offsite	NO		Hydraulically downgradient of the Phase One Property, and nature of PCA is shallow soil contamination	FIP
55	Transformer Manufacturing, Processing and Use	74	Transformer - One pad-mounted transformer was identified during the Jacobs Site Visit (in 2020) on the west exterior portion of 146 Wyndham Street North. No staining was observed on the concrete slab in the vicinity of the transformer and no evidence of leakage was observed during the Site reconnaissance.	146 Wyndham Street North	Offsite	NO		Hydraulically upgradient/ transgradient of the Phase One Property, but nature of PCA is shallow soil contamination	SR
28	Gasoline and Associated Products Storage in Fixed Tanks	75	Historical UST - a gasoline UST is identified at 156 Wyndham Street North on the 1929 FIP, on the east side of the building.	156 Wyndham Street North	Offsite	NO		Adjacent to the Phase One Property, however multiple lines of evidence indicate the PCA does not result in an APEC:	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	83	Historical Automotive Repair - an automotive servicing facility is identifies at 22 Suffolk Street East on the 1929 and 1946 FIPs.	22 Suffolk Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
39	Paints Manufacturing, Processing and Bulk Storage	84	Historical Paint Building - "Paint" is indicated on a building on the 1916 FIP at 12 Suffolk Street	12 Suffolk Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) (1)		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) (2)	Property Address / Location of PCA Onsite	Location of PCA (3)	PCA results in APEC	Resulting APEC	Rationale (4)	Information Source
28	Gasoline and Associated Products Storage in Fixed Tanks	85	Historical Service Station - A service station with 5 associated gasoline USTs is identified at the southeast corner of Norfolk and Woolwich Streets (234 Woolwich) on the1929 FIP. The 1946 FIP shows 4 gasoline USTs.	Norfolk and Woolwich Streets	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	86	Historical Garage - a garage is identified at 228 Woolwich Street on the 1929 and 1946 FIP	228 Woolwich	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
54	Textile Manufacturing and Processing	87	Textile manufacturing - a former textile manufacturer (Buy the Yard) was identified for 214 Woolwich Street based on ERIS Scott's Manufacturing records in 1989.	214 Woolwich Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	ELE
54	Textile Manufacturing and Processing	88	Historical Textile Factory - Royal Knitting Co. is located at 37 - 41 Norwich Street East on the 1911, 1916 and 1929 FIPs, with buildings including factory, storage, stock, dye house.	37-47 Norwich Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
59	Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products	89	Historical Varnishing Operations - a building labeled 'Varnishing' is identified at the corner of Norwich Street East and Cardigan Street on the 1911 FIP.	Norwich Street East and Cardigan Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
39	Paints Manufacturing, Processing and Bulk Storage	90	Historical Paint Shop - a paint shop is identified at the corner of Norwich Street East and Cardigan Street on the 1911 FIP.	Norwich Street East and Cardigan Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
57	Vehicles and Associated Parts Manufacturing	91	Vehicle parts manufacturer - a former motor vehicle brakes manufacturer (ABS Friction Corp.) was identified at 199 Woolwich Street based on an ERIS Scott's Manufacturing record for 1996.	199 Woolwich St.	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	ELE
46	Rail Yards, Tracks and Spurs	92	Railway Tracks - Canadian Pacific Railway lines are shown on the west/south side of Speed River. The lines have existed since at least 1908 and are present today.	West/South of Speed River	Offsite	NO		Hydraulically downgradient of the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	93	Historical Garage - Royal City Garage is identified on Eramosa Street on the 1916 FIP	Eramosa Street	Offsite	NO		Hydraulically downgradient of the Phase One Property	FIP
57	Vehicles and Associated Parts Manufacturing	94	Historical Industrial Operations - a blacksmith and carriage shop is indicated on the 1892, 1911 and 1916 FIPs at 135-143 Woolwich Street	135-143 Woolwich Street	Offsite	NO		Hydraulically downgradient of the Phase One Property	FIP
34	Metal Fabrication	95	Historical Wire Manufacturing - Wire Tape Manufacturers (National Standard Co. of Canada Limited) are identified on the 1929 to 1960 FIPs at 133 Woolwich Street, with buildings/operations extending behind and to the north of the neighbouring properties.	133 Woolwich Street	Offsite	NO		Hydraulically downgradient of the Phase One Property	FIP
39	Paints Manufacturing, Processing and Bulk Storage	96	Historical Paint Shop - a paint shop is indicated on the 1916 FIP at 127 Woolwich Street; possibly associated with the carriage factory.	127 Woolwich Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
57	Vehicles and Associated Parts Manufacturing	97	Historical Carriage, Motorbody and Farm Equipment Manufacturing - Carriage Factory (C. Kloepfer) is indicated on the 1911/1916 FIPs, and Commercial Motor Bodies & Carriages on the 1929 FIP at 121-133 Woolwich. Buildings include woodworking, storage, trimming, shipping, coal shed, blacksmith. On the 1946 FIP W.G. Wood Co. Ltd is identified for manufacturing of farm equipment.	121-133 Woolwich Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
31	Ink Manufacturing, Processing and Bulk Storage	98	Historical Printing Operation - former book publishing operations (Ampersand Printing, ID Magazine, Ribbon Encore Inc.) were identified at 123 Woolwich Street from between 1986 through 2008 based on ERIS waste generator records.	123 Woolwich Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	ELE

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) (1)		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) (2)	Property Address / Location of PCA Onsite	Location of PCA (3)	PCA results in APEC	Resulting APEC	Rationale (4)	Information Source
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	99	Historical Garage - a building labeled 'Garage' was identified on the 1929 FIP at 98 Quebec Street.	98 Quebec Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	100	Historical UST - Two USTs were identified on the 1929 FIP at 98 Quebec Street in front of a building labeled garage.	98 Quebec Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
31	Ink Manufacturing, Processing and Bulk Storage	101	Historical Printing Operation - a newspaper publisher (Echo Weekly) was identified at 55 Wyndham Street North (Suite T 19B) based on ERIS Scott's Manufacturing records, indicating an established date of 1997 .	55 Wyndham Street North	Offsite	No		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	ELE
57	Vehicles and Associated Parts Manufacturing	102	Historical Carriage Goods Manufacturing - Guelph Carriage Goods Co. (1892 FIP), Penfolds Carriage Factory (1892, 1897 and 1911 FIPs) and J. B. Armstrong Mfg. Co. Ltd, (1897 and 1911 FIPs) were located in what was referred to as the "Armstrong Block", between Quebec and Macdonell Streets. The operations included a spring shop, machine shop, woodworking, storage, blacksmith, warehouse.	between Quebec and Macdonell Streets	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	103	Historical Garage - a building labeled 'Garage' was identified on the 1929 FIP at 82-84 Macdonell Street.	82-84 Macdonell Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
31	Ink Manufacturing, Processing and Bulk Storage	104	Historical Printing Operation - a former printing operation (Kwik Kopy Printing) was identified at 27 Wyndham Street based on ERIS Scott's Manufacturing records (established 1984).	27 Wyndham St N	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	ELE
28	Gasoline and Associated Products Storage in Fixed Tanks	105	Historical UST - a UST was identified on the 1929 FIP at 84 Macdonell Street, in front of a building labeled garage.	84 Macdonell Street	Offsite	NO		Hydraulically transgradient/ downgradient, and distance is greater than 100 m from the Phase One Property	FIP
39	Paints Manufacturing, Processing and Bulk Storage	106	Former Paint Shop - Paint shop located on 17 Quebec Street (1911 FIP).	17 Quebec Street	Offsite	NO		Based on site-specific groundwater flow, this location is hydraulically transgradient from the Phase One Property. Distance is greater than 50 m from the Phase One Property	FIP
39	Paints Manufacturing, Processing and Bulk Storage	107	Historical Painting Storage - A building labeled "Paints" was identified on the 1911 and 1916 FIPs at 29 Quebec Street	29 Quebec Street	Offsite	NO		Based on site-specific groundwater flow, this location is hydraulically transgradient from the Phase One Property. Distance is greater than 50 m from the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	108	Historical l Automotive Repair - a building labeled "Garage" and "National Automotive Implements" is present on the 1929 and 1946 FIPs, respectively, at 40 Cork Street East.	40 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
37	Operation of Dry Cleaning Equipment (where chemicals are used)	109	Historical Potential Dry Cleaning - 'Cleaning & Pressing' identified on the 1911 FIP at 44 Cork Street East	44 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
31	Ink Manufacturing, Processing and Bulk Storage	110	Historical Printing Operation- a former printing business (The Printery) was identified at 46 Cork Street East (Unit 1), established in1990 based on ERIS Scott's Manufacturing records.	46 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	ELE
31	Ink Manufacturing, Processing and Bulk Storage	111	Historical Printing Operation - a former printing operation (Justified Type) was identified at 19 Cork Street East in1987 based on ERIS Scott's Manufacturing records and waste generator records for 2005 to 2012.	19 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	ELE
34	Metal Fabrication	112	Historical Blacksmith - Blacksmith identified at 39-41 Cork Street East on the 1911 and 1916 FIP	39-41 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) (1)		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) (2)	Property Address / Location of PCA Onsite	Location of PCA (3)	PCA results in APEC	Resulting APEC	Rationale (4)	Information Source
37	Operation of Dry Cleaning Equipment (where chemicals are used)	113	Historical Potential Dry Cleaning - 'Cleaning & Pressing' identified on the 1911 FIP at 45 Cork Street East	45 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
31	Ink Manufacturing, Processing and Bulk Storage	114	Historical Printing Operations - a building labeled printing is identified on the 1911 to 1946 FIPs at 47 Cork Street East	47 Cork Street East	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	115	Historical UST - a UST was identified at 34 Wyndham Street North based on ERIS spill report of a leak in 1991 due to corrosion where a reported 450 L of hydraulic oil was released to soil and groundwater.	34 Wyndham Street North	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	ELE
37	Operation of Dry Cleaning Equipment (where chemicals are used)	116	Historical Potential Dry Cleaning - 'Chinese Laundry' identified on the 1911 and 1916 FIPs at 36 Macdonell Street, and on the 1929 and 1946 FIPs at 30 1/2 Macdonell Street	36 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
28	Gasoline and Associated Products Storage in Fixed Tanks	117	Historical USTs - four USTs are identified in front of 20-26 Macdonell Street on the 1929 and the two west USTs remain on the 1946 FIP.	20-26 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
34	Metal Fabrication	118	Historical Blacksmith - Blacksmith identified at 131 Macdonell Street on the 1911 and 1916 FIP	131 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	119	Historical l Automotive Repair - a series of buildings labeled 'Garage/Repair Shop', 'AutoBody Repairs' are present on the 1929 FIPs at 6-16 Macdonell Street. The 1946 FIP shows the operations with a reduced footprint of just 6-10 Macdonell Street.	6-16 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
31	Ink Manufacturing, Processing and Bulk Storage	120	Historical Printers - The Thompson Co. Ltd. Guelph Daily Mercury was located at 8-14 Macdonell Street as identified on the 1960 FIP. The ERIS report identified Scott's Manufacturing and waste generator records from 1989 to 2014 for paint, pigments, coatings, aromatic solvents, waste oils, and photo processing wastes. In 2002, a spill of 100 Gallons of soy based ink related to a fire was identified based on ERIS spill records.	8-14 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP, ELE
28	Gasoline and Associated Products Storage in Fixed Tanks	121	Historical USTs - four USTs are identified in front of 6-10 Macdonell Street (Garage) on the 1929 and 1946 FIPs.	6-10 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
37	Operation of Dry Cleaning Equipment (where chemicals are used)	122	Historical Potential Dry Cleaning - 'Chinese Laundry' identified on the 1911 and 1916 FIPs at 8 Carden Street.	8 Carden Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
37	Operation of Dry Cleaning Equipment (where chemicals are used)	123	Potential Historical Dry Cleaning - 'Cleaner & Presser' identified on the 1946 FIP at 21 Macdonell Street	21 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
Other	Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	124	Historical Coal Shed - a coal shed is identified on the 1911, 1916 and 1929 FIPs at 18-20 Carden, extending to Macdonell Street.	18-20 Carden	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
37	Operation of Dry Cleaning Equipment (where chemicals are used)	125	Historical Potential Dry Cleaning - Master Cleaners is identified on the 1960 FIP at 18-22 Carden Street	18-22 Carden Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
34	Metal Fabrication	126	Historical Tinsmith - Tinsmith/Tin Shop indicated on the 1911 to 1946 FIP at 31 Macdonell Street	31 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP
10	Commercial Autobody Shops	127	Historical Autobody Shop - Pruss Bros. Body & Fender Works were identified at 37 Macdonell Street on the 1946 FIP	37 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 100 m from the Phase One Property	FIP

Table 4-2. Potentially Contaminating Activities

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph Ontario

Potentially Contaminating Activity (PCA) [1]		PCA Unique ID	Descriptions of PCAs (in Phase One ESA Summary) [2]	Property Address / Location of PCA Onsite	Location of PCA [3]	PCA results in APEC	Resulting APEC	Rationale [4]	Information Source
Other	Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	128	Spill - A spill of 200-300 L of anti-freeze to the road an catch basin at 55 Macdonell Street in 2015 was identified based on ERIS spill records.	55 Macdonell Street	Offsite	NO		Hydraulically transgradient, and distance is greater than 200 m from the Phase One Property	ELE
Other	Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	129	Historical Coal Shed - A coal shed is shown beside the Canadian Pacific Railway lines on the 1911 to 1946 FIPs	Between Cardigan Street and the Rail Lines	Offsite	NO		Hydraulically transgradient/ downgradient to the Phase One Property	FIP

Notes

[1] PCA – potentially contaminating activity (as defined by O.Reg. 153/04)

[2] PCAs 1 to 56 were identified in the Pinchin Phase One ESA (2018), and descriptions have been updated where applicable for clarity. Additional PCAs (57 and above) were identified by Jacobs.

[3] Refer to Figure 8 and 9 for PCA locations.

[4] Regional groundwater flow was inferred to be towards Speed River (north to north-east); site-specific groundwater flow was shown to be towards the north on the north portion of the Site, and to the east on the southern portion of the Site (based on the Phase Two ESA [Jacobs, 2020]). Some of the updgradient/downgradient terminology may have changed from the Pinchin (2018) report based on this updated interpretation.

APEC = Area of Potential Environmental Concern
AST = Aboveground storage tank
CDL = City Directory Listings
ELE = EcoLog ERIS Database Search
FIP = Fire insurance plan
HER = Historical Environmental Reports
ID = Identification
mbgs = metres below ground surface
MECP = Ontario Ministry of the Environment, Conservation and Parks
offsite = Within Phase One Study area, outside the Phase One Property
onsite = Phase One Property
PCA = Potentially contaminating activity
PCE = tetrachloroethylene
SR = site reconnaissance
UST = Underground storage tank

Table 4-3. Areas of Potential Environmental Concern

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Areas of Potential Environmental Concern [a]	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity [b]	Location of PCA (on-site or off-site) [c]	Contaminants of Potential Concern [d]	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-1 Historical Industrial Property Use	55 Baker Street Park Lane	34 Metal Fabrication	Onsite	Metals, hydride-forming Metals, ORPs (Hg, CrVI, B-HWS, CN-, EC, SAR), PHCs, PAHs, VOCs, BTEX	Soil and Groundwater
APEC-2 Unknown/Poor Quality Fill Material	Entire Site	30 Importation of Fill Material of Unknown Quality	Onsite	Metals, hydride-forming Metals, ORPs (Hg, CrVI, B-HWS, CN-, EC, SAR), PHCs, PAHs, VOCs, BTEX	Soil and Groundwater
APEC-3 Historical Transformers	East-central portion of 55 Baker Street	55 Transformer Manufacturing, Processing and Use	Onsite	PHCs, BTEX, PCBs, PAHs	Soil
APEC-4 Use of Road Salts	Entire Site	48 Salt Manufacturing, Processing and Bulk Storage	Onsite	EC, SAR, sodium, chloride	Soil and Groundwater
APEC-5 Historical Dry Cleaning	North portion of 55 Baker Street	37 Operation of Dry Cleaning Equipment (where chemicals are used)	Offsite - North	VOCs	Groundwater
APEC-6 Historical Retail Fuel Outlet, Historical UST, Historical Automotive repair/servicing and Historical Iron Foundry	North portion of 55 Baker Street	27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Offsite - North	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	Groundwater
		28 Gasoline and Associated Products Storage in Fixed Tanks			
		32 Iron and Steel Manufacturing and Processing			
APEC-7 Potential Historical Dry Cleaning	North portion of 55 Baker Street	37 Operation of Dry Cleaning Equipment (where chemicals are used)	Offsite - North	VOCs	Groundwater
APEC-8 Potential Historical Dry Cleaning, Historical Garage and Historical UST	North portion of 160 Wyndham Street North and northeast portion of 55 Baker Street	27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Offsite - Northeast	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	Groundwater
		28 Gasoline and Associated Products Storage in Fixed Tanks			
		37 Operation of Dry Cleaning Equipment (where chemicals are used)			
APEC-9 Historical Fuel Oil UST	North portion of 55 Baker Street	28 Gasoline and Associated Products Storage in Fixed Tanks	Offsite - Northeast	PHCs, VOCs, BTEX, PAHs, Metals (Lead)	Groundwater
APEC-10 Historical Automotive Repair	Northeast portion of 55 Baker Street	27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Offsite - Northeast	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	Groundwater
APEC-11 Historical Off-Site Industrial Operations, Historical UST and Historical Fuel Oil Tank	West-central portion of 55 Baker Street	34 Metal Fabrication	Offsite - West	Metals, hydride-forming Metals, ORPs (Hg, CrVI, B-HWS, CN-, EC, SAR), PHCs, PAHs, VOCs, BTEX	Groundwater
		28 Gasoline and Associated Products Storage in Fixed Tanks			
APEC-12 Historical Automotive Garage, Historical USTs and Historical Industrial Operations	West-central portion of 55 Baker Street	27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Offsite - West	Metals, hydride-forming Metals, ORPs (Hg, CrVI, B-HWS, CN-, EC, SAR), PHCs, PAHs, VOCs, BTEX	Groundwater
		28 Gasoline and Associated Products Storage in Fixed Tanks			
		34 Metal Fabrication			
APEC-13 Historical Automotive Garage	South portion of 152 Wyndham Street North	27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Offsite - East	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	Groundwater
APEC-14 Historical Gasoline Spill	Southwest corner of 55 Baker Street	Other Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	Offsite - South	PHCs, PAHs, VOCs (MTBE), BTEX	Groundwater
APEC-15 Historical Dry Cleaning	Southeast portion of Park Lane	37 Operation of Dry Cleaning Equipment (where chemicals are used)	Offsite - East	VOCs	Groundwater

Table 4-3. Areas of Potential Environmental Concern

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Areas of Potential Environmental Concern [a]	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity [b]	Location of PCA (on-site or off-site) [c]	Contaminants of Potential Concern [d]	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC-16 Historical AST and UST	Southwest corner of 55 Baker Street	28 Gasoline and Associated Products Storage in Fixed Tanks	Offsite - South	PHCs, VOCs, BTEX, PAHs, Metals (Lead)	Groundwater
APEC-17 Historical Service Station, Historical Dry Cleaning Operation, Historical Automotive Repair, Historical Coah and Body Manufacturing, Historical Industrial Property Use	Northwest portion of 55 Baker Street	27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Offsite - Northwest	Metals, hydride-forming Metals, ORPs (Hg, CrVI, B-HWS, CN-, EC, SAR), PHCs, PAHs, VOCs, BTEX	Groundwater
		28 Gasoline and Associated Products Storage in Fixed Tanks			
		37 Operation of Dry Cleaning Equipment (where chemicals are used)			
		34 Metal Fabrication			
		57 Vehicles and Associated Parts Manufacturing			
APEC-18 Former Oil Shed	Southwest portion of 55 Baker Street	28 Gasoline and Associated Products Storage in Fixed Tanks	Onsite	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	Soil and Groundwater
APEC-19 Former Oil House	Western portion of 152 Wyndham Street North	28 Gasoline and Associated Products Storage in Fixed Tanks	Onsite	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	Soil and Groundwater
APEC-20 Former Coke Storage	Northeast portion of 55 Baker Street	Other Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	Onsite	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX, ABNs	Soil and Groundwater
APEC-21 Former Garage	Northeast portion of 55 Baker Street	27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Onsite	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	Soil and Groundwater
APEC-22 Historical Dry Cleaning Operations, Historical UST and Former Coal Yard	Southwest portion of 55 Baker Street	28 Gasoline and Associated Products Storage in Fixed Tanks	Offsite	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	Groundwater
		37 Operation of Dry Cleaning Equipment (where chemicals are used)			
		Other Activity not defined in O. Reg. 153/04 Table 2 of Schedule D			

Notes:

[a] APEC means the area on, in, or under a Phase One Property where one or more contaminants are potentially present, as determined through the Phase One ESA, including through (a) identification of past or present uses on, in, or under the Phase One Property; and (b) identification of PCAs.

APECs 1 to 16 were identified in the Pinchin (2018) Phase One ESA. Additional PCAs were added to offsite APECs 6, 11 and 12 as part of the Phase One ESA Update (Jacobs 2021). APECs 17 to 22 were identified by Jacobs (2021).

[b] PCA – potentially contaminating activity means a use or activity as set out in Column A of Table 2 of Schedule D of O. Reg. 153/04 that is occurring or has occurred in a Phase One study area.

[c] "Onsite" refers to within the Phase One/Two Property; "Offsite" refers to the Phase One Study Area.

[d] Contaminants of potential concern were identified using the Method Groups as identified in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011.

ABN = Acid Base Neutrals
APEC = Area of Potential Environmental Concern
B-HWS = hot water soluble boron
BTEX = benzene, toluene, ethylbenzene and xylenes
CN- = cyanide
COPC = contaminant of potential concern
CrVI = hexavalent chromium
EC = electrical conductivity
Hg = mercury
MTBE = methyl tert-butyl ether
O. Reg. = Ontario Regulation
ORP = other regulated parameter
PAH = Polyaromatic Hydrocarbons
PCB = Polychlorinated biphenyl
PHC = Petroleum Hydrocarbons
SAR = sodium adsorption ratio
UST = underground storage tank
VOC = Volatile Organic Compounds

Table 6-1. Monitoring Well Construction Details

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane and Park Lane, Guelph, Ontario

Well	Northing	Easting	Top of Pipe Elevation (masl)	Ground Surface Elevation (masl)	Installation Date	Well Inner Diameter	Screened Interval				Screened Material
							Start (mbgs)	End (mbgs)	Start (masl)	End (masl)	
BH16-MW2	4821788.6	560489.9	329.43	329.52	November 26, 2008	50 mm	6.00	8.70	323.52	320.82	Bedrock
BH17-MW5D	4821889.2	560432.9	329.65	329.70	November 27, 2008	50 mm	8.50	10.60	321.20	319.10	Bedrock
BH17-MW5S	4821890.0	560433.1	329.65	329.70	November 27, 2008	50 mm	2.50	5.10	327.20	324.60	Silty Sand
MW100	4821807.2	560474.8	329.84	329.93	August 22, 2019	50 mm	5.49	8.53	324.44	321.40	Bedrock
MW101	4821749.6	560553.9	328.52	328.68	August 21, 2019	50 mm	5.72	8.76	322.97	319.92	Silty Sand / Bedrock
MW102A	4821899.0	560437.7	329.35	329.49	August 27, 2019	50 mm	2.13	5.18	327.36	324.31	Sand / Sandy Clayey Silt Till
MW102B	4821899.7	560436.3	329.42	329.52	August 26, 2019	50 mm	8.84	10.36	320.68	319.16	Bedrock
MW103	4821888.4	560449.6	329.34	329.52	August 14, 2019	50 mm	2.13	5.18	327.39	324.34	Silty Sand / Clayey Silt / Sandy Silt / Silt
MW104	4821866.9	560460.4	329.64	329.79	August 13, 2019	50 mm	5.94	8.99	323.85	320.80	Sand / Sandy Clayey Silt Till / Bedrock
MW105	4821820.9	560450.9	329.99	330.10	August 13, 2019	50 mm	5.64	8.69	324.46	321.41	Clayey Silt Till / Silty Sand / Bedrock
MW107	4821768.8	560464.0	329.03	329.17	August 19, 2019	50 mm	5.33	8.38	323.84	320.79	Bedrock
MW107B	4821768.7	560464.8	329.00	329.17	November 20, 2019	50 mm	13.87	15.39	315.30	313.78	Bedrock
MW108	4821875.5	560485.9	329.28	329.38	August 16, 2019	50 mm	6.71	9.75	322.67	319.63	Bedrock
MW109	4821849.8	560485.3	329.91	329.99	August 15, 2019	50 mm	7.32	10.36	322.67	319.63	Bedrock
MW110A	4821775.42	560498.06	329.13	329.05	Nov. 19, 2019	50 mm	5.33	8.38	323.72	320.67	Bedrock
MW110B	4821775.23	560497.92	329.13	328.65	Nov. 19, 2019	50 mm	13.87	15.39	314.78	313.26	Bedrock
MW111	4821830.19	560456.5	330.2	330.06	Nov. 18, 2019	50 mm	13.87	15.39	316.19	314.67	Bedrock
MW113	4821735.43	560472.83	328.25	328.34	April 9, 2020	50 mm	5.18	8.23	323.16	320.11	Bedrock

Notes:

masl = metre(s) above sea level

mbgs = metre(s) below ground surface

mm = millimetre(s)

MW = monitoring well

Table 6-2. Groundwater Measurements

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

							September 11, 2019				September 18, 2019				December 18, 2019				April 15, 2020			
Well IDs	Screened Material	Hydrogeolgic Unit	Top of Screen (mbgs)	Bottom of Screen (mbgs)	Top pf Pipe (masl)	Ground Elevation (masl)	Water Level (mbtoc)	NAPL (mbtoc)	Groundwater Elevation (masl)	Depth to Groundwater (mbgs)	Water Level (mbtoc)	NAPL (mbtoc)	Groundwater Elevation (masl)	Depth to Groundwater (mbgs)	Water Level (mbtoc)	NAPL (mbtoc)	Groundwater Elevation (masl)	Depth to Groundwater (mbgs)	Water Level (mbtoc)	NAPL (mbtoc)	Groundwater Elevation (masl)	Depth to Groundwater (mbgs)
Silt																						
BH-17-MW5S	Silty Sand	Perched Groundwater	2.50	5.10	329.65	329.70	--	--	--	--	4.48	--	325.17	4.53	--	--	--	--	--	--	--	--
MW102A	Sand / Sandy Clayey Silt Till	Perched Groundwater	2.13	5.18	329.35	329.49	4.17	--	325.19	4.31	4.23	--	325.12	4.37	4.32	--	325.04	4.45	3.78	--	325.57	3.92
MW103	Silty Sand / Clayey Silt / Sandy Silt / Silt	Perched Groundwater	2.13	5.18	329.34	329.52	3.93	--	325.41	4.11	3.97	--	325.38	4.14	3.82	--	325.52	4.00	3.60	--	325.74	3.78
Bedrock																						
BH16-MW2	Bedrock	Bedrock Aquifer	6.00	8.70	329.43	329.52	--	--	--	--	7.29	--	322.14	7.38	7.35	--	322.08	7.44	6.71	--	322.72	6.80
BH17-MW5D	Bedrock	Bedrock Aquifer	8.50	10.60	329.65	329.70	--	--	--	--	8.26	--	321.40	8.31	--	--	--	--	--	--	--	--
MW100	Bedrock	Bedrock Aquifer	5.49	8.53	329.84	329.93	7.27	--	322.57	7.36	7.39	--	322.46	7.48	7.61	--	322.24	7.70	7.03	--	322.81	7.12
MW101	Silty Sand / Bedrock	Bedrock Aquifer	5.72	8.76	328.52	328.68	7.33	--	321.19	7.49	7.38	--	321.14	7.54	7.34	--	321.19	7.50	6.69	--	321.83	6.85
MW102B	Bedrock	Bedrock Aquifer	8.84	10.36	329.42	329.52	7.87	--	321.55	7.97	7.99	--	321.43	8.09	8.12	--	321.30	8.22	7.62	--	321.80	7.72
MW104	Sand / Sandy Clayey Silt Till / Bedrock	Bedrock Aquifer	5.94	8.99	329.64	329.79	8.33	--	321.32	8.48	8.41	--	321.24	8.56	8.51	--	321.13	8.66	8.18	--	321.46	8.33
MW105	Clayey Silt Till / Silty Sand / Bedrock	Bedrock Aquifer	5.64	8.69	329.99	330.10	8.14	--	321.85	8.25	8.27	--	321.72	8.38	8.32	--	321.67	8.43	7.83	--	322.16	7.94
MW107	Sandy Gravel / Bedrock	Bedrock Aquifer	5.33	8.38	329.03	329.17	6.31	--	322.72	6.45	6.34	--	322.69	6.48	6.32	--	322.72	6.46	6.13	--	322.90	6.27
MW108	Bedrock	Bedrock Aquifer	6.71	9.75	329.28	329.38	7.95	--	321.33	8.05	8.04	--	321.25	8.14	7.99	--	321.30	8.09	7.80	--	321.48	7.90
MW109	Bedrock	Bedrock Aquifer	7.32	10.36	329.91	329.99	8.18	--	321.73	8.26	8.21	--	321.70	8.29	8.21	--	321.70	8.29	7.80	--	322.11	7.88
MW110A	Bedrock	Bedrock Aquifer	5.33	8.38	328.96	329.13	--	--	--	--	--	--	--	--	7.2	--	321.76	7.37	6.62	--	322.34	6.79
MW113	Bedrock	Bedrock Aquifer	5.18	8.23	328.25	328.34	--	--	--	--	--	--	--	--	--	--	--	--	5.74	--	322.51	5.83
MW107B	Bedrock	Deep Bedrock Aquifer	13.87	15.39	329.00	329.17	--	--	--	--	--	--	--	--	6.81	--	322.19	6.98	6.64	--	322.36	6.81
MW110B	Bedrock	Deep Bedrock Aquifer	13.87	15.39	329.05	329.13	--	--	--	--	--	--	--	--	7.61	--	321.44	7.69	7.03	--	322.02	7.11
MW111	Bedrock	Deep Bedrock Aquifer	13.87	15.39	330.01	330.20	--	--	--	--	--	--	--	--	8.92	--	321.09	9.11	8.62	--	321.39	8.81

Notes:
-- = not measured
ID = identification
m = metre(s)
masl = metre(s) above sea level
mbgs = metre(s) below ground surface
mbtoc = metre(s) below top of casing
NAPL = nonaqueous phase liquid

Table 6-3. Summary of Hydraulic Conductivity Values

55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario

Well IDs	Date of Test	Screen Top (mbgs)	Screen Bottom (mbgs)	Type of Test	Perched, Confined, Unconfined	Lithology	Analytical Test	Hydraulic Conductivity (m/s)	Location Average Hydraulic Conductivity (m/s)	Geometric Average Hydraulic Conductivity (m/s)	Geometric Average Hydraulic Conductivity (m/d)
MW102A	September 11, 2019	2.13	5.18	Rising	Perched	Silt	Bouwer & Rice, 1976	7.4E-07	7.1E-07	1.6E-07	1.4E-02
MW102A	September 11, 2019	2.13	5.18	Rising	Perched	Silt	Bouwer & Rice, 1976	6.8E-07			
MW103	September 11, 2019	2.13	5.18	Rising	Perched	Silt	Bouwer & Rice, 1976	3.6E-08	3.6E-08		
MW101	September 11, 2019	5.72	8.76	Rising	Unconfined	Bedrock	Bouwer & Rice, 1976	2.5E-06	2.4E-06	6.0E-06	5.2E-01
MW101	September 11, 2019	5.72	8.76	Rising	Unconfined	Bedrock	Bouwer & Rice, 1976	2.3E-06			
MW107	September 11, 2019	5.33	8.38	Rising	Unconfined	Bedrock	Bouwer & Rice, 1976	1.9E-04	2.0E-04		
MW107	September 11, 2019	5.33	8.38	Rising	Unconfined	Bedrock	Bouwer & Rice, 1976	2.0E-04			
MW107	September 11, 2019	5.33	8.38	Rising	Unconfined	Bedrock	Bouwer & Rice, 1976	2.0E-04			
MW107	September 11, 2019	5.33	8.38	Rising	Unconfined	Bedrock	Bouwer & Rice, 1976	2.0E-04			
MW107	September 11, 2019	5.33	8.38	Rising	Unconfined	Bedrock	Bouwer & Rice, 1976	2.0E-04			
MW109	September 11, 2019	7.32	10.36	Rising	Unconfined	Bedrock	Bouwer & Rice, 1976	5.3E-07	4.9E-07		
MW109	September 11, 2019	7.32	10.36	Rising	Unconfined	Bedrock	Bouwer & Rice, 1976	4.6E-07			

Notes:

ID = identification

m/s = metre(s) per second

m/d = metre(s) per day

mbgs = metre(s) below ground surface

Table 6-4. APEC Disposition Table

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Areas of Potential Environmental Concern (APEC)		PCA [a.]		Contaminants of Potential Concern [b]	Location Associated with APEC Area	Location Type	List of Parameter Groups Tested (Soil) [b.]	List of Parameter Groups Tested (GW) [b.]
APEC-1	Historical Industrial Property Use	34	Metal Fabrication	Metals, hydride-forming Metals, ORPs (Hg, CrVI, B-HWS, CN-, EC, SAR), PHCs, PAHs, VOCs, BTEX	BH-03	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
					BH-04	BH	Metals (missing Uranium)*, PCBs, PHCs	--
					BH-10	BH	Metals (missing Uranium)*, PAHs	--
					BH-11	BH	Metals (missing Uranium)*, PAHs, PHCs	--
					BH-14	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
					BH-16-MW2	BH	Metals (missing Uranium)*, PCBs, PHCs	--
					BH-17-MW5S	BH	Metals (missing Uranium)*, PHCs	--
					BH200	BH	BTEX, ORPs, Metals, PAHs, PCBs, PHCs, VOCs	--
					BH201	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH202	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH207	BH	PHCs	--
					BH208	BH	PAHs	--
					BH209	BH	Metals, PCBs	--
					MW100	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW102A	MW	--	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW102B	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW103	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW104	MW	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW105	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW111	MW	--	ORPs, Metals
APEC-2	Unknown/Poor Quality Fill Material	30	Importation of Fill Material of Unknown Quality	Metals, hydride-forming Metals, ORPs (Hg, CrVI, B-HWS, CN-, EC, SAR), PHCs, PAHs, VOCs, BTEX	BH-03	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
					BH-04	BH	Metals (missing Uranium)*, PCBs, PHCs	--
					BH-05	BH	Metals (missing Uranium)*	--
					BH-06	BH	Metals (missing Uranium)*	--
					BH-07	BH	Metals (missing Uranium)*	--
					BH-08-MW4	BH	BTEX, Metals (missing Uranium)*, PCBs, PHCs, VOCs	--
					BH-09	BH	Metals (missing Uranium)*	--
					BH-10	BH	Metals (missing Uranium)*, PAHs	--
					BH-11	BH	Metals (missing Uranium)*, PAHs, PHCs	--
					BH-13	BH	Metals (missing Uranium)*, PHCs	--
					BH-14	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
					BH-15-MW3	BH	Metals (missing Uranium)*, PHCs	--
					BH-16-MW2	BH	Metals (missing Uranium)*, PCBs, PHCs	--
					BH-17-MW5S	BH	Metals (missing Uranium)*, PHCs	--
					BH200	BH	BTEX, ORPs, Metals, PAHs, PCBs, PHCs, VOCs	--
					BH201	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH202	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH203	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH204	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH205	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH206	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH207	BH	PHCs	--
					BH208	BH	PAHs	--
					BH209	BH	Metals, PCBs	--
					BH210	BH	Metals	--
					BH211	BH	Metals	--
					MW100	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW101	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW102A	MW	--	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW102B	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW103	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW104	MW	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW105	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW107	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW107B	MW	--	ORPs, Metals

Table 6-4. APEC Disposition Table

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Areas of Potential Environmental Concern (APEC)		PCA [a.]		Contaminants of Potential Concern [b]	Location Associated with APEC Area	Location Type	List of Parameter Groups Tested (Soil) [b.]	List of Parameter Groups Tested (GW) [b.]
					MW108	MW	BTEX, Dioxins/Furans, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW109	MW	BTEX, Dioxins/Furans, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW110A	MW	--	ORPs, Metals
					MW110B	MW	--	ORPs, Metals
					MW111	MW	--	ORPs, Metals
					MW113	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-3	Historical Transformers	55	Transformer Manufacturing, Processing and Use	PHCs, BTEX, PCBs, PAHs	BH200	BH	BTEX, ORPs, Metals, PAHs, PCBs, PHCs, VOCs	--
					BH209	BH	Metals, PCBs	--
APEC-4	Use of Road Salts	48	Salt Manufacturing, Processing and Bulk Storage	EC, SAR, sodium, chloride	BH-03	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
					BH-04	BH	Metals (missing Uranium)*, PCBs, PHCs	--
					BH-05	BH	Metals (missing Uranium)*	--
					BH-06	BH	Metals (missing Uranium)*	--
					BH-07	BH	Metals (missing Uranium)*	--
					BH-08-MW4	BH	BTEX, Metals (missing Uranium)*, PCBs, PHCs, VOCs	--
					BH-09	BH	Metals (missing Uranium)*	--
					BH-10	BH	Metals (missing Uranium)*, PAHs	--
					BH-11	BH	Metals (missing Uranium)*, PAHs, PHCs	--
					BH-13	BH	Metals (missing Uranium)*, PHCs	--
					BH-14	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
					BH-15-MW3	BH	Metals (missing Uranium)*, PHCs	--
					BH-16-MW2	BH	Metals (missing Uranium)*, PCBs, PHCs	--
					BH-17-MW5S	BH	Metals (missing Uranium)*, PHCs	--
					BH200	BH	BTEX, ORPs, Metals, PAHs, PCBs, PHCs, VOCs	--
					BH201	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH202	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH203	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH204	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH205	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH206	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					BH207	BH	PHCs	--
					BH208	BH	PAHs	--
					BH209	BH	Metals, PCBs	--
					BH210	BH	Metals	--
					BH211	BH	Metals	--
					MW100	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW101	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW102A	MW	--	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW102B	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW103	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW104	MW	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW105	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW107	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW107B	MW	--	ORPs, Metals
					MW108	MW	BTEX, Dioxins/Furans, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW109	MW	BTEX, Dioxins/Furans, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW110A	MW	--	ORPs, Metals
					MW110B	MW	--	ORPs, Metals
					MW111	MW	--	ORPs, Metals
					MW113	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-5	Historical Dry Cleaning	37	Operation of Dry Cleaning Equipment (where chemicals are used)	VOCs	MW102A	MW	--	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW102B	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs

Table 6-4. APEC Disposition Table

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Areas of Potential Environmental Concern (APEC)		PCA [a.]		Contaminants of Potential Concern [b]	Location Associated with APEC Area	Location Type	List of Parameter Groups Tested (Soil) [b.]	List of Parameter Groups Tested (GW) [b.]
APEC-6	Historical Retail Fuel Outlet, Historical UST, Historical Automotive repair/servicing and Historical Iron Foundry	27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	MW102A	MW	--	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
		28	Gasoline and Associated Products Storage in Fixed Tanks		MW102B	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
		32	Iron and Steel Manufacturing and Processing					
APEC-7	Potential Historical Dry Cleaning	37	Operation of Dry Cleaning Equipment (where chemicals are used)	VOCs	MW102A	MW	--	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW102B	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-8	Potential Historical Dry Cleaning, Historical Garage and Historical UST	27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	VOCs	BH-03	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
		28	Gasoline and Associated Products Storage in Fixed Tanks		MW103	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
		37	Operation of Dry Cleaning Equipment (where chemicals are used)		MW104	MW	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW108	MW	BTEX, Dioxins/Furans, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-9	Historical Fuel Oil UST	28	Gasoline and Associated Products Storage in Fixed Tanks	PHCs, VOCs, BTEX, PAHs, Metals (Lead)	MW102A	MW	--	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW102B	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-10	Historical Automotive Repair	27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	MW103	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-11	Historical Off-Site Industrial Operations and Historical UST	28	Gasoline and Associated Products Storage in Fixed Tanks	Metals, hydride-forming Metals, ORPs (Hg, CrVI, B-HWS, CN-, EC, SAR), PHCs, PAHs, VOCs, BTEX	BH-14	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
					BH208	BH	PAHs	--
		34	Metal Fabrication		MW105	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-12	Historical Automotive Garage and Historical USTs	27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	BH-11	BH	Metals (missing Uranium)*, PAHs, PHCs	--
		28	Gasoline and Associated Products Storage in Fixed Tanks		BH201	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
		34	Metal Fabrication		MW105	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-13	Historical Automotive Garage	27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	BH206	BH	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	--
					MW109	MW	BTEX, Dioxins/Furans, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-14	Historical Gasoline Spill	Other	Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	PHCs, PAHs, VOCs (MTBE), BTEX	BH-07	BH	Metals (missing Uranium)*	--
					MW113	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-15	Historical Dry Cleaning	37	Operation of Dry Cleaning Equipment (where chemicals are used)	VOCs	MW101	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-16	Historical Above Ground Storage Tank and UST	28	Gasoline and Associated Products Storage in Fixed Tanks	PHCs, VOCs, BTEX, PAHs, Metals (Lead)	BH-07	BH	Metals (missing Uranium)*	--
					MW113	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-17	Historical Service Station, Historical Dry Cleaning Operation, Historical Automotive Repair, Historical Coah and Body Manufacturing, Historical Industrial Property Use	27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Metals, hydride-forming Metals, ORPs (Hg, CrVI, B-HWS, CN-, EC, SAR), PHCs, PAHs, VOCs, BTEX	BH-17-MW5S	BH	Metals (missing Uranium)*, PHCs	--
		28	Gasoline and Associated Products Storage in Fixed Tanks		MW102A	MW	--	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
		34	Metal Fabrication					
		37	Operation of Dry Cleaning Equipment (where chemicals are used)		MW102B	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
		57	Vehicles and Associated Parts Manufacturing					
APEC-18	Former Oil Shed	28	Gasoline and Associated Products Storage in Fixed Tanks	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	BH-08-MW4	BH	BTEX, Metals (missing Uranium)*, PCBs, PHCs, VOCs	--
					MW107	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
					MW107B	MW	--	ORPs, Metals

Table 6-4. APEC Disposition Table

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Areas of Potential Environmental Concern (APEC)		PCA [a.]		Contaminants of Potential Concern [b]	Location Associated with APEC Area	Location Type	List of Parameter Groups Tested (Soil) [b.]	List of Parameter Groups Tested (GW) [b.]
APEC-19	Former Oil House	28	Gasoline and Associated Products Storage in Fixed Tanks	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	MW109	MW	BTEX, Dioxins/Furans, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-20	Former Coke Storage	Other	Activity not defined in O. Reg. 153/04 Table 2 of Schedule D	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX, ABNs	BH-03	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
					MW104	MW	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-21	Former Garage	27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	BH-03	BH	BTEX, Metals (missing Uranium)*, PAHs, PHCs, VOCs	--
					MW104	MW	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs	ABNs, BTEX, ORPs, Metals, PAHs, PHCs, VOCs
APEC-22	Historical Dry Cleaning Operations, Historical UST and Former Coal Yard	28	Gasoline and Associated Products Storage in Fixed Tanks	Metals, hydride-forming Metals, ORPs (Hg, CrVI), PHCs, PAHs, VOCs, BTEX	MW107	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs
		37	Operation of Dry Cleaning Equipment (where chemicals are used)		MW107B	MW	--	ORPs, Metals
		Other	Activity not defined in O. Reg. 153/04 Table 2 of Schedule D		MW113	MW	BTEX, ORPs, Metals, PAHs, PHCs, VOCs	BTEX, ORPs, Metals, PAHs, PHCs, VOCs

Notes:

[a] PCA – potentially contaminating activity means a use or activity as set out in Column A of Table 2 of Schedule D of O. Reg. 153/04 that is occurring or has occurred in a Phase One study area.

[b] AP Method groups as defined in the "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act* " dated July 1, 2011.

*Samples from 2008 were collected in accordance with O. Reg. 153/04, but are missing analysis of uranium, which was not regulated under the Regulation at the time of investigation. This data is considered valid for RSC purposes.

"--" = no data for the specified media

As = arsenic
ABNs = acid base neutral compounds
APEC = area of potential environmental concern
BH = borehole
B-HWS = boron - hot water soluble
BTEX = benzene, toluene, ethylbenzene, xylene
CN- = cyanide
COC = contaminant of concern
CrVI = hexavalent chromium
EC = electrical conductivity
ERIS = environmental risk information services
FIP = fire insurance plan
GW = groundwater
Hg = mercury
MECP = Ontario Ministry of Environment, Conservation and Parks
Metals = Metals, hydride-forming metals
MW = monitoring well
ORPs = Other Regulated Parameters
PAHs = polyaromatic hydrocarbons
PCA = potentially contaminating activity
PCBs = polychlorinated biphenyls
PHCs = petroleum hydrocarbons
SAR = sodium adsorption ratio
Sb = antimony
Se = selenium
UST = underground storage tank
VOCs = volatile organic compounds

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH-03	BH-04	BH-05	BH-06	BH-07	BH-08-MW4		BH-09	BH-10	BH-11	BH-13	BH-14	BH-15-MW3	BH-16-MW2	BH-17-MW5S	BH200			
		Sample ID	BH-3 (SS2)	BH-4 (SS2)	BH-5 (SS2)	BH-6 (SS5)	BH-7 (SS2)	BH-8 (SS4)	BH-X-NOV25	BH-9 (SS3)	BH-10 (SS1)	BH-11 (SS2)	BH-13 (SS3)	BH-14 (SS2)	BH-15 (SS1)	BH-16 (SS2)	BH-17 (SS3)	DUP1	BH200-35-40	BH200-7.5-9.5	BH200-15-17
		Sample Date	11/27/2008	11/26/2008	11/25/2008	11/25/2008	11/25/2008	11/25/2008	11/25/2008	11/26/2008	11/27/2008	11/27/2008	11/25/2008	11/25/2008	11/26/2008	11/26/2008	11/27/2008	7/23/2019	7/23/2019	8/12/2019	8/12/2019
		Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
		Start Depth	0.8	0.8	0.8	3.1	0.8	2.3	2.3	1.5	0	0.8	1.5	0.8	0	0.8	1.5	0.89	0.89	2.29	4.57
		End Depth	1.4	1.4	1.4	3.7	1.2	2.9	2.9	2.2	0.6	1.4	2	1.4	0.6	1.4	2.1	1.01	1.01	2.9	5.18
Analyte	**Units**	**Table 2 SCS [a]**																			
Acids, Bases, Neutrals (ABNs)																					
1,1'-Biphenyl	ug/g	0.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/g	0.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4 & 2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/g	38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/g	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/g	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis (2-chloroethyl) ether	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
bis (2-Chloroisopropyl) ether	ug/g	0.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis (2-ethylhexyl) phthalate	ug/g	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethylphthalate	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethylphthalate	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	ug/g	9.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans																					
1,2,3,4,6,7,8-HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lower Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mid Point PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Inorganics																					
Conductivity	mS/cm	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.499**	**0.486**	**0.373**	--
Cyanide, Weak Acid Dissociable	ug/g	0.051	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U	0.05 U	--
pH	pH UNITS	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**7.37**	**7.44**	**8.19**	--
Sodium Absorption Ratio	SAR	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**10.1**	**7.63**	**5.12**	**10.2**
Metals																					
Antimony	ug/g	7.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Arsenic	ug/g	18	**1**	**2**	**2**	**1**	**2**	**1**	**1**	**2**	**2**	**1**	**1**	**2**	**4**	**3**	1 U	**3**	**3.2**	**1.8**	--
Barium	ug/g	390	**18**	**37**	**12**	**11**	**12**	**12**	**11**	**17**	**17**	**18**	**31**	**28**	**34**	**35**	**10**	**36.5**	**41.4**	**9.4**	--
Beryllium	ug/g	4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Boron	ug/g	120	0.1 U	0.1 U	0.1 U	0.1 U	**0.1**	0.1 U	0.1 U	0.1 U	**0.1**	0.1 U	0.1 U	**0.2**	**0.2**	**0.7**	0.1 U	5 U	**6.3**	5 U	--
Boron (Hot Water Ext.)	ug/g	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.29**	**0.26**	0.1 U	--
Cadmium	ug/g	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Chromium	ug/g	160	**7**	**12**	**5**	**4**	**6**	**5**	**6**	**7**	**6**	**8**	**4**	**7**	**9**	**12**	**5**	**12.9**	**15.2**	**5.6**	--
Chromium, Hexavalent (Cr6+)	ug/g	8	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.2 U	0.2 U	0.2 U	--

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH-03	BH-04	BH-05	BH-06	BH-07	BH-08-MW4		BH-09	BH-10	BH-11	BH-13	BH-14	BH-15-MW3	BH-16-MW2	BH-17-MW5S	BH200			
		Sample ID	BH-3 (SS2)	BH-4 (SS2)	BH-5 (SS2)	BH-6 (SS5)	BH-7 (SS2)	BH-8 (SS4)	BH-X-NOV25	BH-9 (SS3)	BH-10 (SS1)	BH-11 (SS2)	BH-13 (SS3)	BH-14 (SS2)	BH-15 (SS1)	BH-16 (SS2)	BH-17 (SS3)	DUP1	BH200-35-40	BH200-7.5-9.5	BH200-15-17
		Sample Date	11/27/2008	11/26/2008	11/25/2008	11/25/2008	11/25/2008	11/25/2008	11/25/2008	11/26/2008	11/27/2008	11/27/2008	11/25/2008	11/25/2008	11/26/2008	11/26/2008	11/27/2008	7/23/2019	7/23/2019	8/12/2019	8/12/2019
		Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
		Start Depth	0.8	0.8	0.8	3.1	0.8	2.3	2.3	1.5	0	0.8	1.5	0.8	0	0.8	1.5	0.89	0.89	2.29	4.57
		End Depth	1.4	1.4	1.4	3.7	1.2	2.9	2.9	2.2	0.6	1.4	2	1.4	0.6	1.4	2.1	1.01	1.01	2.9	5.18
Analyte	**Units**	**Table 2 SCS [a]**																			
Cobalt	ug/g	22	3	6	2	2	2	2	2	3	3	3	1	2	3	5	2	3.9	4.8	1.7	--
Copper	ug/g	140	8	11	5	4	8	6	6	8	11	8	7	16	22	11	6	11.9	12.7	10.2	--
Lead	ug/g	120	14	12	15	199	18	8	14	13	17	11	35	29	52	16	6	18.8	17.2	6.3	--
Mercury	ug/g	0.27	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.23	0.09	0.09	0.05 U	0.05 U	0.0314	0.0247	0.005 U	--
Methyl Mercury	mg/kg	0.0084	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	ug/g	6.9	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Nickel	ug/g	100	5	11	4	3	4	3	3	5	5	5	2	4	7	9	3	8.3	9.8	3.4	--
Selenium	ug/g	2.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Silver	ug/g	20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--
Thallium	ug/g	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	--
Uranium	ug/g	23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1 U	--
Vanadium	ug/g	86	8	14	6	4	5	4	4	7	8	9	3	10	13	17	12	25.9	30.9	10.8	--
Zinc	ug/g	340	102	57	91	71	66	47	49	172	99	44	79	63	124	103	31	81.3	76.7	41.9	--
Other																					
Calcium	mg/l	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.59	9.5	6.47	8.55
Magnesium	mg/l	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.98 J	4.16 J	2.06	1.84
Sodium	mg/l	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	111	112	58.4	126
Polyaromatic Hydrocarbons (PAHs)																					
1-Methylnaphthalene	ug/g	0.99	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.05 U	--	--	--	0.03 U	0.03 U	0.03 U	--
2-(1-)Methylnaphthalene	ug/g	0.99	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.042 U	0.042 U	0.042 U	--
2-Methylnaphthalene	ug/g	0.99	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.05 U	--	--	--	0.03 U	0.03 U	0.03 U	--
Acenaphthene	ug/g	7.9	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Acenaphthylene	ug/g	0.15	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Anthracene	ug/g	0.67	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Benzo(a)anthracene	ug/g	0.5	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.14	--	--	--	0.05 U	0.05 U	0.05 U	--
Benzo(a)pyrene	ug/g	0.3	0.02 U	--	--	--	--	--	--	--	0.02 U	0.02 U	--	0.24	--	--	--	0.05 U	0.05 U	0.05 U	--
Benzo(b)fluoranthene	ug/g	0.78	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.18	--	--	--	0.05 U	0.05 U	0.05 U	--
Benzo(g,h,i)perylene	ug/g	6.6	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.22	--	--	--	0.05 U	0.05 U	0.05 U	--
Benzo(k)fluoranthene	ug/g	0.78	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.11	--	--	--	0.05 U	0.05 U	0.05 U	--
Chrysene	ug/g	7	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.18	--	--	--	0.05 U	0.05 U	0.05 U	--
Dibenzo(a,h)anthracene	ug/g	0.1	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.13	--	--	--	0.05 U	0.05 U	0.05 U	--
Fluoranthene	ug/g	0.69	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.19	--	--	--	0.05 U	0.05 U	0.05 U	--
Fluorene	ug/g	62	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Indeno(1,2,3-Cd)Pyrene	ug/g	0.38	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.14	--	--	--	0.05 U	0.05 U	0.05 U	--
Naphthalene	ug/g	0.6	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.05 U	--	--	--	0.013 U	0.013 U	0.013 U	--
Phenanthrene	ug/g	6.2	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.09	--	--	--	0.046 U	0.046 U	0.046 U	--
Pyrene	ug/g	78	0.05 U	--	--	--	--	--	--	--	0.05 U	0.05 U	--	0.17	--	--	--	0.05 U	0.05 U	0.05 U	--
Polychlorinated Biphenyls (PCBs)																					
Aroclor 1242	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	--	--
Aroclor 1248	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	--	--
Aroclor 1254	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	--	--
Aroclor 1260	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	--	--
PCB, Total	ug/g	0.35	--	0.01 U	--	--	--	0.01 U	0.01 U	--	--	--	--	--	--	0.01 U	--	0.02 U	0.02 U	--	--
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																					
Benzene	ug/g	0.21	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.0068 U	0.0068 U	0.0068 U	--
Ethylbenzene	ug/g	1.1	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.018 U	0.018 U	0.018 U	--
Toluene	ug/g	2.3	0.003	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.08 U	0.08 U	0.08 U	--
Xylene, o	ug/g	NV	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.02 U	0.02 U	0.02 U	--
Xylenes, m & p	ug/g	NV	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.03 U	0.03 U	0.03 U	--
Xylenes, Total	ug/g	3.1	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Petroleum Hydrocarbons (PHCs)																					
Gravimetric Heavy Hydrocarbons	ug/g	2800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Petroleum Hydrocarbons F1 (C6-C10 less BTEX)	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5 U	5 U	5 U	--
Petroleum Hydrocarbons F1 (C6-C10)	ug/g	55	5 U	5 U	--	--	--	5 U	5 U	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--
Petroleum Hydrocarbons F2 (C10-C16 less Naphthaler	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10 U	10 U	10 U	--
Petroleum Hydrocarbons F2 (C10-C16)	ug/g	98	10 U	10 U	--	--	--	10 U	10 U	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--
Petroleum Hydrocarbons F3 (C16-C34 less PAHs)	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50 U	50 U	50 U	--
Petroleum Hydrocarbons F3 (C16-C34)	ug/g	300	50 U	50 U	--	--	--	50 U	50 U	--	--	50 U	56	50 U	107	50 U	50 U	50 U	50 U	50 U	--
Petroleum Hydrocarbons F4 (C34-C50)	ug/g	2800	50 U	50 U	--	--	--	50 U	50 U	--	--	50 U	600	56	900	50 U	50 U	50 U	50 U	50 U	--
Total Petroleum Hydrocarbons (C6 to C50)	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	72 U	72 U	72 U	--
Physical/Chemistry																					
Average Fraction Organic Carbon	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Clay (less than 0.005mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Coarse Sand (2.0 to 4.75mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fine Sand (0.074 to 0.425mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fraction Organic Carbon	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fraction Organic Carbon (Rep1)	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fraction Organic Carbon (Rep2)	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH-03	BH-04	BH-05	BH-06	BH-07	BH-08-MW4		BH-09	BH-10	BH-11	BH-13	BH-14	BH-15-MW3	BH-16-MW2	BH-17-MW5S	BH200			
		Sample ID	BH-3 (SS2)	BH-4 (SS2)	BH-5 (SS2)	BH-6 (SS5)	BH-7 (SS2)	BH-8 (SS4)	BH-X-NOV25	BH-9 (SS3)	BH-10 (SS1)	BH-11 (SS2)	BH-13 (SS3)	BH-14 (SS2)	BH-15 (SS1)	BH-16 (SS2)	BH-17 (SS3)	DUP1	BH200-35-40	BH200-7.5-9.5	BH200-15-17
		Sample Date	11/27/2008	11/26/2008	11/25/2008	11/25/2008	11/25/2008	11/25/2008	11/25/2008	11/26/2008	11/27/2008	11/27/2008	11/25/2008	11/25/2008	11/26/2008	11/26/2008	11/27/2008	7/23/2019	7/23/2019	8/12/2019	8/12/2019
		Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
		Start Depth	0.8	0.8	0.8	3.1	0.8	2.3	2.3	1.5	0	0.8	1.5	0.8	0	0.8	1.5	0.89	0.89	2.29	4.57
		End Depth	1.4	1.4	1.4	3.7	1.2	2.9	2.9	2.2	0.6	1.4	2	1.4	0.6	1.4	2.1	1.01	1.01	2.9	5.18
Analyte	**Units**	**Table 2 SCS [a]**																			
Gravel (4.75 to 76mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Medium Sand (0.425 to 2.0mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**10.8**	**10.9**	**4.42**	--
Silt (0.005 to 0.074mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon (Rep1)	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon (Rep2)	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Volatile Organic Carbons (VOCs)																					
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.008 U	--	--	--	--	0.008 U	0.008 U	--	--	--	--	0.008 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,1,1-Trichloroethane	ug/g	0.38	0.008 U	--	--	--	--	0.008 U	0.008 U	--	--	--	--	0.008 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.004 U	--	--	--	--	0.004 U	0.004 U	--	--	--	--	0.004 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,1,2-Trichloroethane	ug/g	0.05	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,1-Dichloroethane	ug/g	0.47	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,1-Dichloroethene	ug/g	0.05	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,2-Dibromoethane	ug/g	0.05	0.004 U	--	--	--	--	0.004 U	0.004 U	--	--	--	--	0.004 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,2-Dichlorobenzene	ug/g	1.2	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,2-Dichloroethane	ug/g	0.05	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,2-Dichloropropane	ug/g	0.05	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,3-Dichlorobenzene	ug/g	4.8	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
1,3-Dichloropropene	ug/g	0.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.042 U	0.042 U	0.042 U	--
1,4-Dichlorobenzene	ug/g	0.083	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
2-Butanone	ug/g	16	0.2 U	--	--	--	--	0.2 U	0.2 U	--	--	--	--	0.2 U	--	--	--	0.5 U	0.5 U	0.5 U	--
4-Methyl-2-Pentanone	ug/g	1.7	0.2 U	--	--	--	--	0.2 U	0.2 U	--	--	--	--	0.2 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Acetone	ug/g	16	0.5 U	--	--	--	--	0.5 U	0.5 U	--	--	--	--	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--
Bromodichloromethane	ug/g	1.5	0.005 U	--	--	--	--	0.005 U	0.005 U	--	--	--	--	0.005 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Bromoform	ug/g	0.27	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Bromomethane	ug/g	0.05	0.003 U	--	--	--	--	0.003 U	0.003 U	--	--	--	--	0.003 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Carbon tetrachloride	ug/g	0.05	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Chlorobenzene	ug/g	2.4	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Chlorodibromomethane	ug/g	2.3	0.003 U	--	--	--	--	0.003 U	0.003 U	--	--	--	--	0.003 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Chloroform	ug/g	0.05	0.006 U	--	--	--	--	0.006 U	0.006 U	--	--	--	--	0.006 U	--	--	--	0.05 U	0.05 U	0.05 U	--
cis-1,2-Dichloroethene	ug/g	1.9	0.02 U	--	--	--	--	0.02 U	0.02 U	--	--	--	--	0.02 U	--	--	--	0.05 U	0.05 U	0.05 U	--
cis-1,3-Dichloropropene	ug/g	NV	0.003 U	--	--	--	--	0.003 U	0.003 U	--	--	--	--	0.003 U	--	--	--	0.03 U	0.03 U	0.03 U	--
Dichlorodifluoromethane	ug/g	16	0.03 U	--	--	--	--	0.03 U	0.03 U	--	--	--	--	0.03 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Dichloromethane	ug/g	0.1	0.003 U	--	--	--	--	0.003 U	0.003 U	--	--	--	--	0.003 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Methyl tert-butyl ether (MTBE)	ug/g	0.75	0.2 U	--	--	--	--	0.2 U	0.2 U	--	--	--	--	0.2 U	--	--	--	0.05 U	0.05 U	0.05 U	--
n-Hexane	ug/g	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U	0.05 U	--
Styrene	ug/g	0.7	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Tetrachloroethene	ug/g	0.28	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
trans-1,2-Dichloroethene	ug/g	0.084	0.002 U	--	--	--	--	0.002 U	0.002 U	--	--	--	--	0.002 U	--	--	--	0.05 U	0.05 U	0.05 U	--
trans-1,3-Dichloropropene	ug/g	NV	0.003 U	--	--	--	--	0.003 U	0.003 U	--	--	--	--	0.003 U	--	--	--	0.03 U	0.03 U	0.03 U	--
Trichloroethylene	ug/g	0.061	0.004 U	--	--	--	--	0.004 U	0.004 U	--	--	--	--	**0.004**	--	--	--	0.01 U	0.01 U	0.01 U	--
Trichlorofluoromethane	ug/g	4	0.03 U	--	--	--	--	0.03 U	0.03 U	--	--	--	--	0.03 U	--	--	--	0.05 U	0.05 U	0.05 U	--
Vinyl Chloride	ug/g	0.02	0.003 U	--	--	--	--	0.003 U	0.003 U	--	--	--	--	0.003 U	--	--	--	0.02 U	0.02 U	0.02 U	--

[a] MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, residential/parkland/institutional land use, coarse soil texture.

Source: Ontario Ministry of the Environment, Parks and Conservation (MECP). 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment.* April 15.

Notes:

Bold denote positive detection at or above reportable detection limit

Shading denotes detected results that exceeds the applicable standard

U = Analyte not detected

ug/L = microgram(s) per litre

ug/g = microgram per gram

mg/L = milligram(s) per litre

mS/cm = millisiemen per centimeter

SAR = Sodiuim Absorption Ratio

ID = identification

NV = no value available in applicable standards

-- = Analyte not analyzed

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH201						BH202				BH203			BH204			
		Sample ID	BH201-1-1.5'	BH201-4-4.5'	BH201-7.5-9.5	BH201-12.5-12.11	BH201-12.11"-13.2	BH201-25-27	BH202-2-2.5'	DUP11	BH202-10-12	BH202-15-16.5	BH203-0.5-2	BH203-7.5-9.5	BH203-15-17	BH204 - 2.5-3.5'	BH204-11-12	BH204-15-15.11	BH204-17.5-18.9
		Sample Date	7/24/2019	7/24/2019	8/21/2019	8/21/2019	8/21/2019	8/21/2019	7/22/2019	8/12/2019	8/12/2019	8/12/2019	8/20/2019	8/20/2019	8/20/2019	7/30/2019	8/22/2019	8/22/2019	8/22/2019
		Sample Type	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
		Start Depth	0.3	1.22	2.29	3.81	3.94	7.62	0.61	3.05	3.05	4.57	0.15	2.29	4.57	0.76	3.35	4.57	5.33
		End Depth	0.46	1.37	2.9	3.94	4.02	8.23	0.76	3.66	3.66	5.03	0.61	2.9	5.18	1.07	3.66	4.85	5.71
Analyte	**Units**	**Table 2 SCS [a]**																	
Acids, Bases, Neutrals (ABNs)																			
1,1'-Biphenyl	ug/g	0.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/g	0.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4 & 2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/g	38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/g	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/g	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis (2-chloroethyl) ether	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
bis (2-Chloroisopropyl) ether	ug/g	0.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis (2-ethylhexyl) phthalate	ug/g	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethylphthalate	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethylphthalate	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	ug/g	9.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans																			
1,2,3,4,6,7,8-HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lower Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mid Point PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Inorganics																			
Conductivity	mS/cm	0.7	**0.332**	**0.655**	**1.04**	--	**1.03**	**0.553**	**0.96**	**1.86**	**1.97**	**1.8**	**0.75**	**1.26**	**1.31**	**0.61**	**0.508**	--	--
Cyanide, Weak Acid Dissociable	ug/g	0.051	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
pH	pH UNITS	NV	**8.11**	**7.98**	**8.09**	--	--	--	**8.12**	**8.31**	**8.18**	--	--	**8.33**	--	--	**8.06**	--	--
Sodium Absorption Ratio	SAR	5	**7.34**	**22.7**	**23.3**	--	**47.6 J**	**4.27**	**26.1**	**43.5**	**70.3 J**	**36.9**	**5.24**	**19**	**16.2**	**11.1**	**7.51**	**6.49**	**8.4**
Metals																			
Antimony	ug/g	7.5	1 U	1 U	1 U	--	--	--	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	--	--
Arsenic	ug/g	18	**3.9**	**1.8**	**1.6**	--	--	--	**1.9**	1 U	1 U	--	**2.5**	**1.9**	--	**3.3**	**1.8**	--	--
Barium	ug/g	390	**32**	**16.8**	**17.6**	--	--	--	**16**	**8.4**	**9.1**	--	**29.7**	**18.4**	--	**54.3**	**12.2**	--	--
Beryllium	ug/g	4	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	--	--
Boron	ug/g	120	**6.7**	5 U	5 U	--	--	--	5 U	5 U	5 U	--	**5.3**	**5.6**	--	5 U	5 U	--	--
Boron (Hot Water Ext.)	ug/g	1.5	0.1 U	0.1 U	0.1 U	--	--	--	0.1 U	0.1 U	0.1 U	--	**0.15**	0.1 U	--	**0.46**	**0.12**	--	--
Cadmium	ug/g	1.2	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	--	--
Chromium	ug/g	160	**11.9**	**7.6**	**6.9**	--	--	--	**7.8**	**4.9**	**5.2**	--	**8.2**	**7.9**	--	**15.2**	**6.5**	--	--
Chromium, Hexavalent (Cr6+)	ug/g	8	0.2 U	0.2 U	0.2 U	--	--	--	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	--	**0.36**	0.2 U	--	--

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH201						BH202				BH203			BH204			
		Sample ID	BH201-1-1.5'	BH201-4-4.5'	BH201-7.5-9.5	BH201-12.5-12.11	BH201-12.11"-13.2	BH201-25-27	BH202-2-2.5'	DUP11	BH202-10-12	BH202-15-16.5	BH203-0.5-2	BH203-7.5-9.5	BH203-15-17	BH204 - 2.5-3.5'	BH204-11-12	BH204-15-15.11	BH204-17.5-18.9
		Sample Date	7/24/2019	7/24/2019	8/21/2019	8/21/2019	8/21/2019	8/21/2019	7/22/2019	8/12/2019	8/12/2019	8/12/2019	8/20/2019	8/20/2019	8/20/2019	7/30/2019	8/22/2019	8/22/2019	8/22/2019
		Sample Type	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
		Start Depth	0.3	1.22	2.29	3.81	3.94	7.62	0.61	3.05	3.05	4.57	0.15	2.29	4.57	0.76	3.35	4.57	5.33
		End Depth	0.46	1.37	2.9	3.94	4.02	8.23	0.76	3.66	3.66	5.03	0.61	2.9	5.18	1.07	3.66	4.85	5.71
Analyte	**Units**	**Table 2 SCS [a]**																	
Cobalt	ug/g	22	**4.5**	**2.7**	**2.5**	--	--	--	**2.6**	**1.4**	**1.4**	--	**2**	**2.7**	--	**4.8**	**2.2**	--	--
Copper	ug/g	140	**18.9**	**7.8**	**6.2**	--	--	--	**7.3**	**3.4**	**3.9**	--	**9.2**	**7.4**	--	**9.7**	**5.9**	--	--
Lead	ug/g	120	**34.9**	**8.9**	**6.8**	--	--	--	**11.1**	**4**	**5**	--	**30.6**	**10.8**	--	**25.3**	**15.4**	--	--
Mercury	ug/g	0.27	**0.0192**	**0.0078**	**0.0057**	--	--	--	**0.0065**	0.005 U	0.005 U	--	**0.24**	0.005 U	--	**0.0848**	0.005 U	--	--
Methyl Mercury	mg/kg	0.0084	--	--	--	--	--	--	--	--	--	--	5E-05 U	--	--	--	--	--	--
Molybdenum	ug/g	6.9	1 U	1 U	1 U	--	--	--	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	--	--
Nickel	ug/g	100	**9.3**	**5.7**	**5.5**	--	--	--	**5.4**	**2.7**	**3.1**	--	**5.1**	**5.6**	--	**8.6**	**5**	--	--
Selenium	ug/g	2.4	1 U	1 U	1 U	--	--	--	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	--	--
Silver	ug/g	20	0.2 U	0.2 U	0.2 U	--	--	--	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	--	0.2 U	0.2 U	--	--
Thallium	ug/g	1	0.5 U	0.5 U	0.5 U	--	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	--	--
Uranium	ug/g	23	1 U	1 U	1 U	--	--	--	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	--	--
Vanadium	ug/g	86	**24**	**14.1**	**13.2**	--	--	--	**14.7**	**10.1**	**9.9**	--	**13.3**	**15.5**	--	**32.8**	**13.8**	--	--
Zinc	ug/g	340	**246**	**70.8**	**41.5**	--	--	--	**80.9**	**32.4**	**36.9**	--	**89.5**	**72**	--	**73.6**	**53.5**	--	--
Other																			
Calcium	mg/l	NV	**3.62**	**1.52**	**3.09**	--	**1.31**	**15.8**	**2.12**	**4.04**	**2.1**	**3.34**	**3.15**	**3.79**	**7.03**	**7.86**	**6.34**	**4.37**	**3.9**
Magnesium	mg/l	NV	**3.5**	**0.66**	**1**	--	0.5 U	**4.77**	**1.29**	**0.54**	0.5 U	**1.6**	**6.32**	**1.72**	**5.64**	**1.82**	**1.1**	**1.37**	**0.85**
Sodium	mg/l	NV	**81.7**	**133**	**184**	--	**198**	**75.5**	**195**	**351**	**370**	**328**	**70.1**	**178**	**238**	**133**	**77.9**	**60.7**	**70.2**
Polyaromatic Hydrocarbons (PAHs)																			
1-Methylnaphthalene	ug/g	0.99	0.03 U	0.03 U	0.03 U	--	--	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	--
2-(1-)Methylnaphthalene	ug/g	0.99	0.042 U	0.042 U	0.042 U	--	--	--	0.042 U	0.042 U	0.042 U	--	0.042 U	0.042 U	--	0.042 U	0.042 U	--	--
2-Methylnaphthalene	ug/g	0.99	0.03 U	0.03 U	0.03 U	--	--	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	--
Acenaphthene	ug/g	7.9	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Acenaphthylene	ug/g	0.15	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Anthracene	ug/g	0.67	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Benzo(a)anthracene	ug/g	0.5	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Benzo(a)pyrene	ug/g	0.3	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	**0.073**	0.05 U	--	0.05 U	0.05 U	--	--
Benzo(b)fluoranthene	ug/g	0.78	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	**0.104**	0.05 U	--	0.05 U	0.05 U	--	--
Benzo(g,h,i)perylene	ug/g	6.6	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	**0.102**	0.05 U	--	0.05 U	0.05 U	--	--
Benzo(k)fluoranthene	ug/g	0.78	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Chrysene	ug/g	7	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	**0.056**	0.05 U	--	0.05 U	0.05 U	--	--
Dibenzo(a,h)anthracene	ug/g	0.1	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Fluoranthene	ug/g	0.69	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	**0.063**	0.05 U	--	**0.063**	0.05 U	--	--
Fluorene	ug/g	62	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Indeno(1,2,3-Cd)Pyrene	ug/g	0.38	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	**0.065**	0.05 U	--	0.05 U	0.05 U	--	--
Naphthalene	ug/g	0.6	0.013 U	0.013 U	0.013 U	--	--	--	0.013 U	0.013 U	0.013 U	--	0.013 U	0.013 U	--	0.013 U	0.013 U	--	--
Phenanthrene	ug/g	6.2	0.046 U	0.046 U	0.046 U	--	--	--	0.046 U	0.046 U	0.046 U	--	0.046 U	0.046 U	--	0.046 U	0.046 U	--	--
Pyrene	ug/g	78	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	0.05 U	0.05 U	--	**0.067**	0.05 U	--	**0.057**	0.05 U	--	--
Polychlorinated Biphenyls (PCBs)																			
Aroclor 1242	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB, Total	ug/g	0.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																			
Benzene	ug/g	0.21	0.0068 U	0.0068 U	0.0068 U	0.0068 U	--	--	0.0068 U	0.0068 U	0.0068 U	--	0.0068 U	0.0068 U	--	0.0068 U	0.0068 U	--	--
Ethylbenzene	ug/g	1.1	0.018 U	0.018 U	0.018 U	0.018 U	--	--	0.018 U	0.018 U	0.018 U	--	0.018 U	0.018 U	--	0.018 U	0.018 U	--	--
Toluene	ug/g	2.3	0.08 U	0.08 U	0.08 U	0.08 U	--	--	0.08 U	0.08 U	0.08 U	--	0.08 U	0.08 U	--	0.08 U	0.08 U	--	--
Xylene, o	ug/g	NV	0.02 U	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	--
Xylenes, m & p	ug/g	NV	0.03 U	0.03 U	0.03 U	0.03 U	--	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	--
Xylenes, Total	ug/g	3.1	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Petroleum Hydrocarbons (PHCs)																			
Gravimetric Heavy Hydrocarbons	ug/g	2800	--	--	--	**1290**	--	--	--	--	--	--	**1710**	--	--	--	--	--	--
Petroleum Hydrocarbons F1 (C6-C10 less BTEX)	ug/g	NV	5 U	5 U	5 U	5 U	--	--	5 U	5 U	5 U	--	5 U	5 U	--	5 U	5 U	--	--
Petroleum Hydrocarbons F1 (C6-C10)	ug/g	55	5 U	5 U	5 U	5 U	--	--	5 U	5 U	5 U	--	5 U	5 U	--	5 U	5 U	--	--
Petroleum Hydrocarbons F2 (C10-C16 less Naphthaler	ug/g	NV	10 U	10 U	10 U	--	--	--	10 U	10 U	10 U	--	20 U	10 U	--	10 U	10 U	--	--
Petroleum Hydrocarbons F2 (C10-C16)	ug/g	98	10 U	10 U	10 U	10 U	--	--	10 U	10 U	10 U	--	20 U	10 U	--	10 U	10 U	--	--
Petroleum Hydrocarbons F3 (C16-C34 less PAHs)	ug/g	NV	50 U	50 U	50 U	--	--	--	50 U	50 U	50 U	--	**190**	50 U	--	50 U	50 U	--	--
Petroleum Hydrocarbons F3 (C16-C34)	ug/g	300	50 U	50 U	50 U	**290**	--	--	50 U	50 U	50 U	--	**190**	50 U	--	50 U	50 U	--	--
Petroleum Hydrocarbons F4 (C34-C50)	ug/g	2800	50 U	50 U	50 U	**535**	--	--	50 U	50 U	50 U	--	**520**	50 U	--	50 U	50 U	--	--
Total Petroleum Hydrocarbons (C6 to C50)	ug/g	NV	72 U	72 U	72 U	**826**	--	--	72 U	72 U	72 U	--	**710**	72 U	--	72 U	72 U	--	--
Physical/Chemistry																			
Average Fraction Organic Carbon	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.0087**	0.001 U	--	--
Clay (less than 0.005mm), USCS	%	NV	**8.6**	--	--	--	--	--	**12.4**	--	--	--	--	--	--	--	--	--	--
Coarse Sand (2.0 to 4.75mm), USCS	%	NV	**19.3**	--	--	--	--	--	**3.1**	--	--	--	--	--	--	--	--	--	--
Fine Sand (0.074 to 0.425mm), USCS	%	NV	**11.2**	--	--	--	--	--	**30.8**	--	--	--	--	--	--	--	--	--	--
Fraction Organic Carbon	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.0086**	0.001 U	--	--
Fraction Organic Carbon (Rep1)	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.0089**	--	--	--
Fraction Organic Carbon (Rep2)	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH201						BH202				BH203			BH204			
		Sample ID	BH201-1-1.5'	BH201-4-4.5'	BH201-7.5-9.5	BH201-12.5-12.11	BH201-12.11"-13.2	BH201-25-27	BH202-2-2.5'	DUP11	BH202-10-12	BH202-15-16.5	BH203-0.5-2	BH203-7.5-9.5	BH203-15-17	BH204 - 2.5-3.5'	BH204-11-12	BH204-15-15.11	BH204-17.5-18.9
		Sample Date	7/24/2019	7/24/2019	8/21/2019	8/21/2019	8/21/2019	8/21/2019	7/22/2019	8/12/2019	8/12/2019	8/12/2019	8/20/2019	8/20/2019	8/20/2019	7/30/2019	8/22/2019	8/22/2019	8/22/2019
		Sample Type	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
		Start Depth	0.3	1.22	2.29	3.81	3.94	7.62	0.61	3.05	3.05	4.57	0.15	2.29	4.57	0.76	3.35	4.57	5.33
		End Depth	0.46	1.37	2.9	3.94	4.02	8.23	0.76	3.66	3.66	5.03	0.61	2.9	5.18	1.07	3.66	4.85	5.71
Analyte	**Units**	**Table 2 SCS [a]**																	
Gravel (4.75 to 76mm), USCS	%	NV	**30.1**	--	--	--	--	--	**19.9**	--	--	--	--	--	--	--	--	--	--
Medium Sand (0.425 to 2.0mm), USCS	%	NV	**25.4**	--	--	--	--	--	**9.3**	--	--	--	--	--	--	--	--	--	--
Moisture	%	NV	**4.11**	**8.41**	**11**	**8.05**	--	--	**5.69**	**7.33**	**6.27**	--	**4.29**	**6.81**	--	**16.4**	**6.34**	--	--
Silt (0.005 to 0.074mm), USCS	%	NV	**5.6**	--	--	--	--	--	**24.7**	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.86**	0.1 U	--	--
Total Organic Carbon (Rep1)	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.89**	--	--	--
Total Organic Carbon (Rep2)	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Volatile Organic Carbons (VOCs)																			
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,1,1-Trichloroethane	ug/g	0.38	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,1,2-Trichloroethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,1-Dichloroethane	ug/g	0.47	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,1-Dichloroethene	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,2-Dibromoethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,2-Dichlorobenzene	ug/g	1.2	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,2-Dichloroethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,2-Dichloropropane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,3-Dichlorobenzene	ug/g	4.8	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
1,3-Dichloropropene	ug/g	0.05	0.042 U	0.042 U	0.042 U	0.042 U	--	--	0.042 U	0.042 U	0.042 U	--	0.042 U	0.042 U	--	0.042 U	0.042 U	--	--
1,4-Dichlorobenzene	ug/g	0.083	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
2-Butanone	ug/g	16	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	--	--
4-Methyl-2-Pentanone	ug/g	1.7	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	--	--
Acetone	ug/g	16	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	--	--
Bromodichloromethane	ug/g	1.5	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Bromoform	ug/g	0.27	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Bromomethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Carbon tetrachloride	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Chlorobenzene	ug/g	2.4	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Chlorodibromomethane	ug/g	2.3	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Chloroform	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
cis-1,2-Dichloroethene	ug/g	1.9	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
cis-1,3-Dichloropropene	ug/g	NV	0.03 U	0.03 U	0.03 U	0.03 U	--	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	--
Dichlorodifluoromethane	ug/g	16	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 UJ	0.05 U	--	--
Dichloromethane	ug/g	0.1	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.063 U	0.05 U	--	0.05 U	0.05 U	--	--
Methyl tert-butyl ether (MTBE)	ug/g	0.75	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
n-Hexane	ug/g	2.8	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Styrene	ug/g	0.7	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Tetrachloroethene	ug/g	0.28	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
trans-1,2-Dichloroethene	ug/g	0.084	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
trans-1,3-Dichloropropene	ug/g	NV	0.03 U	0.03 U	0.03 U	0.03 U	--	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	--
Trichloroethylene	ug/g	0.061	0.01 U	0.01 U	0.01 U	0.01 U	--	--	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--	0.01 U	0.01 U	--	--
Trichlorofluoromethane	ug/g	4	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--
Vinyl Chloride	ug/g	0.02	0.02 U	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	--

[a] MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, residential/parkland/institutional land use, coarse soil texture.

Source: Ontario Ministry of the Environment, Parks and Conservation (MECP). 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment.* April 15.

Notes:

Bold denote positive detection at or above reportable detection limit

Shading denotes detected results that exceeds the applicable standard

U = Analyte not detected

ug/L = microgram(s) per litre

ug/g = microgram per gram

mg/L = milligram(s) per litre

mS/cm = millisiemen per centimeter

SAR = Sodiuim Absorption Ratio

ID = identification

NV = no value available in applicable standards

-- = Analyte not analyzed

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH205						BH206				BH207		BH208			BH209			
		Sample ID	DUP10	BH205-0.5-2	BH205-2.5-4.5	BH205-7.5-9.5	BH205-10-12	BH205-12.5-15	BH206-1-2'	BH206-7.5-9.5	BH206-12.5-14.5	DUP15	BH207I-1-2	BH207I-7.5-9.5	BH208-3-3.5	DUP 4	BH208-7.5-8	DUP 2	DUP 3	BH209-0.4-0.75	BH209-2-2.4
		Sample Date	8/12/2019	8/12/2019	8/12/2019	8/12/2019	8/12/2019	8/12/2019	7/25/2019	8/19/2019	8/19/2019	8/19/2019	4/9/2020	4/9/2020	11/12/2019	11/21/2019	11/21/2019	11/13/2019	11/13/2019	11/13/2019	11/13/2019
		Sample Type	FD	N	N	N	N	N	N	N	N	FD	N	N	N	FD	N	FD	FD	N	N
		Start Depth	2.29	0	0.76	2.29	3.05	3.81	0.3	2.29	3.81	3.81	0.3	2.29	0.91	2.29	2.29	0.12	0.61	0.12	0.61
		End Depth	2.9	0.61	1.37	2.9	3.66	4.57	0.61	2.9	4.42	4.42	0.61	2.9	1.07	2.44	2.44	0.23	0.73	0.23	0.73
Analyte	**Units**	**Table 2 SCS [a]**																			
Acids, Bases, Neutrals (ABNs)																					
1,1'-Biphenyl	ug/g	0.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/g	0.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4 & 2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/g	38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/g	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/g	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis (2-chloroethyl) ether	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
bis (2-Chloroisopropyl) ether	ug/g	0.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis (2-ethylhexyl) phthalate	ug/g	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethylphthalate	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethylphthalate	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	ug/g	9.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans																					
1,2,3,4,6,7,8-HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lower Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mid Point PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Inorganics																					
Conductivity	mS/cm	0.7	--	**0.445**	--	--	**0.53**	--	**0.179**	**0.554**	**0.628**	**0.643**	--	--	--	--	--	--	--	--	--
Cyanide, Weak Acid Dissociable	ug/g	0.051	--	0.05 U	--	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
pH	pH UNITS	NV	--	**8.06**	--	--	**8.3**	--	**8.07**	**7.94**	**7.89**	**7.91**	--	--	--	--	--	--	--	--	--
Sodium Absorption Ratio	SAR	5	--	**10.1**	--	--	**23.3 J**	**7.18**	**0.17**	**2.75**	**1.55**	**1.64**	--	--	--	--	--	--	--	--	--
Metals																					
Antimony	ug/g	7.5	--	1 U	--	--	1 U	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U
Arsenic	ug/g	18	--	**3.2**	--	--	**1.3**	--	**2.2**	**2.7**	**2.6**	**2.5**	--	--	--	--	--	--	**2.5**	**3.1**	**2.7**
Barium	ug/g	390	--	**37.3**	--	--	**8.6**	--	**13**	**47.8**	**45.9**	**43.4**	--	--	--	--	--	--	**28.7**	**26.4**	**31.4**
Beryllium	ug/g	4	--	0.5 U	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	0.5 U	0.5 U	0.5 U
Boron	ug/g	120	--	**5**	--	--	5 U	--	5 U	**8.2**	**9.1**	**6.9**	--	--	--	--	--	--	5 U	5 U	5 U
Boron (Hot Water Ext.)	ug/g	1.5	--	**0.14**	--	--	0.1 U	--	0.1 U	**0.21**	**0.11**	**0.11**	--	--	--	--	--	--	--	--	--
Cadmium	ug/g	1.2	--	0.5 U	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	0.5 U	0.5 U	0.5 U
Chromium	ug/g	160	--	**8.8**	--	--	**5.1**	--	**5.9**	**17**	**16.6**	**15.1**	--	--	--	--	--	--	**11.6**	**5.6**	**12.5**
Chromium, Hexavalent (Cr6+)	ug/g	8	--	0.2 U	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH205						BH206				BH207		BH208			BH209			
		Sample ID	DUP10	BH205-0.5-2	BH205-2.5-4.5	BH205-7.5-9.5	BH205-10-12	BH205-12.5-15	BH206-1-2'	BH206-7.5-9.5	BH206-12.5-14.5	DUP15	BH207I-1-2	BH207I-7.5-9.5	BH208-3-3.5	DUP 4	BH208-7.5-8	DUP 2	DUP 3	BH209-0.4-0.75	BH209-2-2.4
		Sample Date	8/12/2019	8/12/2019	8/12/2019	8/12/2019	8/12/2019	8/12/2019	7/25/2019	8/19/2019	8/19/2019	8/19/2019	4/9/2020	4/9/2020	11/12/2019	11/21/2019	11/21/2019	11/13/2019	11/13/2019	11/13/2019	11/13/2019
		Sample Type	FD	N	N	N	N	N	N	N	N	FD	N	N	N	FD	N	FD	FD	N	N
		Start Depth	2.29	0	0.76	2.29	3.05	3.81	0.3	2.29	3.81	3.81	0.3	2.29	0.91	2.29	2.29	0.12	0.61	0.12	0.61
		End Depth	2.9	0.61	1.37	2.9	3.66	4.57	0.61	2.9	4.42	4.42	0.61	2.9	1.07	2.44	2.44	0.23	0.73	0.23	0.73
Analyte	**Units**	**Table 2 SCS [a]**																			
Cobalt	ug/g	22	--	**2.5**	--	--	**1.5**	--	**2.5**	**7**	**6.5**	**6.2**	--	--	--	--	--	--	**4.2**	**2.7**	**4.4**
Copper	ug/g	140	--	**11.4**	--	--	**5.1**	--	**10**	**14.3**	**13.4**	**13.4**	--	--	--	--	--	--	**9.8**	**23.6**	**11**
Lead	ug/g	120	--	**34.7**	--	--	**5.9**	--	**11.3**	**13.3**	**12.7**	**11.9**	--	--	--	--	--	--	**8.9**	**15.9**	**9.2**
Mercury	ug/g	0.27	--	**0.0809**	--	--	0.005 U	--	**0.0058**	**0.0159**	**0.0098**	**0.0101**	--	--	--	--	--	--	**0.018**	**0.0079**	**0.0198**
Methyl Mercury	mg/kg	0.0084	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	ug/g	6.9	--	1 U	--	--	1 U	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U
Nickel	ug/g	100	--	**6**	--	--	**3.3**	--	**5**	**15.4**	**13.7**	**13.1**	--	--	--	--	--	--	**8.2**	**6.6**	**9.5**
Selenium	ug/g	2.4	--	1 U	--	--	1 U	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U
Silver	ug/g	20	--	0.2 U	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	--	--	--	--	--	--	0.2 U	0.2 U	0.2 U
Thallium	ug/g	1	--	0.5 U	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	0.5 U	0.5 U	0.5 U
Uranium	ug/g	23	--	1 U	--	--	1 U	--	1 U	1 U	1 U	1 U	--	--	--	--	--	--	1 U	1 U	1 U
Vanadium	ug/g	86	--	**16.1**	--	--	**10.4**	--	**14.4**	**27.4**	**26.3**	**24.9**	--	--	--	--	--	--	**23.9**	**13.2**	**24.3**
Zinc	ug/g	340	--	**124**	--	--	**51.1**	--	**90**	**72.3**	**73.4**	**71.7**	--	--	--	--	--	--	**40.9**	**114**	**43.1**
Other																					
Calcium	mg/l	NV	--	**3.58**	--	--	**1.38**	**13.4**	**17.7**	**23.1**	**51.1**	**51.2**	--	--	--	--	--	--	--	--	--
Magnesium	mg/l	NV	--	**1.74**	--	--	0.5 U	**11.4**	**4.74**	**9.09**	**11.2**	**10.9**	--	--	--	--	--	--	--	--	--
Sodium	mg/l	NV	--	**92.7**	--	--	**99.3**	**148**	**3.21**	**61.7**	**47**	**49.6**	--	--	--	--	--	--	--	--	--
Polyaromatic Hydrocarbons (PAHs)																					
1-Methylnaphthalene	ug/g	0.99	--	--	0.06 U	--	0.03 U	--	0.03 U	0.03 U	0.03 U	0.03 U	--	--	**0.032**	0.03 U	0.03 U	--	--	--	--
2-(1-)Methylnaphthalene	ug/g	0.99	--	--	0.085 U	--	0.042 U	--	0.042 U	0.042 U	0.042 U	0.042 U	--	--	**0.067**	0.042 U	0.042 U	--	--	--	--
2-Methylnaphthalene	ug/g	0.99	--	--	0.06 U	--	0.03 U	--	0.03 U	0.03 U	0.03 U	0.03 U	--	--	**0.034**	0.03 U	0.03 U	--	--	--	--
Acenaphthene	ug/g	7.9	--	--	0.05 U	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	--	--	--
Acenaphthylene	ug/g	0.15	--	--	0.05 U	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	--	--	--
Anthracene	ug/g	0.67	--	--	0.05 U	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	--	--	--
Benzo(a)anthracene	ug/g	0.5	--	--	**0.098**	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	**0.087**	0.05 U	0.05 U	--	--	--	--
Benzo(a)pyrene	ug/g	0.3	--	--	**0.134**	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	**0.085**	0.05 U	0.05 U	--	--	--	--
Benzo(b)fluoranthene	ug/g	0.78	--	--	**0.178**	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	**0.106**	0.05 U	0.05 U	--	--	--	--
Benzo(g,h,i)perylene	ug/g	6.6	--	--	**0.208**	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	**0.237**	0.05 U	0.05 U	--	--	--	--
Benzo(k)fluoranthene	ug/g	0.78	--	--	0.05 U	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	--	--	--
Chrysene	ug/g	7	--	--	**0.145**	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	**0.113**	0.05 U	0.05 U	--	--	--	--
Dibenzo(a,h)anthracene	ug/g	0.1	--	--	0.05 U	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	--	--	--
Fluoranthene	ug/g	0.69	--	--	**0.133**	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	**0.16**	0.05 U	0.05 U	--	--	--	--
Fluorene	ug/g	62	--	--	0.05 U	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.05 U	--	--	--	--
Indeno(1,2,3-Cd)Pyrene	ug/g	0.38	--	--	**0.111**	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	**0.077**	0.05 U	0.05 U	--	--	--	--
Naphthalene	ug/g	0.6	--	--	0.065 U	--	0.013 U	--	0.013 U	0.013 U	0.013 U	0.013 U	--	--	**0.039**	0.013 U	0.013 U	--	--	--	--
Phenanthrene	ug/g	6.2	--	--	**0.123**	--	0.046 U	--	0.046 U	0.046 U	0.046 U	0.046 U	--	--	**0.11**	0.046 U	0.046 U	--	--	--	--
Pyrene	ug/g	78	--	--	**0.134**	--	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	**0.139**	0.05 U	0.05 U	--	--	--	--
Polychlorinated Biphenyls (PCBs)																					
Aroclor 1242	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	--	0.01 U	0.01 U
Aroclor 1248	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	--	0.01 U	0.01 U
Aroclor 1254	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	--	0.01 U	0.01 U
Aroclor 1260	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	--	0.01 U	0.01 U
PCB, Total	ug/g	0.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	--	0.02 U	0.02 U
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																					
Benzene	ug/g	0.21	0.0068 U	--	--	0.0068 U	0.0068 U	--	0.0068 U	0.0068 U	0.0068 U	0.0068 U	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/g	1.1	0.018 U	--	--	0.018 U	0.018 U	--	0.018 U	0.018 U	0.018 U	0.018 U	--	--	--	--	--	--	--	--	--
Toluene	ug/g	2.3	0.08 U	--	--	0.08 U	0.08 U	--	0.08 U	0.08 U	0.08 U	0.08 U	--	--	--	--	--	--	--	--	--
Xylene, o	ug/g	NV	0.02 U	--	--	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	--	--	--	--	--	--	--	--	--
Xylenes, m & p	ug/g	NV	0.03 U	--	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--	--	--	--
Xylenes, Total	ug/g	3.1	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Petroleum Hydrocarbons (PHCs)																					
Gravimetric Heavy Hydrocarbons	ug/g	2800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Petroleum Hydrocarbons F1 (C6-C10 less BTEX)	ug/g	NV	5 U	--	--	5 U	5 U	--	5 U	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--
Petroleum Hydrocarbons F1 (C6-C10)	ug/g	55	5 U	--	--	5 U	5 U	--	5 U	5 U	5 U	5 UJ	5 U	5 U	--	--	--	--	--	--	--
Petroleum Hydrocarbons F2 (C10-C16 less Naphthaler	ug/g	NV	--	--	--	--	10 U	--	10 U	10 U	10 U	10 U	--	--	--	--	--	--	--	--	--
Petroleum Hydrocarbons F2 (C10-C16)	ug/g	98	10 U	--	--	10 U	10 U	--	10 U	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	--
Petroleum Hydrocarbons F3 (C16-C34 less PAHs)	ug/g	NV	--	--	--	--	50 U	--	50 U	50 U	50 U	50 U	--	--	--	--	--	--	--	--	--
Petroleum Hydrocarbons F3 (C16-C34)	ug/g	300	50 U	--	--	50 U	50 U	--	50 U	50 U	50 U	50 U	50 U	50 U	--	--	--	--	--	--	--
Petroleum Hydrocarbons F4 (C34-C50)	ug/g	2800	50 U	--	--	50 U	50 U	--	50 U	50 U	50 U	50 U	50 U	50 U	--	--	--	--	--	--	--
Total Petroleum Hydrocarbons (C6 to C50)	ug/g	NV	72 U	--	--	72 U	72 U	--	72 U	72 U	72 U	72 U	72 U	72 U	--	--	--	--	--	--	--
Physical/Chemistry																					
Average Fraction Organic Carbon	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Clay (less than 0.005mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Coarse Sand (2.0 to 4.75mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fine Sand (0.074 to 0.425mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fraction Organic Carbon	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fraction Organic Carbon (Rep1)	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fraction Organic Carbon (Rep2)	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH205						BH206				BH207		BH208			BH209			
		Sample ID	DUP10	BH205-0.5-2	BH205-2.5-4.5	BH205-7.5-9.5	BH205-10-12	BH205-12.5-15	BH206-1-2'	BH206-7.5-9.5	BH206-12.5-14.5	DUP15	BH207I-1-2	BH207I-7.5-9.5	BH208-3-3.5	DUP 4	BH208-7.5-8	DUP 2	DUP 3	BH209-0.4-0.75	BH209-2-2.4
		Sample Date	8/12/2019	8/12/2019	8/12/2019	8/12/2019	8/12/2019	8/12/2019	7/25/2019	8/19/2019	8/19/2019	8/19/2019	4/9/2020	4/9/2020	11/12/2019	11/21/2019	11/21/2019	11/13/2019	11/13/2019	11/13/2019	11/13/2019
		Sample Type	FD	N	N	N	N	N	N	N	N	FD	N	N	N	FD	N	FD	FD	N	N
		Start Depth	2.29	0	0.76	2.29	3.05	3.81	0.3	2.29	3.81	3.81	0.3	2.29	0.91	2.29	2.29	0.12	0.61	0.12	0.61
		End Depth	2.9	0.61	1.37	2.9	3.66	4.57	0.61	2.9	4.42	4.42	0.61	2.9	1.07	2.44	2.44	0.23	0.73	0.23	0.73
Analyte	**Units**	**Table 2 SCS [a]**																			
Gravel (4.75 to 76mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Medium Sand (0.425 to 2.0mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	NV	**5.43**	**5.69**	**4.77**	**5.25**	**8.11**	--	**4.22**	**8.42**	**9.72**	**9.36**	**5.33**	**10.9**	**8.45**	**6.66**	**6.6**	**2.41**	**8.32**	**2.68**	**7.8**
Silt (0.005 to 0.074mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon (Rep1)	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon (Rep2)	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Volatile Organic Carbons (VOCs)																					
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	ug/g	0.38	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/g	0.47	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	ug/g	1.2	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	ug/g	4.8	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene	ug/g	0.05	0.042 U	--	--	0.042 U	0.042 U	--	0.042 U	0.042 U	0.042 U	0.042 U	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/g	0.083	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
2-Butanone	ug/g	16	0.5 U	--	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--
4-Methyl-2-Pentanone	ug/g	1.7	0.5 U	--	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--
Acetone	ug/g	16	0.5 U	--	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/g	1.5	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Bromoform	ug/g	0.27	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Bromomethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/g	2.4	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Chlorodibromomethane	ug/g	2.3	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Chloroform	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/g	1.9	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	ug/g	NV	0.03 U	--	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	ug/g	16	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Dichloromethane	ug/g	0.1	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether (MTBE)	ug/g	0.75	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
n-Hexane	ug/g	2.8	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Styrene	ug/g	0.7	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/g	0.28	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	ug/g	0.084	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	ug/g	NV	0.03 U	--	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--	--	--	--
Trichloroethylene	ug/g	0.061	0.01 U	--	--	0.01 U	0.01 U	--	0.01 U	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	ug/g	4	0.05 U	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/g	0.02	0.02 U	--	--	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	--	--	--	--	--	--	--	--	--

[a] MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, residential/parkland/institutional land use, coarse soil texture.

Source: Ontario Ministry of the Environment, Parks and Conservation (MECP). 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment.* April 15.

Notes:

Bold denote positive detection at or above reportable detection limit

Shading denotes detected results that exceeds the applicable standard

U = Analyte not detected

ug/L = microgram(s) per litre

ug/g = microgram per gram

mg/L = milligram(s) per litre

mS/cm = millisiemen per centimeter

SAR = Sodiuim Absorption Ratio

ID = identification

NV = no value available in applicable standards

-- = Analyte not analyzed

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH210		BH211	MW100			MW101			MW102B				MW103			
		Sample ID	BH210-3.5	BH210-6.5-7	BH211-10-12	MW100-1.25-1.5'	MW100-7.5-9.5	MW100-15-17	MW101-1.5-2'	MW101-7.5-9.5	MW101-20-20.5	MW102-20-25	MW102-7.5-9.5	MW102-12.5-14.5	MW102-25-26	MW103-2-2.5'	MW103-12.5-14	MW103-17.5-19.5	MW103-22.5-24.5
		Sample Date	11/21/2019	11/21/2019	11/21/2019	7/24/2019	8/22/2019	8/22/2019	7/26/2019	8/21/2019	8/21/2019	7/23/2019	8/26/2019	8/26/2019	8/26/2019	7/22/2019	8/14/2019	8/14/2019	8/14/2019
		Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
		Start Depth	0.99	1.98	3.05	0.41	2.29	4.57	0.46	2.29	6.1	0.51	2.29	3.81	7.62	0.56	3.81	5.33	6.86
		End Depth	1.14	2.13	3.66	0.46	2.9	5.18	0.61	2.9	6.25	0.63	2.9	4.42	7.92	0.71	4.27	5.94	7.47
Analyte	**Units**	**Table 2 SCS [a]**																	
Acids, Bases, Neutrals (ABNs)																			
1,1'-Biphenyl	ug/g	0.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/g	0.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4 & 2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/g	38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/g	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/g	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis (2-chloroethyl) ether	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
bis (2-Chloroisopropyl) ether	ug/g	0.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis (2-ethylhexyl) phthalate	ug/g	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethylphthalate	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethylphthalate	ug/g	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	ug/g	9.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans																			
1,2,3,4,6,7,8-HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lower Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mid Point PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HpCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HxCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PeCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Inorganics																			
Conductivity	mS/cm	0.7	--	--	--	**0.981**	**1.31**	**1.4**	**1.56**	**0.303**	--	**2.95**	**1.49**	**1.49**	**0.826**	**1.07**	**1.9**	**1.04**	**1.08**
Cyanide, Weak Acid Dissociable	ug/g	0.051	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
pH	pH UNITS	NV	--	--	--	**8.12**	**8.28**	--	--	**8.12**	--	**7.93**	**7.51**	**7.85**	--	**7.52**	**7.98**	**7.95**	--
Sodium Absorption Ratio	SAR	5	--	--	--	**8.27**	**65.9 J**	**16.3**	**16.6**	**9 J**	**14.3**	**94.2 J**	**18.1**	**41.2**	**5.01**	**18.6**	**26.7**	**13.2**	**12.7**
Metals																			
Antimony	ug/g	7.5	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	--	1 U	**1**	1 U	--	1 U	1 U	1 U	--
Arsenic	ug/g	18	**3.5**	**4.2**	**1.7**	**6.6**	**1.2**	--	**5.2**	**2.2**	--	**2.4**	**2.4**	**2.4**	--	**3**	**1.9**	**2.9**	--
Barium	ug/g	390	**38.2**	**42.7**	**18**	**111**	**8.8**	--	**90.7**	**21.3**	--	**29.7**	**65.4**	**37.8**	--	**28.6**	**23.5**	**110**	--
Beryllium	ug/g	4	0.5 U	0.5 U	0.5 U	**0.98**	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	**0.62**	--
Boron	ug/g	120	**5.1**	**5.7**	5 U	**10.5**	5 U	--	**6.5**	**6.8**	--	**7.6**	**6.1**	**7.3**	--	5 U	**5.5**	**10.9**	--
Boron (Hot Water Ext.)	ug/g	1.5	--	--	--	**0.81**	0.1 U	--	**0.72**	**0.17**	--	0.1 U	**0.15**	**0.11**	--	**0.39**	0.1 U	0.1 U	--
Cadmium	ug/g	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--
Chromium	ug/g	160	**11**	**14.1**	**6.6**	**29.3**	**4.9**	--	**16.8**	**9.8**	--	**12**	**21.3**	**14.2**	--	**15.4**	**8.8**	**24.6**	--
Chromium, Hexavalent (Cr6+)	ug/g	8	--	--	--	**1.04**	0.2 U	--	**0.51**	0.2 U	--	**0.23**	**0.97**	0.2 U	--	0.2 U	0.2 U	0.2 U	--

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH210		BH211	MW100			MW101			MW102B				MW103			
		Sample ID	BH210-3.5	BH210-6.5-7	BH211-10-12	MW100-1.25-1.5'	MW100-7.5-9.5	MW100-15-17	MW101-1.5-2'	MW101-7.5-9.5	MW101-20-20.5	MW102-20-25	MW102-7.5-9.5	MW102-12.5-14.5	MW102-25-26	MW103-2-2.5'	MW103-12.5-14	MW103-17.5-19.5	MW103-22.5-24.5
		Sample Date	11/21/2019	11/21/2019	11/21/2019	7/24/2019	8/22/2019	8/22/2019	7/26/2019	8/21/2019	8/21/2019	7/23/2019	8/26/2019	8/26/2019	8/26/2019	7/22/2019	8/14/2019	8/14/2019	8/14/2019
		Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
		Start Depth	0.99	1.98	3.05	0.41	2.29	4.57	0.46	2.29	6.1	0.51	2.29	3.81	7.62	0.56	3.81	5.33	6.86
		End Depth	1.14	2.13	3.66	0.46	2.9	5.18	0.61	2.9	6.25	0.63	2.9	4.42	7.92	0.71	4.27	5.94	7.47
Analyte	**Units**	**Table 2 SCS [a]**																	
Cobalt	ug/g	22	**3.7**	**4.6**	**2.1**	**7.1**	**1.4**	--	**4.8**	**3.2**	--	**4.5**	**4.5**	**5.4**	--	**4.6**	**3.4**	**8.6**	--
Copper	ug/g	140	**10.4**	**13.8**	**7.4**	**17**	**4**	--	**21.1**	**9.3**	--	**10**	**33.1**	**13.4**	--	**8.7**	**8.4**	**18.8**	--
Lead	ug/g	120	**38.4**	**16.9**	**18.7**	**25.2**	**6.5**	--	**207**	**13.4**	--	**15.4**	**24.9**	**9.9**	--	**29.4**	**11.2**	**8.9**	--
Mercury	ug/g	0.27	--	--	--	**0.117**	0.005 U	--	**0.889**	**0.0138**	--	**0.0151**	**0.0513**	**0.008**	--	**0.0595**	**0.0068**	**0.0122**	--
Methyl Mercury	mg/kg	0.0084	--	--	--	--	--	--	5E-05 U	--	--	--	--	--	--	--	--	--	--
Molybdenum	ug/g	6.9	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	1 U	--	1 U	1 U	1 U	--
Nickel	ug/g	100	**9.5**	**11**	**4.7**	**19**	**3.3**	--	**9.4**	**7.2**	--	**9.7**	**11.1**	**11.6**	--	**8.8**	**6.8**	**19.5**	--
Selenium	ug/g	2.4	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	1 U	--	1 U	1 U	1 U	--
Silver	ug/g	20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	**0.21**	0.2 U	--	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	--
Thallium	ug/g	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--
Uranium	ug/g	23	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	1 U	--	1 U	1 U	1 U	--
Vanadium	ug/g	86	**23.9**	**32.4**	**13.1**	**50.8**	**8.9**	--	**28.4**	**17**	--	**21.8**	**21.7**	**23.9**	--	**34.3**	**18.2**	**34.6**	--
Zinc	ug/g	340	**120**	**106**	**83.1**	**155**	**42.1**	--	**235**	**94.2**	--	**60.5**	**129**	**114**	--	**70.3**	**69.8**	**49.9**	--
Other																			
Calcium	mg/l	NV	--	--	--	**19.6**	**1.03**	**9.93**	**15.9**	**2.75**	**2.45**	**3.22**	**8.23**	**2.23**	**30.1**	**8.05**	**10.7**	**10.8**	**12.9**
Magnesium	mg/l	NV	--	--	--	**27.2**	0.5 U	**4.9**	**3.61**	0.5 U	**1.22**	0.5 U	**7.2**	**0.91**	**6.79**	**2.74**	**1.11**	**2.59**	**3.33**
Sodium	mg/l	NV	--	--	--	**241**	**243**	**251**	**281**	**54.2**	**110**	**614**	**295**	**289**	**117**	**239**	**343**	**186**	**198**
Polyaromatic Hydrocarbons (PAHs)																			
1-Methylnaphthalene	ug/g	0.99	--	--	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--
2-(1-)Methylnaphthalene	ug/g	0.99	--	--	--	0.042 U	0.042 U	--	0.042 U	0.042 U	--	0.042 U	0.042 U	0.042 U	--	0.042 U	0.042 U	0.042 U	--
2-Methylnaphthalene	ug/g	0.99	--	--	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--
Acenaphthene	ug/g	7.9	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Acenaphthylene	ug/g	0.15	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Anthracene	ug/g	0.67	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Benzo(a)anthracene	ug/g	0.5	--	--	--	0.05 U	0.05 U	--	**0.095**	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Benzo(a)pyrene	ug/g	0.3	--	--	--	0.05 U	0.05 U	--	**0.093**	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Benzo(b)fluoranthene	ug/g	0.78	--	--	--	0.05 U	0.05 U	--	**0.153**	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Benzo(g,h,i)perylene	ug/g	6.6	--	--	--	0.05 U	0.05 U	--	**0.11**	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Benzo(k)fluoranthene	ug/g	0.78	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Chrysene	ug/g	7	--	--	--	0.05 U	0.05 U	--	**0.107**	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Dibenzo(a,h)anthracene	ug/g	0.1	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Fluoranthene	ug/g	0.69	--	--	--	0.05 U	0.05 U	--	**0.185**	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Fluorene	ug/g	62	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Indeno(1,2,3-Cd)Pyrene	ug/g	0.38	--	--	--	0.05 U	0.05 U	--	**0.084**	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Naphthalene	ug/g	0.6	--	--	--	0.013 U	0.013 U	--	0.013 U	0.013 U	--	0.013 U	0.013 U	0.013 U	--	0.013 U	0.013 U	0.013 U	--
Phenanthrene	ug/g	6.2	--	--	--	0.046 U	0.046 U	--	**0.119**	0.046 U	--	0.046 U	0.046 U	0.046 U	--	0.046 U	0.046 U	0.046 U	--
Pyrene	ug/g	78	--	--	--	0.05 U	0.05 U	--	**0.178**	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Polychlorinated Biphenyls (PCBs)																			
Aroclor 1242	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB, Total	ug/g	0.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																			
Benzene	ug/g	0.21	--	--	--	0.0068 U	0.0068 U	--	0.0068 U	0.0068 U	--	0.0068 U	0.0068 U	0.0068 U	--	0.0068 U	0.0068 U	0.0068 U	--
Ethylbenzene	ug/g	1.1	--	--	--	0.018 U	0.018 U	--	0.018 U	0.018 U	--	0.018 U	0.018 U	0.018 U	--	0.018 U	0.018 U	0.018 U	--
Toluene	ug/g	2.3	--	--	--	0.08 U	0.08 U	--	0.08 U	0.08 U	--	0.08 U	0.08 U	0.08 U	--	0.08 U	0.08 U	0.08 U	--
Xylene, o	ug/g	NV	--	--	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	--
Xylenes, m & p	ug/g	NV	--	--	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--
Xylenes, Total	ug/g	3.1	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Petroleum Hydrocarbons (PHCs)																			
Gravimetric Heavy Hydrocarbons	ug/g	2800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Petroleum Hydrocarbons F1 (C6-C10 less BTEX)	ug/g	NV	--	--	--	5 U	5 U	--	5 U	5 U	--	5 U	5 U	5 U	--	5 U	5 U	5 U	--
Petroleum Hydrocarbons F1 (C6-C10)	ug/g	55	--	--	--	5 U	5 U	--	5 U	5 U	--	5 U	5 U	5 U	--	5 U	5 U	5 U	--
Petroleum Hydrocarbons F2 (C10-C16 less Naphthaler	ug/g	NV	--	--	--	10 U	10 U	--	10 U	10 U	--	10 U	10 U	10 U	--	10 U	10 U	10 U	--
Petroleum Hydrocarbons F2 (C10-C16)	ug/g	98	--	--	--	10 U	10 U	--	10 U	10 U	--	10 U	10 U	10 U	--	10 U	10 U	10 U	--
Petroleum Hydrocarbons F3 (C16-C34 less PAHs)	ug/g	NV	--	--	--	50 U	50 U	--	50 U	50 U	--	50 U	50 U	50 U	--	50 U	50 U	50 U	--
Petroleum Hydrocarbons F3 (C16-C34)	ug/g	300	--	--	--	50 U	50 U	--	50 U	50 U	--	50 U	50 U	50 U	--	50 U	50 U	50 U	--
Petroleum Hydrocarbons F4 (C34-C50)	ug/g	2800	--	--	--	50 U	50 U	--	50 U	50 U	--	50 U	**71**	50 U	--	50 U	50 U	50 U	--
Total Petroleum Hydrocarbons (C6 to C50)	ug/g	NV	--	--	--	72 U	72 U	--	72 U	72 U	--	72 U	72 U	72 U	--	72 U	72 U	72 U	--
Physical/Chemistry																			
Average Fraction Organic Carbon	None	NV	--	--	--	**0.0049**	0.001 U	0.001 U	--	--	--	**0.0011**	**0.0013**	0.001 U	0.001 U	**0.0118**	0.001 U	**0.0034**	--
Clay (less than 0.005mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Coarse Sand (2.0 to 4.75mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fine Sand (0.074 to 0.425mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fraction Organic Carbon	None	NV	--	--	--	**0.0047**	0.001 U	0.001 U	--	--	--	**0.001**	**0.0013**	0.001 U	0.001 U	**0.0117**	0.001 U	**0.0028**	--
Fraction Organic Carbon (Rep1)	None	NV	--	--	--	**0.0049**	--	--	--	--	--	**0.0011**	--	--	--	**0.0118**	--	**0.0035**	--
Fraction Organic Carbon (Rep2)	None	NV	--	--	--	**0.0052**	--	--	--	--	--	--	--	--	--	**0.0119**	--	**0.0039**	--

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	BH210		BH211	MW100			MW101			MW102B				MW103			
		Sample ID	BH210-3.5	BH210-6.5-7	BH211-10-12	MW100-1.25-1.5'	MW100-7.5-9.5	MW100-15-17	MW101-1.5-2'	MW101-7.5-9.5	MW101-20-20.5	MW102-20-25	MW102-7.5-9.5	MW102-12.5-14.5	MW102-25-26	MW103-2-2.5'	MW103-12.5-14	MW103-17.5-19.5	MW103-22.5-24.5
		Sample Date	11/21/2019	11/21/2019	11/21/2019	7/24/2019	8/22/2019	8/22/2019	7/26/2019	8/21/2019	8/21/2019	7/23/2019	8/26/2019	8/26/2019	8/26/2019	7/22/2019	8/14/2019	8/14/2019	8/14/2019
		Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
		Start Depth	0.99	1.98	3.05	0.41	2.29	4.57	0.46	2.29	6.1	0.51	2.29	3.81	7.62	0.56	3.81	5.33	6.86
		End Depth	1.14	2.13	3.66	0.46	2.9	5.18	0.61	2.9	6.25	0.63	2.9	4.42	7.92	0.71	4.27	5.94	7.47
Analyte	**Units**	**Table 2 SCS [a]**																	
Gravel (4.75 to 76mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Medium Sand (0.425 to 2.0mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	NV	--	--	--	**19.9**	**6.59**	--	**10.3**	**7.89**	--	**14**	**13**	**10.9**	--	**16.9**	**10.8**	**9.01**	--
Silt (0.005 to 0.074mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	%	NV	--	--	--	**0.47**	0.1 U	0.1 U	--	--	--	**0.1**	**0.13**	0.1 U	0.1 U	**1.17**	0.1 U	**0.28**	--
Total Organic Carbon (Rep1)	%	NV	--	--	--	**0.49**	--	--	--	--	--	**0.11**	--	--	--	**1.18**	--	**0.35**	--
Total Organic Carbon (Rep2)	%	NV	--	--	--	**0.52**	--	--	--	--	--	--	--	--	--	**1.19**	--	**0.39**	--
Volatile Organic Carbons (VOCs)																			
1,1,1,2-Tetrachloroethane	ug/g	0.058	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,1,1-Trichloroethane	ug/g	0.38	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,1,2,2-Tetrachloroethane	ug/g	0.05	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,1,2-Trichloroethane	ug/g	0.05	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,1-Dichloroethane	ug/g	0.47	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,1-Dichloroethene	ug/g	0.05	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,2-Dibromoethane	ug/g	0.05	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,2-Dichlorobenzene	ug/g	1.2	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,2-Dichloroethane	ug/g	0.05	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,2-Dichloropropane	ug/g	0.05	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,3-Dichlorobenzene	ug/g	4.8	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
1,3-Dichloropropene	ug/g	0.05	--	--	--	0.042 U	0.042 U	--	0.042 U	0.042 U	--	0.042 U	0.042 U	0.042 U	--	0.042 U	0.042 U	0.042 U	--
1,4-Dichlorobenzene	ug/g	0.083	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
2-Butanone	ug/g	16	--	--	--	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--
4-Methyl-2-Pentanone	ug/g	1.7	--	--	--	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--
Acetone	ug/g	16	--	--	--	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	--
Bromodichloromethane	ug/g	1.5	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Bromoform	ug/g	0.27	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Bromomethane	ug/g	0.05	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Carbon tetrachloride	ug/g	0.05	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Chlorobenzene	ug/g	2.4	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Chlorodibromomethane	ug/g	2.3	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Chloroform	ug/g	0.05	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
cis-1,2-Dichloroethene	ug/g	1.9	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
cis-1,3-Dichloropropene	ug/g	NV	--	--	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--
Dichlorodifluoromethane	ug/g	16	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Dichloromethane	ug/g	0.1	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Methyl tert-butyl ether (MTBE)	ug/g	0.75	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
n-Hexane	ug/g	2.8	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 UJ	0.05 UJ	--	0.05 U	0.05 U	0.05 U	--
Styrene	ug/g	0.7	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Tetrachloroethene	ug/g	0.28	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
trans-1,2-Dichloroethene	ug/g	0.084	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
trans-1,3-Dichloropropene	ug/g	NV	--	--	--	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	--
Trichloroethylene	ug/g	0.061	--	--	--	0.01 U	0.01 U	--	0.01 U	0.01 U	--	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	0.01 U	--
Trichlorofluoromethane	ug/g	4	--	--	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	--
Vinyl Chloride	ug/g	0.02	--	--	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	--

[a] MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, residential/parkland/institutional land use, coarse soil texture.

Source: Ontario Ministry of the Environment, Parks and Conservation (MECP). 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment.* April 15.

Notes:

Bold denote positive detection at or above reportable detection limit

Shading denotes detected results that exceeds the applicable standard

U = Analyte not detected

ug/L = microgram(s) per litre

ug/g = microgram per gram

mg/L = milligram(s) per litre

mS/cm = millisiemen per centimeter

SAR = Sodiuim Absorption Ratio

ID = identification

NV = no value available in applicable standards

-- = Analyte not analyzed

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW104					MW105					MW107			MW108		
		Sample ID	MW104-2.5-3'	DUP13	MW104-22-23	MW104-7-9	MW104-15-17	DUP12	MW105-5-6	MW105-10-12	MW105-15-17	MW105-21.5-22	MW107-2.5-4.5	MW107-7.5-9.5	MW107-15-16.5	MW108-5-6'	MW108-12.5-14.5	MW108-17.5-19
		Sample Date	7/22/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/19/2019	8/19/2019	8/19/2019	7/25/2019	8/16/2019	8/16/2019
		Sample Type	N	FD	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
		Start Depth	0.61	2.13	6.1	2.13	4.57	4.57	1.52	3.05	4.57	6.55	0.76	2.29	4.57	1.52	3.81	5.33
		End Depth	0.91	2.74	6.71	2.74	5.18	5.18	1.83	3.66	5.18	6.71	1.37	2.9	5.03	1.83	4.42	5.79
Analyte	**Units**	**Table 2 SCS [a]**																
Acids, Bases, Neutrals (ABNs)																		
1,1'-Biphenyl	ug/g	0.31	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/g	0.36	0.05 U	0.05 U	--	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--	--	--
2,4 & 2,6-Dinitrotoluene	ug/g	0.5	0.14 U	0.14 U	--	0.14 U	0.14 U	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/g	38	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/g	2	1 U	1 U	--	1 U	1 U	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/g	0.5	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/g	0.5	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/g	1	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/g	0.5	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
Bis (2-chloroethyl) ether	ug/g	0.5	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
bis (2-Chloroisopropyl) ether	ug/g	0.67	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
Bis (2-ethylhexyl) phthalate	ug/g	5	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
Diethylphthalate	ug/g	0.5	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
Dimethylphthalate	ug/g	0.5	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
Phenol	ug/g	9.4	0.1 U	0.1 U	--	0.1 U	0.1 U	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans																		
1,2,3,4,6,7,8-HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.133 J**	--	--
1,2,3,4,6,7,8-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.068 UJ	--	--
1,2,3,4,7,8,9-HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.019 U	--	--
1,2,3,4,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.021 U	--	--
1,2,3,4,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.018 U	--	--
1,2,3,6,7,8-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.023 J**	--	--
1,2,3,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.019 U	--	--
1,2,3,7,8,9-HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	--	--
1,2,3,7,8,9-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.025 UJ	--	--
1,2,3,7,8-PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.023 U	--	--
1,2,3,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.023 U	--	--
2,3,4,6,7,8-HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.018 U	--	--
2,3,4,7,8-PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.018 U	--	--
2,3,7,8-TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.022 U	--	--
2,3,7,8-TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.021 U	--	--
Lower Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.0017**	--	--
Mid Point PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.0387**	--	--
OCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**1.06 J**	--	--
OCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.175 UJ	--	--
Total HpCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.247**	--	--
Total HpCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**2**	--	--
Total HpCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.045**	--	--
Total HpCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**1**	--	--
Total HxCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.051**	--	--
Total HxCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**1**	--	--
Total HxCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.025 U	--	--
Total HxCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0**	--	--
Total PeCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.023 U	--	--
Total PeCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0**	--	--
Total PeCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.023 U	--	--
Total PeCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0**	--	--
Total TCDD	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.022 U	--	--
Total TCDD # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0**	--	--
Total TCDF	pg/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.021 U	--	--
Total TCDF # Homologues	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	**0**	--	--
Upper Bound PCDD/F TEQ (WHO 2005)	pg/g	13	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.0702**	--	--
Inorganics																		
Conductivity	mS/cm	0.7	**0.969**	**0.911**	**1**	**1.13**	**1.11**	**0.841**	**0.52**	**1.27**	**0.859**	**1.01**	**0.376**	**1.71**	**1.35**	**0.0902**	**0.509**	**0.281**
Cyanide, Weak Acid Dissociable	ug/g	0.051	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
pH	pH UNITS	NV	**7.96**	**8.04**	--	**8.04**	**7.87**	**8.09**	**9.46**	**8.26**	**8.08**	--	**8.24**	**8.33**	--	**8.1**	**7.69**	**7.98**
Sodium Absorption Ratio	SAR	5	**24**	**60.2 J**	**5.77**	**69.3 J**	**10.3**	**60 J**	**29.9 J**	**79.8 J**	**40 J**	**23.8**	**11.4**	**25.2**	**19.1**	**0.15**	**2.51**	**2.22**
Metals																		
Antimony	ug/g	7.5	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Arsenic	ug/g	18	**2**	**1.9**	--	**1.5**	**2.1**	**2.3**	**2.1**	**1.7**	**2.2**	--	**3**	**1.4**	--	**2.1**	**1.7**	**2**
Barium	ug/g	390	**18.7**	**24.5 J**	--	**14.6 J**	**67.1**	**45.6**	**11.8**	**16.2**	**42.1**	--	**15.2**	**11.3**	--	**11.2**	**36.6**	**57.2**
Beryllium	ug/g	4	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
Boron	ug/g	120	5 U	**5.5**	--	5 U	**7.6**	**7.4**	**5.6**	**5.5**	**7**	--	**6.4**	5 U	--	5 U	**6.6**	**8.8**
Boron (Hot Water Ext.)	ug/g	1.5	0.1 U	0.1 U	--	0.1 U	0.1 U	**0.13**	**0.12**	0.1 U	**0.13**	--	0.1 U	0.1 U	--	0.1 U	**0.17**	**0.13**
Cadmium	ug/g	1.2	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
Chromium	ug/g	160	**9**	**9.6**	--	**8.2**	**18.6**	**16.1**	**6.1**	**7.5**	**15.4**	--	**12.9**	**6.2**	--	**5.8**	**12.1**	**18.4**
Chromium, Hexavalent (Cr6+)	ug/g	8	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	**0.54**	0.2 U	--	0.2 U	0.2 U	**0.26**

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW104					MW105					MW107			MW108		
		Sample ID	MW104-2.5-3'	DUP13	MW104-22-23	MW104-7-9	MW104-15-17	DUP12	MW105-5-6	MW105-10-12	MW105-15-17	MW105-21.5-22	MW107-2.5-4.5	MW107-7.5-9.5	MW107-15-16.5	MW108-5-6'	MW108-12.5-14.5	MW108-17.5-19
		Sample Date	7/22/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/19/2019	8/19/2019	8/19/2019	7/25/2019	8/16/2019	8/16/2019
		Sample Type	N	FD	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
		Start Depth	0.61	2.13	6.1	2.13	4.57	4.57	1.52	3.05	4.57	6.55	0.76	2.29	4.57	1.52	3.81	5.33
		End Depth	0.91	2.74	6.71	2.74	5.18	5.18	1.83	3.66	5.18	6.71	1.37	2.9	5.03	1.83	4.42	5.79
Analyte	**Units**	**Table 2 SCS [a]**																
Cobalt	ug/g	22	**3.6**	**3.7**	--	**2.7**	**6.6**	**6.2**	**2**	**2.5**	**5.9**	--	**2.9**	**1.8**	--	**2.2**	**3.9**	**6.2**
Copper	ug/g	140	**8.7**	**8**	--	**6.4**	**14.3**	**13.1**	**10.3**	**7**	**12.3**	--	**14.9**	**8.7**	--	**8.4**	**10.2**	**14.3**
Lead	ug/g	120	**9.4**	**9.5**	--	**9**	**7.5**	**9**	**34.6**	**10.1**	**9**	--	**16**	**9.5**	--	**9.4**	**10.1**	**12.9**
Mercury	ug/g	0.27	**0.0061**	**0.0058**	--	**0.006**	**0.011**	**0.0099**	**0.0082**	0.005 U	**0.009**	--	**0.0148**	0.005 U	--	0.005 U	**0.0099**	**0.0123**
Methyl Mercury	mg/kg	0.0084	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	ug/g	6.9	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Nickel	ug/g	100	**7**	**7.9**	--	**5.3**	**14.8**	**14.1**	**5**	**5.3**	**12.9**	--	**6.6**	**3.8**	--	**4.6**	**8.6**	**14.2**
Selenium	ug/g	2.4	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Silver	ug/g	20	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U
Thallium	ug/g	1	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
Uranium	ug/g	23	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Vanadium	ug/g	86	**17.8**	**16.1**	--	**16.2**	**27.6**	**24.8**	**12.4**	**14.1**	**24.1**	--	**19.2**	**11.8**	--	**14.5**	**20.5**	**27.8**
Zinc	ug/g	340	**55.1**	**64.5**	--	**41.4**	**64**	**51.9**	**216**	**78.2**	**50.7**	--	**66**	**88.3**	--	**65.9**	**55.4**	**81**
Other																		
Calcium	mg/l	NV	**1.47**	**0.74**	**28.1**	**0.73**	**19.4**	**0.66**	**0.75**	**0.68**	0.5 U	**3.16**	**1.63**	**8.04**	**8.06**	**7.84**	**15.7**	**5.43**
Magnesium	mg/l	NV	**1.93**	0.5 U	**9.26**	0.5 U	**3.97**	0.5 U	0.5 U	0.5 U	0.5 U	**0.9**	**0.98**	**1.71**	**2.64**	**2.49**	**6.33**	**2.01**
Sodium	mg/l	NV	**188**	**188**	**138**	**215**	**191**	**177**	**94.1**	**239**	**168**	**186**	**74.4**	**302**	**245**	**1.93**	**46.6**	**23.8**
Polyaromatic Hydrocarbons (PAHs)																		
1-Methylnaphthalene	ug/g	0.99	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U
2-(1-)Methylnaphthalene	ug/g	0.99	0.042 U	0.042 U	--	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	--	0.042 U	0.042 U	--	0.042 U	0.042 U	0.042 U
2-Methylnaphthalene	ug/g	0.99	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U
Acenaphthene	ug/g	7.9	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Acenaphthylene	ug/g	0.15	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	**0.054**	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Anthracene	ug/g	0.67	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Benzo(a)anthracene	ug/g	0.5	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	**0.086 J**	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Benzo(a)pyrene	ug/g	0.3	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	**0.143**	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Benzo(b)fluoranthene	ug/g	0.78	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	**0.167**	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Benzo(g,h,i)perylene	ug/g	6.6	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	**0.162**	0.05 U	0.05 U	--	**0.067**	0.05 U	--	0.05 U	0.05 U	0.05 U
Benzo(k)fluoranthene	ug/g	0.78	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Chrysene	ug/g	7	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	**0.09**	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Dibenzo(a,h)anthracene	ug/g	0.1	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Fluoranthene	ug/g	0.69	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	**0.125**	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Fluorene	ug/g	62	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Indeno(1,2,3-Cd)Pyrene	ug/g	0.38	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	**0.133**	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Naphthalene	ug/g	0.6	0.013 U	0.013 U	--	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	--	0.013 U	0.013 U	--	0.013 U	0.013 U	0.013 U
Phenanthrene	ug/g	6.2	0.046 U	0.046 U	--	0.046 U	0.046 U	0.046 U	**0.063**	0.046 U	0.046 U	--	0.046 U	0.046 U	--	0.046 U	0.046 U	0.046 U
Pyrene	ug/g	78	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	**0.118**	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Polychlorinated Biphenyls (PCBs)																		
Aroclor 1242	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	ug/g	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB, Total	ug/g	0.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																		
Benzene	ug/g	0.21	0.0068 U	--	--	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U	--	0.0068 U	0.0068 U	--	0.0068 U	0.0068 U	0.0068 U
Ethylbenzene	ug/g	1.1	0.018 U	--	--	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	--	0.018 U	0.018 U	--	0.018 U	0.018 U	0.018 U
Toluene	ug/g	2.3	0.08 U	--	--	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	--	0.08 U	0.08 U	--	0.08 U	0.08 U	0.08 U
Xylene, o	ug/g	NV	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U
Xylenes, m & p	ug/g	NV	0.03 U	--	--	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U
Xylenes, Total	ug/g	3.1	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Petroleum Hydrocarbons (PHCs)																		
Gravimetric Heavy Hydrocarbons	ug/g	2800	--	--	--	--	--	--	**610**	--	--	--	**2110**	--	--	--	--	--
Petroleum Hydrocarbons F1 (C6-C10 less BTEX)	ug/g	NV	5 U	--	--	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	5 U	--	5 U	5 U	5 U
Petroleum Hydrocarbons F1 (C6-C10)	ug/g	55	5 U	--	--	5 U	5 U	5 U	5 U	5 U	5 U	--	5 UJ	5 UJ	--	5 U	5 U	5 U
Petroleum Hydrocarbons F2 (C10-C16 less Naphthaler	ug/g	NV	10 U	--	--	10 U	10 U	10 U	10 U	10 U	10 U	--	20 U	10 U	--	10 U	10 U	10 U
Petroleum Hydrocarbons F2 (C10-C16)	ug/g	98	10 U	--	--	10 U	10 U	10 U	10 U	10 U	10 U	--	20 U	10 U	--	10 U	10 U	10 U
Petroleum Hydrocarbons F3 (C16-C34 less PAHs)	ug/g	NV	50 U	--	--	50 U	50 U	50 U	**123**	50 U	50 U	--	**300**	50 U	--	50 U	50 U	50 U
Petroleum Hydrocarbons F3 (C16-C34)	ug/g	300	50 U	--	--	50 U	50 U	50 U	**124**	50 U	50 U	--	**300**	50 U	--	50 U	50 U	50 U
Petroleum Hydrocarbons F4 (C34-C50)	ug/g	2800	50 U	--	--	50 U	50 U	50 U	**250**	50 U	50 U	--	**800**	50 U	--	50 U	50 U	50 U
Total Petroleum Hydrocarbons (C6 to C50)	ug/g	NV	72 U	--	--	72 U	72 U	72 U	**374**	72 U	72 U	--	**1090**	72 U	--	72 U	72 U	72 U
Physical/Chemistry																		
Average Fraction Organic Carbon	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.001 U	0.001 U	**0.0019**
Clay (less than 0.005mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Coarse Sand (2.0 to 4.75mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fine Sand (0.074 to 0.425mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fraction Organic Carbon	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.001 U	0.001 U	**0.0018**
Fraction Organic Carbon (Rep1)	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.0019**
Fraction Organic Carbon (Rep2)	None	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.002**

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW104					MW105					MW107			MW108		
		Sample ID	MW104-2.5-3'	DUP13	MW104-22-23	MW104-7-9	MW104-15-17	DUP12	MW105-5-6	MW105-10-12	MW105-15-17	MW105-21.5-22	MW107-2.5-4.5	MW107-7.5-9.5	MW107-15-16.5	MW108-5-6'	MW108-12.5-14.5	MW108-17.5-19
		Sample Date	7/22/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/13/2019	8/19/2019	8/19/2019	8/19/2019	7/25/2019	8/16/2019	8/16/2019
		Sample Type	N	FD	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
		Start Depth	0.61	2.13	6.1	2.13	4.57	4.57	1.52	3.05	4.57	6.55	0.76	2.29	4.57	1.52	3.81	5.33
		End Depth	0.91	2.74	6.71	2.74	5.18	5.18	1.83	3.66	5.18	6.71	1.37	2.9	5.03	1.83	4.42	5.79
Analyte	**Units**	**Table 2 SCS [a]**																
Gravel (4.75 to 76mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Medium Sand (0.425 to 2.0mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	NV	**8.51**	**7.19**	--	**8.77**	**8.62**	**8.54**	**3.46**	**7.46**	**9.3**	--	**6.31**	**6.96**	--	**4.2**	**11.4**	**8.1**
Silt (0.005 to 0.074mm), USCS	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	0.1 U	0.1 U	**0.18**
Total Organic Carbon (Rep1)	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.19**
Total Organic Carbon (Rep2)	%	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.2**
Volatile Organic Carbons (VOCs)																		
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	ug/g	0.38	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,1,2-Trichloroethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,1-Dichloroethane	ug/g	0.47	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,1-Dichloroethene	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	ug/g	1.2	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,2-Dichloropropane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	ug/g	4.8	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
1,3-Dichloropropene	ug/g	0.05	0.042 U	--	--	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	--	0.042 U	0.042 U	--	0.042 U	0.042 U	0.042 U
1,4-Dichlorobenzene	ug/g	0.083	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
2-Butanone	ug/g	16	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
4-Methyl-2-Pentanone	ug/g	1.7	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
Acetone	ug/g	16	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
Bromodichloromethane	ug/g	1.5	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Bromoform	ug/g	0.27	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Bromomethane	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Carbon tetrachloride	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Chlorobenzene	ug/g	2.4	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Chlorodibromomethane	ug/g	2.3	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Chloroform	ug/g	0.05	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	ug/g	1.9	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	ug/g	NV	0.03 U	--	--	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U
Dichlorodifluoromethane	ug/g	16	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Dichloromethane	ug/g	0.1	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Methyl tert-butyl ether (MTBE)	ug/g	0.75	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
n-Hexane	ug/g	2.8	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Styrene	ug/g	0.7	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Tetrachloroethene	ug/g	0.28	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	ug/g	0.084	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	ug/g	NV	0.03 U	--	--	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U	--	0.03 U	0.03 U	0.03 U
Trichloroethylene	ug/g	0.061	0.01 U	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--	0.01 U	0.01 U	0.01 U
Trichlorofluoromethane	ug/g	4	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U
Vinyl Chloride	ug/g	0.02	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U

[a] MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, residential/parkland/institutional land use, coarse soil texture.

Source: Ontario Ministry of the Environment, Parks and Conservation (MECP). 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment.* April 15.

Notes:

Bold denote positive detection at or above reportable detection limit

Shading denotes detected results that exceeds the applicable standard

U = Analyte not detected

ug/L = microgram(s) per litre

ug/g = microgram per gram

mg/L = milligram(s) per litre

mS/cm = millisiemen per centimeter

SAR = Sodiuim Absorption Ratio

ID = identification

NV = no value available in applicable standards

-- = Analyte not analyzed

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

			Location	MW109				MW113	
			Sample ID	MW109-2.5-3.5'	DUP14	MW109-8-9.5	MW109-12.5-14.5	MW109-16-17	MW113-2.5-4.5	MW113-6.5-8.5
			Sample Date	7/25/2019	8/15/2019	8/15/2019	8/15/2019	8/15/2019	4/9/2020	4/9/2020
			Sample Type	N	FD	N	N	N	N	N
			Start Depth	0.76	3.81	2.29	3.81	4.88	0.76	1.98
			End Depth	1.07	4.42	2.9	4.42	5.18	1.37	2.59
Analyte	**Units**	**Table 2 SCS [a]**								
Acids, Bases, Neutrals (ABNs)										
1,1'-Biphenyl	ug/g	0.31	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/g	0.36	--	--	--	--	--	--	--
2,4 & 2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/g	38	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/g	2	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/g	0.5	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/g	1	--	--	--	--	--	--	--
4-Chloroaniline	ug/g	0.5	--	--	--	--	--	--	--
Bis (2-chloroethyl) ether	ug/g	0.5	--	--	--	--	--	--	--
bis (2-Chloroisopropyl) ether	ug/g	0.67	--	--	--	--	--	--	--
Bis (2-ethylhexyl) phthalate	ug/g	5	--	--	--	--	--	--	--
Diethylphthalate	ug/g	0.5	--	--	--	--	--	--	--
Dimethylphthalate	ug/g	0.5	--	--	--	--	--	--	--
Phenol	ug/g	9.4	--	--	--	--	--	--	--
Dioxins/Furans										
1,2,3,4,6,7,8-HpCDD	pg/g	NV	**0.808 J**	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/g	NV	**0.29 J**	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/g	NV	0.02 U	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/g	NV	0.027 U	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/g	NV	0.027 U	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/g	NV	**0.04 J**	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/g	NV	0.027 U	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/g	NV	0.026 U	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/g	NV	0.036 U	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/g	NV	0.017 U	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/g	NV	0.024 U	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/g	NV	0.026 U	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/g	NV	**0.024 J**	--	--	--	--	--	--
2,3,7,8-TCDD	pg/g	NV	0.025 U	--	--	--	--	--	--
2,3,7,8-TCDF	pg/g	NV	0.024 U	--	--	--	--	--	--
Lower Bound PCDD/F TEQ (WHO 2005)	pg/g	13	**0.0146**	--	--	--	--	--	--
Mid Point PCDD/F TEQ (WHO 2005)	pg/g	13	**0.0558**	--	--	--	--	--	--
OCDD	pg/g	NV	**7.3**	--	--	--	--	--	--
OCDF	pg/g	NV	**0.862 J**	--	--	--	--	--	--
Total HpCDD	pg/g	NV	**1.48**	--	--	--	--	--	--
Total HpCDD # Homologues	None	NV	**2**	--	--	--	--	--	--
Total HpCDF	pg/g	NV	**0.622**	--	--	--	--	--	--
Total HpCDF # Homologues	None	NV	**1**	--	--	--	--	--	--
Total HxCDD	pg/g	NV	**0.111**	--	--	--	--	--	--
Total HxCDD # Homologues	None	NV	**2**	--	--	--	--	--	--
Total HxCDF	pg/g	NV	**0.124**	--	--	--	--	--	--
Total HxCDF # Homologues	None	NV	**1**	--	--	--	--	--	--
Total PeCDD	pg/g	NV	0.017 U	--	--	--	--	--	--
Total PeCDD # Homologues	None	NV	**0**	--	--	--	--	--	--
Total PeCDF	pg/g	NV	**0.04**	--	--	--	--	--	--
Total PeCDF # Homologues	None	NV	**1**	--	--	--	--	--	--
Total TCDD	pg/g	NV	**0.058**	--	--	--	--	--	--
Total TCDD # Homologues	None	NV	**1**	--	--	--	--	--	--
Total TCDF	pg/g	NV	0.024 U	--	--	--	--	--	--
Total TCDF # Homologues	None	NV	**0**	--	--	--	--	--	--
Upper Bound PCDD/F TEQ (WHO 2005)	pg/g	13	**0.0869**	--	--	--	--	--	--
Inorganics										
Conductivity	mS/cm	0.7	**0.208**	**0.177**	**0.394**	**0.167**	--	**1.66**	**1.87**
Cyanide, Weak Acid Dissociable	ug/g	0.051	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
pH	pH UNITS	NV	**7.83**	**8**	**7.96**	**7.98**	--	**7.93**	**8.13**
Sodium Absorption Ratio	SAR	5	**8.8**	**5.29**	**16.5 J**	**5.24**	**5.23**	**45.6**	**108 J**
Metals										
Antimony	ug/g	7.5	1 U	1 U	1 U	1 U	--	1 U	1 U
Arsenic	ug/g	18	**1.2**	**2.3**	**2.2**	**2.4**	--	**3.4**	**2.8**
Barium	ug/g	390	**12.8**	**41**	**34.1**	**48.4**	--	**34.7**	**21.1**
Beryllium	ug/g	4	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
Boron	ug/g	120	5 U	**6.8**	**6.3**	**6.3**	--	5 U	**6.2**
Boron (Hot Water Ext.)	ug/g	1.5	0.1 U	0.1 U	**0.12**	0.1 U	--	**0.19**	0.1 U
Cadmium	ug/g	1.2	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
Chromium	ug/g	160	**5.8**	**13.7**	**12.8**	**14.3**	--	**16.2**	**11.5**
Chromium, Hexavalent (Cr6+)	ug/g	8	0.2 U	0.2 U	0.2 U	0.2 U	--	**0.31**	**0.44**

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW109					MW113	
		Sample ID	MW109-2.5-3.5'	DUP14	MW109-8-9.5	MW109-12.5-14.5	MW109-16-17	MW113-2.5-4.5	MW113-6.5-8.5
		Sample Date	7/25/2019	8/15/2019	8/15/2019	8/15/2019	8/15/2019	4/9/2020	4/9/2020
		Sample Type	N	FD	N	N	N	N	N
		Start Depth	0.76	3.81	2.29	3.81	4.88	0.76	1.98
		End Depth	1.07	4.42	2.9	4.42	5.18	1.37	2.59
Analyte	**Units**	**Table 2 SCS [a]**							
Cobalt	ug/g	22	**1.6**	**5.8**	**5.1**	**6.2**	--	**4**	**3.8**
Copper	ug/g	140	**4**	**12**	**12**	**12.9**	--	**16.1**	**10.4**
Lead	ug/g	120	**5.9**	**11.2**	**13**	**14.5**	--	**41.6**	**16.6**
Mercury	ug/g	0.27	**0.0071**	**0.0104**	**0.0132**	**0.0111**	--	**0.0623**	0.005 U
Methyl Mercury	mg/kg	0.0084	--	--	--	--	--	--	--
Molybdenum	ug/g	6.9	1 U	1 U	1 U	1 U	--	1 U	1 U
Nickel	ug/g	100	**3.8**	**11.8**	**10.8**	**13**	--	**8.3**	**8.2**
Selenium	ug/g	2.4	1 U	1 U	1 U	1 U	--	1 U	1 U
Silver	ug/g	20	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U
Thallium	ug/g	1	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
Uranium	ug/g	23	1 U	1 U	1 U	1 U	--	1 U	1 U
Vanadium	ug/g	86	**10.6**	**22.4**	**21.7**	**23**	--	**24.7**	**17.7**
Zinc	ug/g	340	**26.6**	**57.1**	**87**	**64.7**	--	**108**	**94.9**
Other									
Calcium	mg/l	NV	**1.39**	**2.8**	**2.16**	**2.64**	**1.67**	**2.84**	**0.79**
Magnesium	mg/l	NV	**0.57**	**0.97**	0.5 U	**0.92**	**0.72**	**0.5**	0.5 U
Sodium	mg/l	NV	**48.8**	**40.3**	**88.1**	**38.8**	**32.1**	**317**	**349**
Polyaromatic Hydrocarbons (PAHs)									
1-Methylnaphthalene	ug/g	0.99	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U
2-(1-)Methylnaphthalene	ug/g	0.99	0.042 U	0.042 U	0.042 U	0.042 U	--	0.042 U	0.042 U
2-Methylnaphthalene	ug/g	0.99	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U
Acenaphthene	ug/g	7.9	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Acenaphthylene	ug/g	0.15	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Anthracene	ug/g	0.67	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Benzo(a)anthracene	ug/g	0.5	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Benzo(a)pyrene	ug/g	0.3	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Benzo(b)fluoranthene	ug/g	0.78	0.05 U	0.05 U	0.05 U	0.05 U	--	**0.055**	0.05 U
Benzo(g,h,i)perylene	ug/g	6.6	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Benzo(k)fluoranthene	ug/g	0.78	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Chrysene	ug/g	7	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Dibenzo(a,h)anthracene	ug/g	0.1	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Fluoranthene	ug/g	0.69	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Fluorene	ug/g	62	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Indeno(1,2,3-Cd)Pyrene	ug/g	0.38	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Naphthalene	ug/g	0.6	0.013 U	0.013 U	0.013 U	0.013 U	--	0.013 U	0.013 U
Phenanthrene	ug/g	6.2	0.046 U	0.046 U	0.046 U	0.046 U	--	0.046 U	0.046 U
Pyrene	ug/g	78	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Polychlorinated Biphenyls (PCBs)									
Aroclor 1242	ug/g	NV	--	--	--	--	--	--	--
Aroclor 1248	ug/g	NV	--	--	--	--	--	--	--
Aroclor 1254	ug/g	NV	--	--	--	--	--	--	--
Aroclor 1260	ug/g	NV	--	--	--	--	--	--	--
PCB, Total	ug/g	0.35	--	--	--	--	--	--	--
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)									
Benzene	ug/g	0.21	0.0068 U	0.0068 U	0.0068 U	0.0068 U	--	0.0068 U	0.0068 U
Ethylbenzene	ug/g	1.1	0.018 U	0.018 U	0.018 U	0.018 U	--	0.018 U	0.018 U
Toluene	ug/g	2.3	0.08 U	0.08 U	0.08 U	0.08 U	--	0.08 U	0.08 U
Xylene, o	ug/g	NV	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U
Xylenes, m & p	ug/g	NV	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U
Xylenes, Total	ug/g	3.1	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Petroleum Hydrocarbons (PHCs)									
Gravimetric Heavy Hydrocarbons	ug/g	2800	--	--	--	--	--	**550**	--
Petroleum Hydrocarbons F1 (C6-C10 less BTEX)	ug/g	NV	5 U	5 U	5 U	5 U	--	5 U	5 U
Petroleum Hydrocarbons F1 (C6-C10)	ug/g	55	5 U	5 U	5 U	5 U	--	5 U	5 U
Petroleum Hydrocarbons F2 (C10-C16 less Naphthaler	ug/g	NV	10 U	10 U	10 U	10 U	--	10 U	10 U
Petroleum Hydrocarbons F2 (C10-C16)	ug/g	98	10 U	10 U	10 U	10 U	--	10 U	10 U
Petroleum Hydrocarbons F3 (C16-C34 less PAHs)	ug/g	NV	50 U	50 U	50 U	50 U	--	**54**	50 U
Petroleum Hydrocarbons F3 (C16-C34)	ug/g	300	50 U	50 U	50 U	50 U	--	**54**	50 U
Petroleum Hydrocarbons F4 (C34-C50)	ug/g	2800	50 U	50 U	50 U	50 U	--	**181**	50 U
Total Petroleum Hydrocarbons (C6 to C50)	ug/g	NV	72 U	72 U	72 U	72 U	--	**235**	72 U
Physical/Chemistry									
Average Fraction Organic Carbon	None	NV	--	--	0.001 U	0.001 U	0.001 U	--	--
Clay (less than 0.005mm), USCS	%	NV	--	--	--	--	--	--	--
Coarse Sand (2.0 to 4.75mm), USCS	%	NV	--	--	--	--	--	--	--
Fine Sand (0.074 to 0.425mm), USCS	%	NV	--	--	--	--	--	--	--
Fraction Organic Carbon	None	NV	--	--	0.001 U	0.001 U	0.001 U	--	--
Fraction Organic Carbon (Rep1)	None	NV	--	--	--	**0.001**	--	--	--
Fraction Organic Carbon (Rep2)	None	NV	--	--	--	--	--	--	--

Table 6-5. Summary of Analytical Results in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW109					MW113	
		Sample ID	MW109-2.5-3.5'	DUP14	MW109-8-9.5	MW109-12.5-14.5	MW109-16-17	MW113-2.5-4.5	MW113-6.5-8.5
		Sample Date	7/25/2019	8/15/2019	8/15/2019	8/15/2019	8/15/2019	4/9/2020	4/9/2020
		Sample Type	N	FD	N	N	N	N	N
		Start Depth	0.76	3.81	2.29	3.81	4.88	0.76	1.98
		End Depth	1.07	4.42	2.9	4.42	5.18	1.37	2.59
Analyte	**Units**	**Table 2 SCS [a]**							
Gravel (4.75 to 76mm), USCS	%	NV	--	--	--	--	--	--	--
Medium Sand (0.425 to 2.0mm), USCS	%	NV	--	--	--	--	--	--	--
Moisture	%	NV	**6.56**	**10.7**	**8.42**	**9.71**	--	**8.79**	**5.03**
Silt (0.005 to 0.074mm), USCS	%	NV	--	--	--	--	--	--	--
Total Organic Carbon	%	NV	--	--	0.1 U	0.1 U	0.1 U	--	--
Total Organic Carbon (Rep1)	%	NV	--	--	--	**0.1**	--	--	--
Total Organic Carbon (Rep2)	%	NV	--	--	--	--	--	--	--
Volatile Organic Carbons (VOCs)									
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,1,1-Trichloroethane	ug/g	0.38	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,1,2-Trichloroethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,1-Dichloroethane	ug/g	0.47	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,1-Dichloroethene	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,2-Dibromoethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,2-Dichlorobenzene	ug/g	1.2	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,2-Dichloroethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,2-Dichloropropane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,3-Dichlorobenzene	ug/g	4.8	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
1,3-Dichloropropene	ug/g	0.05	0.042 U	0.042 U	0.042 U	0.042 U	--	0.042 U	0.042 U
1,4-Dichlorobenzene	ug/g	0.083	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
2-Butanone	ug/g	16	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
4-Methyl-2-Pentanone	ug/g	1.7	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
Acetone	ug/g	16	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
Bromodichloromethane	ug/g	1.5	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Bromoform	ug/g	0.27	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Bromomethane	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Carbon tetrachloride	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Chlorobenzene	ug/g	2.4	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Chlorodibromomethane	ug/g	2.3	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Chloroform	ug/g	0.05	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
cis-1,2-Dichloroethene	ug/g	1.9	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
cis-1,3-Dichloropropene	ug/g	NV	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U
Dichlorodifluoromethane	ug/g	16	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 UJ	0.05 UJ
Dichloromethane	ug/g	0.1	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Methyl tert-butyl ether (MTBE)	ug/g	0.75	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
n-Hexane	ug/g	2.8	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Styrene	ug/g	0.7	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Tetrachloroethene	ug/g	0.28	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
trans-1,2-Dichloroethene	ug/g	0.084	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
trans-1,3-Dichloropropene	ug/g	NV	0.03 U	0.03 U	0.03 U	0.03 U	--	0.03 U	0.03 U
Trichloroethylene	ug/g	0.061	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U
Trichlorofluoromethane	ug/g	4	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
Vinyl Chloride	ug/g	0.02	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U

[a] MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, residential/parkland/institutional land use, coarse soil texture.

Source: Ontario Ministry of the Environment, Parks and Conservation (MECP). 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment.* April 15.

Notes:

Bold denote positive detection at or above reportable detection limit

Shading denotes detected results that exceeds the applicable standard

U = Analyte not detected

ug/L = microgram(s) per litre

ug/g = microgram per gram

mg/L = milligram(s) per litre

mS/cm = millisiemen per centimeter

SAR = Sodiuim Absorption Ratio

ID = identification

NV = no value available in applicable standards

-- = Analyte not analyzed

Table 6-6. Maximum Detected Concentrations in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Analyte Group	Analyte Name	Maximum Detected Concentration	Unit	Location	Sample Name	Sample Type	Sample Date	Start Depth (mbgs)	End Depth (mbgs)	SDG
BTEX	Toluene	0.003	ug/g	BH-03	BH-3 (SS2)-0.8-1.4	N	11/27/2008	0.8	1.4	L713254
Dioxins/Furans	Mid Point PCDD/F TEQ (WHO 2005)	0.0558	pg/g	MW109	MW109-2.5-3.5'	N	7/25/2019	0.76	1.07	L2318180
Inorganics	Conductivity	2.95	mS/cm	MW102B	MW102-20-25	N	7/23/2019	0.51	0.63	L2318180
Inorganics	pH	9.46	pH UNITS	MW105	MW105-5-6	N	8/13/2019	1.52	1.83	L2328062
Inorganics	Sodium Absorption Ratio	108	SAR	MW113	MW113-6.5-8.5	N	4/9/2020	1.98	2.59	L2436005
Metals	Antimony	1	ug/g	MW102B	MW102-7.5-9.5	N	8/26/2019	2.29	2.9	L2336718
Metals	Arsenic	6.6	ug/g	MW100	MW100-1.25-1.5'	N	7/24/2019	0.41	0.46	L2318180
Metals	Barium	111	ug/g	MW100	MW100-1.25-1.5'	N	7/24/2019	0.41	0.46	L2318180
Metals	Beryllium	0.98	ug/g	MW100	MW100-1.25-1.5'	N	7/24/2019	0.41	0.46	L2318180
Metals	Boron	10.9	ug/g	MW103	MW103-17.5-19.5	N	8/14/2019	5.33	5.94	L2330748
Metals	Boron (Hot Water Ext.)	0.81	ug/g	MW100	MW100-1.25-1.5'	N	7/24/2019	0.41	0.46	L2318180
Metals	Chromium	29.3	ug/g	MW100	MW100-1.25-1.5'	N	7/24/2019	0.41	0.46	L2318180
Metals	Chromium, Hexavalent (Cr6+)	1.04	ug/g	MW100	MW100-1.25-1.5'	N	7/24/2019	0.41	0.46	L2318180
Metals	Cobalt	8.6	ug/g	MW103	MW103-17.5-19.5	N	8/14/2019	5.33	5.94	L2330748
Metals	Copper	33.1	ug/g	MW102B	MW102-7.5-9.5	N	8/26/2019	2.29	2.9	L2336718
Metals	Lead	207	ug/g	MW101	MW101-1.5-2'	N	7/26/2019	0.46	0.61	L2318180
Metals	Mercury	0.889	ug/g	MW101	MW101-1.5-2'	N	7/26/2019	0.46	0.61	L2318180
Metals	Nickel	19.5	ug/g	MW103	MW103-17.5-19.5	N	8/14/2019	5.33	5.94	L2330748
Metals	Silver	0.21	ug/g	MW101	MW101-1.5-2'	N	7/26/2019	0.46	0.61	L2318180
Metals	Thallium	1	ug/g	BH-14	BH-14 (SS2)-0.8-1.4	N	11/25/2008	0.8	1.4	L712303
Metals	Vanadium	50.8	ug/g	MW100	MW100-1.25-1.5'	N	7/24/2019	0.41	0.46	L2318180
Metals	Zinc	246	ug/g	BH201	BH201-1-1.5'	N	7/24/2019	0.3	0.46	L2318180
PAHs	2-(1-)Methylnaphthalene	0.067	ug/g	BH208	BH208-3-3.5	N	11/12/2019	0.91	1.07	L2381422
PAHs	Acenaphthylene	0.054	ug/g	MW105	MW105-5-6	N	8/13/2019	1.52	1.83	L2328062
PAHs	Benzo(a)anthracene	0.14	ug/g	BH-14	BH-14 (SS2)-0.8-1.4	N	11/25/2008	0.8	1.4	L712303
PAHs	Benzo(a)pyrene	0.24	ug/g	BH-14	BH-14 (SS2)-0.8-1.4	N	11/25/2008	0.8	1.4	L712303
PAHs	Benzo(b)fluoranthene	0.18	ug/g	BH-14	BH-14 (SS2)-0.8-1.4	N	11/25/2008	0.8	1.4	L712303
PAHs	Benzo(g,h,i)perylene	0.237	ug/g	BH208	BH208-3-3.5	N	11/12/2019	0.91	1.07	L2381422
PAHs	Benzo(k)fluoranthene	0.11	ug/g	BH-14	BH-14 (SS2)-0.8-1.4	N	11/25/2008	0.8	1.4	L712303
PAHs	Chrysene	0.18	ug/g	BH-14	BH-14 (SS2)-0.8-1.4	N	11/25/2008	0.8	1.4	L712303
PAHs	Dibenzo(a,h)anthracene	0.09	ug/g	BH-14/ BH208	BH-14 (SS2)-0.8-1.4 / BH208-3-3.5	N	11/25/2008 / 11/12/2019	0.8	1.4	L712303 / L2381422
PAHs	Fluoranthene	0.19	ug/g	BH-14	BH-14 (SS2)-0.8-1.4	N	11/25/2008	0.8	1.4	L712303
PAHs	Indeno(1,2,3-Cd)Pyrene	0.14	ug/g	BH-14	BH-14 (SS2)-0.8-1.4	N	11/25/2008	0.8	1.4	L712303
PAHs	Naphthalene	0.039	ug/g	BH208	BH208-3-3.5	N	11/12/2019	0.91	1.07	L2381422
PAHs	Phenanthrene	0.123	ug/g	BH205	BH205-2.5-4.5	N	8/12/2019	0.76	1.37	L2328062
PAHs	Pyrene	0.178	ug/g	MW101	MW101-1.5-2'	N	7/26/2019	0.46	0.61	L2318180
PHCs	Petroleum Hydrocarbons F3 (C16-C34)	300	ug/g	MW107	MW107-2.5-4.5	N	8/19/2019	0.76	1.37	L2333129
PHCs	Petroleum Hydrocarbons F4 (C34-C50)	2110	ug/g	BH-15-MW3	BH-15 (SS1)-0-0.6	N	11/26/2008	0	0.6	L712303
VOCs	Trichloroethylene	0.004	ug/g	BH-14	BH-14 (SS2)-0.8-1.4	N	11/25/2008	0.8	1.4	L712303

Notes:

µg/g = microgram per gram
ABN - acid, base, and neutral compounds
BTEX = benzene, toluene, ethylbenzene, and xylenes
F = fraction
FD = field duplicate
mbgs = metres below ground surface
mS/cm = milliSiemens per centimetre
N = normal sample
ORP = other regulated parameters
PAH = polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyls
pg/g = picogram per gram
PHC = petroleum hydrocarbons
SAR = sodium adsorption ratio
SDG = sample delivery group
VOC = volatile organic compounds

Table 6-7a. Preliminary COC Screening in Soil

Phase Two Environmental Site Assesment, 55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Contaminant [a]	Parameter Group	No. of Stations	No. of Samples	Max Detected Concentration	Max Nondetect Concentration	Maximum Measured Concentration [b.]	Units	Minimum Detection Limit (MDL)	Applicable SCS [c.]	Other Criteria [d]	No. of Detects Exceeding Table 2 SCS	No. of Nondetects exceeding Table 2 SCS	No. of Detects with no Table 2 SCS	No. of Nondetects with no Table 2 SCS	Retained as a Contaminant for Phase Two ESA? (Rationale)
Lead	Metal	34	68	207	--	207	µg/g	1	120	--	2	--	0	0	**Yes, included (Max > Table 2 SCS)**
Mercury	Metal	32	65	0.889	0.05	0.889	µg/g	0.005	0.27	--	1	--	0	0	**Yes, included (Max > Table 2 SCS)**
1,1'-Biphenyl	ABN	1	4	--	0.05	0.05	µg/g	0.05	0.31	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,2,4-Trichlorobenzene	ABN	1	4	--	0.05	0.05	µg/g	0.05	0.36	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
2,4 & 2,6-Dinitrotoluene	ABN	1	4	--	0.14	0.14	µg/g	0.141	0.5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
2,4-Dimethylphenol	ABN	1	4	--	0.1	0.1	µg/g	0.1	38	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
2,4-Dinitrophenol	ABN	1	4	--	1	1	µg/g	1	2	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
3,3'-Dichlorobenzidine	ABN	1	4	--	0.1	0.1	µg/g	0.1	1	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
4-Chloroaniline	ABN	1	4	--	0.1	0.1	µg/g	0.1	0.5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Bis (2-chloroethyl) ether	ABN	1	4	--	0.1	0.1	µg/g	0.1	0.5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Bis (2-Chloroisopropyl) ether	ABN	1	4	--	0.1	0.1	µg/g	0.1	0.67	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Bis (2-ethylhexyl) phthalate	ABN	1	4	--	0.1	0.1	µg/g	0.1	5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Diethylphthalate	ABN	1	4	--	0.1	0.1	µg/g	0.1	0.5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Dimethylphthalate	ABN	1	4	--	0.1	0.1	µg/g	0.1	0.5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Phenol	ABN	1	4	--	0.1	0.1	µg/g	0.1	9.4	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Benzene	BTEX	20	53	--	0.0068	0.0068	µg/g	0.002	0.21	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Ethylbenzene	BTEX	20	53	--	0.018	0.018	µg/g	0.002	1.1	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Toluene	BTEX	20	53	0.003	0.08	0.08	µg/g	0.002	2.3	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Xylenes, Total	BTEX	20	53	--	0.05	0.05	µg/g	0.002	3.1	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Dioxins and Furans	Dioxins/Furan	2	2	0.0558	--	0.0558	pg/g	1	13	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Conductivity	Inorganics	17	58	2.95	--	2.95	mS/cm	0.004	0.7	--	34	--	0	0	No, excluded (See Table 6-7b)
Cyanide, Weak Acid Dissociable	Inorganics	17	48	--	0.05	0.05	µg/g	0.05	0.051	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Sodium Absorption Ratio	Inorganics	17	64	108	--	108	SAR	0.1	5	--	56	--	0	0	No, excluded (See Table 6-7b)
Antimony	Metal	34	68	1	1	1	µg/g	1	7.5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Arsenic	Metal	34	68	6.6	1	6.6	µg/g	1	18	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Barium	Metal	34	68	111	--	111	µg/g	1	390	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Beryllium	Metal	34	68	0.98	0.5	0.98	µg/g	0.5	4	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Boron	Metal	34	68	10.9	5	10.9	µg/g	0.1	120	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Boron (Hot Water Ext.)	Metal	17	48	0.81	0.1	0.81	µg/g	0.1	1.5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Cadmium	Metal	34	68	--	0.5	0.5	µg/g	0.5	1.2	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Calcium	Metal	17	64	51.2	0.5	51.2	mg/l	0.5	-	53508	0	0	63	1	No, excluded (Max < or = OTR value)
Chromium	Metal	34	68	29.3	--	29.3	µg/g	1	160	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Chromium, Hexavalent (Cr6+)	Metal	31	62	1.04	2	2	µg/g	0.2	8	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Cobalt	Metal	34	68	8.6	--	8.6	µg/g	1	22	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Copper	Metal	34	68	33.1	--	33.1	µg/g	1	140	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Magnesium	Metal	17	64	27.2	0.5	27.2	mg/l	0.5	-	17400	0	0	50	14	No, excluded (Max < or = OTR value)
Methyl Mercury	Metal	2	2	--	0.00005	0.00005	mg/kg	0.00005	0.0084	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Molybdenum	Metal	34	68	--	1	1	µg/g	1	6.9	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Nickel	Metal	20	54	19.5	--	19.5	µg/g	1	100	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Selenium	Metal	34	68	--	1	1	µg/g	1	2.4	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Silver	Metal	34	68	0.21	0.2	0.21	µg/g	0.2	20	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Sodium	Metal	17	64	614	--	614	mg/l	0.5	-	216	0	0	64	--	No, excluded (See Table 6-7b)
Thallium	Metal	34	68	1	1	1	µg/g	0.5	1	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Uranium	Metal	20	54	--	1	1	µg/g	1	23	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Vanadium	Metal	34	68	50.8	--	50.8	µg/g	1	86	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Zinc	Metal	34	68	246	--	246	µg/g	5	340	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
2-(1-)Methylnaphthalene	PAH	22	54	0.067	0.085	0.085	µg/g	0.03	0.99	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Acenaphthene	PAH	22	54	--	0.05	0.05	µg/g	0.05	7.9	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Acenaphthylene	PAH	22	54	0.054	0.05	0.054	µg/g	0.05	0.15	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Anthracene	PAH	22	54	--	0.05	0.05	µg/g	0.05	0.67	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Benzo(a)anthracene	PAH	22	54	0.14	0.05	0.14	µg/g	0.05	0.5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Benzo(a)pyrene	PAH	22	54	0.24	0.05	0.24	µg/g	0.02	0.3	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Benzo(b&j)fluoranthene	PAH	22	54	0.18	0.05	0.18	µg/g	0.05	0.78	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Benzo(g,h,i)perylene	PAH	22	54	0.237	0.05	0.237	µg/g	0.05	6.6	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Benzo(k)fluoranthene	PAH	22	54	0.11	0.05	0.11	µg/g	0.05	0.78	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Chrysene	PAH	22	54	0.18	0.05	0.18	µg/g	0.05	7	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Dibenzo(a,h)anthracene	PAH	22	54	0.13	0.05	0.13	µg/g	0.05	0.1	--	1	--	0	0	No, excluded (See Table 6-7b)
Fluoranthene	PAH	22	54	0.19	0.05	0.19	µg/g	0.05	0.69	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Fluorene	PAH	22	54	--	0.05	0.05	µg/g	0.05	62	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Indeno(1,2,3-Cd)Pyrene	PAH	22	54	0.14	0.05	0.14	µg/g	0.05	0.38	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Naphthalene	PAH	22	54	0.039	0.065	0.065	µg/g	0.013	0.6	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)

Table 6-7a. Preliminary COC Screening in Soil

Phase Two Environmental Site Assesment, 55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Contaminant [a]	Parameter Group	No. of Stations	No. of Samples	Max Detected Concentration	Max Nondetect Concentration	Maximum Measured Concentration [b.]	Units	Minimum Detection Limit (MDL)	Applicable SCS [c.]	Other Criteria [d]	No. of Detects Exceeding Table 2 SCS	No. of Nondetects exceeding Table 2 SCS	No. of Detects with no Table 2 SCS	No. of Nondetects with no Table 2 SCS	Retained as a Contaminant for Phase Two ESA? (Rationale)
Phenanthrene	PAH	22	54	0.123	0.05	0.123	µg/g	0.046	6.2	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Pyrene	PAH	22	54	0.178	0.05	0.178	µg/g	0.05	78	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
PCB, Total	PCB	5	9	--	0.02	0.02	µg/g	0.01	0.35	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Gravimetric Heavy Hydrocarbons	PHC	5	5	2110	0	2110	ug/g	250	2800	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Petroleum Hydrocarbons F1 (C6-C10)	PHC	27	61	--	5	5	µg/g	5	55	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Petroleum Hydrocarbons F2 (C10-C16)	PHC	27	61	--	20	20	µg/g	10	98	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Petroleum Hydrocarbons F3 (C16-C34)	PHC	27	61	300	50	300	µg/g	50	300	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Petroleum Hydrocarbons F4 (C34-C50)	PHC	27	61	2110	50	2110	µg/g	50	2800	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,1,1,2-Tetrachloroethane	VOC	20	53	--	0.05	0.05	µg/g	0.008	0.058	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,1,1-Trichloroethane	VOC	20	53	--	0.05	0.05	µg/g	0.008	0.38	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,1,2,2-Tetrachloroethane	VOC	20	53	--	0.05	0.05	µg/g	0.004	0.05	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,1,2-Trichloroethane	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.05	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,1-Dichloroethane	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.47	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,1-Dichloroethene	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.05	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,2-Dibromoethane	VOC	20	53	--	0.05	0.05	µg/g	0.004	0.05	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,2-Dichlorobenzene	VOC	20	53	--	0.05	0.05	µg/g	0.002	1.2	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,2-Dichloroethane	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.05	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,2-Dichloropropane	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.05	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,3-Dichlorobenzene	VOC	20	53	--	0.05	0.05	µg/g	0.002	4.8	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
1,3-Dichloropropene	VOC	20	53	--	0.042	0.042	µg/g	0.042	0.05	--	0	0	--	4	No, excluded (Max < or = Table 2 SCS)
1,4-Dichlorobenzene	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.083	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
2-Butanone	VOC	20	53	--	0.5	0.5	µg/g	0.2	16	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
4-Methyl-2-Pentanone	VOC	20	53	--	0.5	0.5	µg/g	0.2	1.7	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Acetone	VOC	20	53	--	0.5	0.5	µg/g	0.5	16	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Bromodichloromethane	VOC	20	53	--	0.05	0.05	µg/g	0.005	1.5	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Bromoform	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.27	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Bromomethane	VOC	20	53	--	0.05	0.05	µg/g	0.003	0.05	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Carbon tetrachloride	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.05	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Chlorobenzene	VOC	20	53	--	0.05	0.05	µg/g	0.002	2.4	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Chlorodibromomethane	VOC	20	53	--	0.05	0.05	µg/g	0.003	2.3	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Chloroform	VOC	20	53	--	0.05	0.05	µg/g	0.006	0.05	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
cis-1,2-Dichloroethene	VOC	20	53	--	0.05	0.05	µg/g	0.02	1.9	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Dichlorodifluoromethane	VOC	20	53	--	0.05	0.05	µg/g	0.03	16	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Dichloromethane	VOC	20	53	--	0.063	0.063	µg/g	0.003	0.1	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Methyl tert-butyl ether (MTBE)	VOC	20	53	--	0.2	0.2	µg/g	0.05	0.75	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
n-Hexane	VOC	17	49	--	0.05	0.05	µg/g	0.05	2.8	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Styrene	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.7	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Tetrachloroethene	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.28	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
trans-1,2-Dichloroethene	VOC	20	53	--	0.05	0.05	µg/g	0.002	0.084	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Trichloroethylene	VOC	20	53	0.004	0.01	0.01	µg/g	0.004	0.061	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Trichlorofluoromethane	VOC	20	53	--	0.05	0.05	µg/g	0.03	4	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)
Vinyl Chloride	VOC	20	53	--	0.02	0.02	µg/g	0.003	0.02	--	0	0	0	0	No, excluded (Max < or = Table 2 SCS)

Notes:

[a.] The representative maximum concentration (the maximum concentration of similar analytes or total concentration of multiple isomers) is used for comparison.

[b.] Column lists the greater of the maximum detected concentration and the maximum nondetect concentration.

[c.] Ontario Regulation 153/04, Table 2: Full Depth Generic Site Condition Standards in a Potale Ground Water Condition, for Residential/ Parkland/ Institutional Property Type Use and Coarse Textured Soils (MECP, 2011a).

[d.] For calcium, magnesium, and sodium, the Ontario Typical Ranges for an urban scenario are applied (MECP, 2011b)

Grey shaded parameters have been reviewed further. Refer to Table 6-7b.

Bold parameters are identified as COCs

-- = no value or not applicable
> = greater than
< = less than
µg/g = microgram per gram
ABN = acid, base, and neutral compounds
COC = contaminant of concern
F = fraction
Max = maximum concentration
MDL = method detection limit
MECP = Ontario Ministry of the Environment, Conservation and Parks
mS/cm = milliSiemen per centimetre
No. = number
PAH = polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyl
PHC = petroleum hydrocarbon
SCS = Site Condition Standard
VOC = volatile organic compound
OTR = Ontario Typical Range

Table 6-7b. Rationale for the Removal of Soil COCs

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Parameter Group	Parameter	Category	Sample(s)	Comment/Rationale
INORGANICS	Sodium	Parameter with no Table 2 SCS but detected concentrations above the OTR value.	18 samples across the Site from 2019 and 2020.	18 of a total of 64 samples had detected concentrations greater than the OTR value of 216 µg/g. The remaining 46 samples had detected concentrations of sodium below the OTR value. Sodium risks are currently analyzed using SAR analysis. SAR results are discussed in Table 6-7c.. Based on the available information, at the discretion of the QPESA, sodium is not considered to be a COC for the Site.

Notes:

The rationale for exclusion of COCs listed in this table is based on the data collected as part of the ESA and only applies to this ESA.

µg/g = micrograms per gram
COC = contaminant of concern
O. Reg. = Ontario Regulation
OTR = Ontario Typical Range
QPESA = MECP Qualified Person for Environmental Site Assessment
SAR = sodium adsorption ratio
SCS = Site Condition Standards

Table 6-7c. Rationale for the Exclusion of Soil COCs

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Parameter Group	Parameter	Category	Sample(s)	Comment/Rationale
PAH	Dibenzo[a,h]anthracene	Parameter with existing SCS and detected exceedance.	1 sample from BH-14 (0.8 to 1.4 mbgs) from 2008 (COA L712303).	One exceedances of dibenzo[a,h]anthracene was detected across the Phase Two Property from a historical sample at BH-14. In November 2019, BH208 was drilled in the same area as BH-14, and samples were collected between 0.91 to 1.07 mbgs, and 2.3 to 2.44 mbgs. The results from the two locations were averaged below the SCS. Based on the available information, this parameter was determined to likely not be present at concentrations exceeding the SCS; therefore, at the discretion of the QPESA, was not considered to be a COC for the Phase Two Property.
INORGANICS	Conductivity (EC) Sodium Adsorption Ratio (SAR)	Parameter with Table 2 SCS and exemptions in Section 49.1 of O. Reg. 153/04	34 (EC) and 56 (SAR) samples across the Site from 2019 and 2020.	The presence of EC and SAR at the Site are related to the application of salt on the parking lot surface during winter conditions. The application of salt has been used for the safety of vehicular and pedestrian traffic. Under Section 49.1 of the revised O. Reg. 153/04, the SCS is deemed to not be exceeded for the purpose of Part XV.1 of the Act should a substance be applied to surfaces for hte safety of vehicularor pedestrian traffic under conditions of snow or ice or both. Therefore, at the discretion of the QPESA, EC and SAR were not considered to be COCs for the Phase Two Property.

Notes:

The rationale for exclusion of COCs listed in this table is based on the data collected as part of the ESA and only applies to this ESA.

µg/g = micrograms per gram
COA = certificate of analysis
COC = contaminant of concern
EC = electrical conductivity
mbgs = metres below ground surface
O. Reg. = Ontario Regulation
PAH = polycyclic aromatic hydrocarbon
QPESA = MECP Qualified Person for Environmental Site Assessment
SAR = sodium adsorption ratio
SCS = Site Condition Standards

Table 6-7d. Contaminants of Concern Identified in Soil

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Analytical Group	Analytes	
Metals	Lead	Mercury

Table 6-8. Summary of Analytical Results in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW100		MW101			MW102A		MW102B		MW103			MW104		
		Sample ID	MW100	MW100	MW101	MW101	MW101	MW102A	MW102A	MW102B	MW102B	DUP1	MW103	MW103	DUP2	MW104	DUP3
		Sample Date	9/6/2019	12/19/2019	9/5/2019	9/24/2019	12/20/2019	9/6/2019	12/19/2019	9/6/2019	12/19/2019	9/5/2019	9/5/2019	12/18/2019	9/5/2019	9/5/2019	12/20/2019
		Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	FD	N	FD
		Start Depth	5.49	5.49	5.71	5.71	5.71	2.13	2.13	8.84	8.84	2.13	2.13	2.13	5.94	5.94	5.94
		End Depth	8.53	8.53	8.76	8.76	8.76	5.18	5.18	10.36	10.36	5.18	5.18	5.18	8.99	8.99	8.99
Analyte	**Units**	**Table 2 SCS [a]**															
Acids, Bases, Neutrals (ABNs)																	
1,1'-Biphenyl	ug/l	0.5	--	--	--	--	--	--	--	--	--	--	--	--	0.4 U	0.4 U	0.4 U
1,2,4-Trichlorobenzene	ug/l	70	--	--	--	--	--	--	--	--	--	--	--	--	0.4 U	0.4 U	0.4 U
2,4 & 2,6-Dinitrotoluene	ug/l	5	--	--	--	--	--	--	--	--	--	--	--	--	0.57 U	0.57 U	0.57 U
2,4-Dimethylphenol	ug/l	59	--	--	--	--	--	--	--	--	--	--	--	--	0.5 U	0.5 U	0.5 U
2,4-Dinitrophenol	ug/l	10	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1 U
2,4-Dinitrotoluene	ug/l	5	--	--	--	--	--	--	--	--	--	--	--	--	0.4 U	0.4 U	0.4 U
2,6-Dinitrotoluene	ug/l	5	--	--	--	--	--	--	--	--	--	--	--	--	0.4 U	0.4 U	0.4 U
3,3'-Dichlorobenzidine	ug/l	0.5	--	--	--	--	--	--	--	--	--	--	--	--	0.4 U	0.4 U	0.4 U
4-Chloroaniline	ug/l	10	--	--	--	--	--	--	--	--	--	--	--	--	0.4 U	0.4 U	0.4 U
Bis (2-chloroethyl) ether	ug/l	5	--	--	--	--	--	--	--	--	--	--	--	--	0.4 U	0.4 U	0.4 U
bis (2-Chloroisopropyl) ether	ug/l	120	--	--	--	--	--	--	--	--	--	--	--	--	0.4 U	0.4 U	0.4 U
Bis (2-ethylhexyl) phthalate	ug/l	10	--	--	--	--	--	--	--	--	--	--	--	--	**2.3**	**2**	2 U
Diethylphthalate	ug/l	38	--	--	--	--	--	--	--	--	--	--	--	--	0.2 U	0.2 U	0.2 U
Dimethylphthalate	ug/l	38	--	--	--	--	--	--	--	--	--	--	--	--	0.2 U	0.2 U	0.2 U
Phenol	ug/l	890	--	--	--	--	--	--	--	--	--	--	--	--	0.5 U	0.5 U	0.5 U
Inorganics																	
Chloride (Cl)	mg/l	790	**6970**	**8010**	**1380**	--	**370**	**6010**	**8140**	**9610**	**8500**	**4980**	**6580**	**5890**	--	**2660**	--
Conductivity	mS/cm	NV	**20.1**	**23**	**4.18**	--	**1.76**	**17.9**	**23.5**	**27**	**24.3**	**14.5**	**14.6**	**15.4**	--	**7.24**	--
Cyanide, Weak Acid Dissociable	ug/l	66	**2.8**	2 U	2 U	--	2 U	2 U	**8.4**	2 U	2 U	**2.5**	2 U	2 U	--	2 U	--
pH	pH UNITS	NV	**7.77**	**7.82**	**7.86**	--	**7.76**	**7.43**	**7.49**	**7.14**	**7.34**	**7.44**	**7.55**	**7.53**	--	**7.8**	--
Sodium	ug/l	490000	**4590000**	--	**725000**	--	--	**3960000**	--	**6100000**	--	**3150000**	**3140000**	--	--	**1360000**	--
Sodium Absorption Ratio	SAR	NV	0.1 U	--	**21.8 J**	--	--	0.1 U	--	**22 J**	--	130 UJ	130 UJ	--	--	130 UJ	--
Metals																	
Antimony	ug/l	6	10 U	--	1 U	--	--	10 U	--	10 U	--	1 U	1 U	--	--	1 U	--
Arsenic	ug/l	25	10 U	--	1 U	--	--	10 U	--	10 U	--	**1.2**	1 U	--	--	1 U	--
Barium	ug/l	1000	**356**	**392**	**87.1**	--	**53.1**	**462**	**526**	**619**	**556**	**403**	**406**	**378**	--	**164**	--
Beryllium	ug/l	4	10 U	10 U	1 U	--	1 U	10 U	10 U	10 U	10 U	1 U	1 U	1 U	--	1 U	--
Boron	ug/l	5000	1000 U	1000 U	100 U	--	100 U	1000 U	1000 U	1000 U	1000 U	100 U	100 U	100 U	--	100 U	--
Cadmium	ug/l	2.7	**1.1**	**0.72**	0.05 U	--	0.05 U	0.5 U	0.5 U	**1.02**	**0.78**	**0.134**	**0.131**	**0.128**	--	0.05 U	--
Chromium	ug/l	50	50 U	50 U	5 U	--	5 U	50 U	50 U	50 U	50 U	5 U	5 U	5 U	--	5 U	--
Chromium, Hexavalent (Cr6+)	ug/l	25	**3.87**	**4.15**	**0.55**	--	**0.51**	0.5 U	**0.51**	**1.28**	**0.51**	0.5 U	**0.56**	0.5 U	--	0.5 U	--
Cobalt	ug/l	3.8	10 U	10 U	1 U	--	1 U	10 U	10 U	10 U	10 U	1 U	1 U	**1.4**	--	1 U	--
Copper	ug/l	87	20 U	20 U	**2.4**	--	**2.2**	20 U	20 U	20 U	20 U	**3.1 J**	**4.4 J**	**3**	--	**2.1**	--
Lead	ug/l	10	5 U	5 U	0.5 U	--	0.5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Mercury	ug/l	0.29	0.005 U	0.005 U	0.005 U	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	--	0.005 U	--
Molybdenum	ug/l	70	5 U	5 U	**6.26**	--	**1.95**	5 U	5 U	**13.3**	5 U	**4.87**	**4.93**	**3.13**	--	**17.6**	--
Nickel	ug/l	100	50 U	50 U	5 U	--	5 U	50 U	50 U	50 U	50 U	5 U	5 U	5 U	--	5 U	--
Selenium	ug/l	10	5 U	--	**4.66**	--	--	5 U	--	5 U	--	**0.55**	**0.57**	--	--	0.5 U	--
Silver	ug/l	1.5	5 U	5 U	0.5 U	--	0.5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Thallium	ug/l	2	1 U	1 U	0.1 U	--	0.1 U	1 U	1 U	1 U	1 U	**0.12**	**0.12**	0.1 U	--	0.1 U	--
Uranium	ug/l	20	1 U	1 U	**0.82**	--	**0.76**	**3.5**	**1.7**	**1.8**	**1.6**	**4.7**	**4.76**	**5.79**	--	**1.83**	--
Vanadium	ug/l	6.2	50 U	50 U	5 U	--	5 U	50 U	50 U	50 U	50 U	5 U	5 U	5 U	--	5 U	--
Zinc	ug/l	1100	100 U	100 U	10 U	--	10 U	100 U	100 U	100 U	100 U	10 U	10 U	10 U	--	10 U	--
Polyaromatic Hydrocarbons (PAHs)																	
1-Methylnaphthalene	ug/l	3.2	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	**0.022**	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
2-(1-)Methylnaphthalene	ug/l	3.2	0.028 U	0.028 U	0.028 U	--	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	--	0.028 U	--
2-Methylnaphthalene	ug/l	3.2	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Acenaphthene	ug/l	4.1	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Acenaphthylene	ug/l	1	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Anthracene	ug/l	2.4	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--

Table 6-8. Summary of Analytical Results in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW100		MW101			MW102A		MW102B		MW103			MW104		
		Sample ID	MW100	MW100	MW101	MW101	MW101	MW102A	MW102A	MW102B	MW102B	DUP1	MW103	MW103	DUP2	MW104	DUP3
		Sample Date	9/6/2019	12/19/2019	9/5/2019	9/24/2019	12/20/2019	9/6/2019	12/19/2019	9/6/2019	12/19/2019	9/5/2019	9/5/2019	12/18/2019	9/5/2019	9/5/2019	12/20/2019
		Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	FD	N	FD
		Start Depth	5.49	5.49	5.71	5.71	5.71	2.13	2.13	8.84	8.84	2.13	2.13	2.13	5.94	5.94	5.94
		End Depth	8.53	8.53	8.76	8.76	8.76	5.18	5.18	10.36	10.36	5.18	5.18	5.18	8.99	8.99	8.99
Analyte	**Units**	**Table 2 SCS [a]**															
Benzo(a)anthracene	ug/l	1	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Benzo(a)pyrene	ug/l	0.01	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	--
Benzo(b)fluoranthene	ug/l	0.1	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Benzo(g,h,i)perylene	ug/l	0.2	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Benzo(k)fluoranthene	ug/l	0.1	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Chrysene	ug/l	0.1	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Dibenzo(a,h)anthracene	ug/l	0.2	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Fluoranthene	ug/l	0.41	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Fluorene	ug/l	120	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Indeno(1,2,3-Cd)Pyrene	ug/l	0.2	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Naphthalene	ug/l	11	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	--
Phenanthrene	ug/l	1	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Pyrene	ug/l	4.1	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																	
Benzene	ug/l	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Ethylbenzene	ug/l	2.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Toluene	ug/l	24	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Xylene, o	ug/l	NV	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	--	0.3 U	--
Xylenes, m & p	ug/l	NV	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	--
Xylenes, Total	ug/l	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Petroleum Hydrocarbons (PHCs)																	
Chrom. to baseline at nC50	None	NV	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	--
Petroleum Hydrocarbons F1 (C6-C10 less BTEX)	ug/l	NV	25 U	25 U	25 U	--	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	--	25 U	--
Petroleum Hydrocarbons F1 (C6-C10)	ug/l	750	25 U	25 U	25 U	--	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	--	25 U	--
Petroleum Hydrocarbons F2 (C10-C16 less Naphthalene)	ug/l	NV	100 U	100 U	100 U	--	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	--	100 U	--
Petroleum Hydrocarbons F2 (C10-C16)	ug/l	150	100 U	100 U	100 U	--	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	--	100 U	--
Petroleum Hydrocarbons F3 (C16-C34 less PAHs)	ug/l	NV	250 U	250 U	250 U	--	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	--	250 U	--
Petroleum Hydrocarbons F3 (C16-C34)	ug/l	500	250 U	250 U	250 U	--	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	--	250 U	--
Petroleum Hydrocarbons F4 (C34-C50)	ug/l	500	250 U	250 U	250 U	--	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	--	250 U	--
Total Petroleum Hydrocarbons (C6 to C50)	ug/l	NV	370 U	370 U	370 U	--	370 U	370 U	370 U	370 U	370 U	370 U	370 U	370 U	--	370 U	--
Volatile Organic Carbons (VOCs)																	
1,1,1,2-Tetrachloroethane	ug/l	1.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,1,1-Trichloroethane	ug/l	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,1,2,2-Tetrachloroethane	ug/l	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,1,2-Trichloroethane	ug/l	4.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,1-Dichloroethane	ug/l	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,1-Dichloroethene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,2-Dibromoethane	ug/l	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--
1,2-Dichlorobenzene	ug/l	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,2-Dichloroethane	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,2-Dichloropropane	ug/l	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,3-Dichlorobenzene	ug/l	59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,3-Dichloropropene	ug/l	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
1,4-Dichlorobenzene	ug/l	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
2-Butanone	ug/l	1800	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U	--
4-Methyl-2-Pentanone	ug/l	640	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U	--
Acetone	ug/l	2700	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	--	30 U	--
Bromodichloromethane	ug/l	16	2 U	2 U	**6.7**	**7.1**	**6.6**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	**4.7**	--
Bromoform	ug/l	25	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	--
Bromomethane	ug/l	0.89	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Carbon tetrachloride	ug/l	0.79	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	--

Table 6-8. Summary of Analytical Results in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW100		MW101			MW102A		MW102B		MW103			MW104		
		Sample ID	MW100	MW100	MW101	MW101	MW101	MW102A	MW102A	MW102B	MW102B	DUP1	MW103	MW103	DUP2	MW104	DUP3
		Sample Date	9/6/2019	12/19/2019	9/5/2019	9/24/2019	12/20/2019	9/6/2019	12/19/2019	9/6/2019	12/19/2019	9/5/2019	9/5/2019	12/18/2019	9/5/2019	9/5/2019	12/20/2019
		Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	FD	N	FD
		Start Depth	5.49	5.49	5.71	5.71	5.71	2.13	2.13	8.84	8.84	2.13	2.13	2.13	5.94	5.94	5.94
		End Depth	8.53	8.53	8.76	8.76	8.76	5.18	5.18	10.36	10.36	5.18	5.18	5.18	8.99	8.99	8.99
Analyte	**Units**	**Table 2 SCS [a]**															
Chlorobenzene	ug/l	30	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Chlorodibromomethane	ug/l	25	2 U	2 U	**4.9**	**4.5**	**5.4**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	**4.1**	--
Chloroform	ug/l	2.4	1 U	1 U	**12**	**11.9**	**8.5**	1 U	1 U	**1.5**	1 U	1 U	1 U	1 U	--	**4.9**	--
cis-1,2-Dichloroethene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
cis-1,3-Dichloropropene	ug/l	NV	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	--	0.3 U	--
Dichlorodifluoromethane	ug/l	590	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	--
Dichloromethane	ug/l	50	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	--
Methyl tert-butyl ether (MTBE)	ug/l	15	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	--
n-Hexane	ug/l	51	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Styrene	ug/l	5.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Tetrachloroethene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
trans-1,2-Dichloroethene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
trans-1,3-Dichloropropene	ug/l	NV	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	--	0.3 U	--
Trichloroethylene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--
Trichlorofluoromethane	ug/l	150	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	--
Vinyl Chloride	ug/l	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	--

[a] MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, residential/parkland/institutional land use, coarse soil texture.

Source: Ontario Ministry of the Environment, Parks and Conservation (MECP). 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment.* April 15.

Notes:
Bold denote positive detection at or above reportable detection limit
Shading denotes detected results that exceeds the applicable standard
U = Analyte not detected
ug/L = microgram(s) per litre
ug/g = microgram per gram
mg/L = milligram(s) per litre
mS/cm = millisiemen per centimeter
SAR = Sodiuim Absorption Ratio
ID = identification
NV = no value available in applicable standards
-- = Analyte not analyzed

Table 6-8. Summary of Analytical Results in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location		MW105	MW107				MW107B		MW108		MW109			MW110A		
		Sample ID	MW104	MW105	DUP3	MW107	MW107	MW107	MW107B	MW107B	MW108	MW108	MW109	DUP1	MW109	MW110A	MW110A	
		Sample Date	12/20/2019	9/6/2019	9/6/2019	9/6/2019	9/24/2019	12/18/2019	11/26/2019	12/18/2019	9/5/2019	12/19/2019	9/5/2019	12/19/2019	12/19/2019	11/26/2019	12/20/2019	
		Sample Type	N	N	FD	N	N	N	N	N	N	N	N	FD	N	N	N	
		Start Depth	5.94	5.64	5.33	5.33	5.33	5.33	13.56	13.56	6.71	6.71	7.32	7.32	7.32	5.33	5.33	
		End Depth	8.99	8.69	8.38	8.38	8.38	8.38	15.39	15.39	9.75	9.75	10.36	10.36	10.36	8.38	8.38	
Analyte	**Units**	**Table 2 SCS [a]**																
Acids, Bases, Neutrals (ABNs)																		
1,1'-Biphenyl	ug/l	0.5	0.4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,4-Trichlorobenzene	ug/l	70	0.4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2,4 & 2,6-Dinitrotoluene	ug/l	5	0.57 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2,4-Dimethylphenol	ug/l	59	0.5 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2,4-Dinitrophenol	ug/l	10	1 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2,4-Dinitrotoluene	ug/l	5	0.4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2,6-Dinitrotoluene	ug/l	5	0.4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
3,3'-Dichlorobenzidine	ug/l	0.5	0.4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Chloroaniline	ug/l	10	0.4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Bis (2-chloroethyl) ether	ug/l	5	0.4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
bis (2-Chloroisopropyl) ether	ug/l	120	0.4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Bis (2-ethylhexyl) phthalate	ug/l	10	2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Diethylphthalate	ug/l	38	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dimethylphthalate	ug/l	38	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Phenol	ug/l	890	0.5 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Inorganics																		
Chloride (Cl)	mg/l	790	**4170**	**2170**	**918**	**969**	--	**722**	--	--	**2640**	**272**	**448**	**469**	**459**	--	--	
Conductivity	mS/cm	NV	**11**	**5.92**	**3.17**	**3.22**	--	**2.71**	--	--	**1.85**	**1.88**	**1.89**	**1.82**	**1.81**	--	--	
Cyanide, Weak Acid Dissociable	ug/l	66	2 U	2 U	2 U	2 U	--	2 U	--	--	2 U	2 U	2 U	2 U	2 U	--	--	
pH	pH UNITS	NV	**7.47**	**8.08**	**7.66**	**7.76**	--	**7.78**	--	--	**7.93**	**7.73**	**8.11**	**8.23**	**8.22**	--	--	
Sodium	ug/l	490000	--	**1200000**	**506000**	**505000**	**436000**	--	**347000**	--	**131000**	--	**304000**	--	--	**4750000**	--	
Sodium Absorption Ratio	SAR	NV	--	130 UJ	**5.8 J**	**5.8 J**	--	--	--	--	10 UJ	--	0.1 U	--	--	--	--	
Metals																		
Antimony	ug/l	6	--	1 U	1 U	1 U	1 U	--	1 U	--	**0.43**	--	1 U	--	--	6 U	--	
Arsenic	ug/l	25	--	1 U	1 U	1 U	1 U	--	1 U	--	**0.51**	--	1 U	--	--	10 U	--	
Barium	ug/l	1000	**225**	**136**	**99.2**	**94.1**	**87.8**	**87.2**	**106**	**109**	**99.5**	**93.3**	**43.3**	**39.9**	**38.9**	**708**	**744**	
Beryllium	ug/l	4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	1 U	1 U	1 U	4 U	10 U	
Boron	ug/l	5000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**64**	**60**	100 U	100 U	100 U	1000 U	1000 U	
Cadmium	ug/l	2.7	0.05 U	**0.75**	**2.98**	**3.01**	**3.13**	**3.37**	**0.075**	0.05 U	0.01 U	**0.017**	0.05 U	0.05 U	0.05 U	**1.26**	**1.5**	
Chromium	ug/l	50	5 U	5 U	5 U	5 U	5 U	5 U	**5.9**	**5.5**	**1.24**	0.5 U	5 U	5 U	5 U	50 U	50 U	
Chromium, Hexavalent (Cr6+)	ug/l	25	0.5 U	**2.01**	**3.62**	**3.8**	--	**0.87**	--	--	0.5 U	0.5 U	**2**	**2.04**	**2.05**	--	--	
Cobalt	ug/l	3.8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	**0.33**	**0.37**	1 U	1 U	1 U	3.8 U	10 U	
Copper	ug/l	87	**2.5**	2 U	**2.4**	2 U	**2.2**	2 U	2 U	**4.7**	**4.01**	**2.02**	**2.1**	2 U	**2.5**	20 U	20 U	
Lead	ug/l	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.061**	**0.066**	**0.72**	0.5 U	0.5 U	5 U	5 U	
Mercury	ug/l	0.29	0.005 U	0.005 U	**0.0054**	0.005 U	--	0.005 U	--	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	--	--	
Molybdenum	ug/l	70	**3.97**	**13**	**1.14**	**1.05**	**0.9**	**1.09**	0.5 U	**0.68**	**14.2**	**2.7**	**5.65**	**4.53**	**4.47**	5 U	5 U	
Nickel	ug/l	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**3.44**	**3.36**	5 U	5 U	5 U	50 U	50 U	
Selenium	ug/l	10	--	**0.55**	**1.01**	**1.01**	**1.11**	--	**0.97**	--	**0.253**	--	**0.57**	--	--	5 U	--	
Silver	ug/l	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U	0.5 U	0.5 U	0.5 U	1.5 U	5 U	
Thallium	ug/l	2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.055**	**0.042**	0.1 U	0.1 U	0.1 U	1 U	1 U	
Uranium	ug/l	20	**1.53**	**1.27**	**0.6**	**0.63**	**0.63**	**0.67**	**1.44**	**1.3**	**2.33**	**3.25**	**0.34**	**0.38**	**0.37**	**2.2**	**1.8**	
Vanadium	ug/l	6.2	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**0.76**	0.5 U	5 U	5 U	5 U	50 U	50 U	
Zinc	ug/l	1100	10 U	**11**	**14**	**11**	**13**	**14**	**14**	**12**	**1.7**	**2.9**	**14**	10 U	10 U	100 U	100 U	
Polyaromatic Hydrocarbons (PAHs)																		
1-Methylnaphthalene	ug/l	3.2	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--	
2-(1-)Methylnaphthalene	ug/l	3.2	0.028 U	0.028 U	0.028 U	0.028 U	--	0.028 U	--	--	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	--	--	
2-Methylnaphthalene	ug/l	3.2	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--	
Acenaphthene	ug/l	4.1	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--	
Acenaphthylene	ug/l	1	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--	
Anthracene	ug/l	2.4	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--	

Table 6-8. Summary of Analytical Results in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location		MW105	MW107				MW107B		MW108		MW109			MW110A	
		Sample ID	MW104	MW105	DUP3	MW107	MW107	MW107	MW107B	MW107B	MW108	MW108	MW109	DUP1	MW109	MW110A	MW110A
		Sample Date	12/20/2019	9/6/2019	9/6/2019	9/6/2019	9/24/2019	12/18/2019	11/26/2019	12/18/2019	9/5/2019	12/19/2019	9/5/2019	12/19/2019	12/19/2019	11/26/2019	12/20/2019
		Sample Type	N	N	FD	N	N	N	N	N	N	N	N	FD	N	N	N
		Start Depth	5.94	5.64	5.33	5.33	5.33	5.33	13.56	13.56	6.71	6.71	7.32	7.32	7.32	5.33	5.33
		End Depth	8.99	8.69	8.38	8.38	8.38	8.38	15.39	15.39	9.75	9.75	10.36	10.36	10.36	8.38	8.38
Analyte	**Units**	**Table 2 SCS [a]**															
Benzo(a)anthracene	ug/l	1	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Benzo(a)pyrene	ug/l	0.01	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--	--
Benzo(b)fluoranthene	ug/l	0.1	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Benzo(g,h,i)perylene	ug/l	0.2	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Benzo(k)fluoranthene	ug/l	0.1	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Chrysene	ug/l	0.1	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Dibenzo(a,h)anthracene	ug/l	0.2	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Fluoranthene	ug/l	0.41	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Fluorene	ug/l	120	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Indeno(1,2,3-Cd)Pyrene	ug/l	0.2	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Naphthalene	ug/l	11	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	--
Phenanthrene	ug/l	1	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Pyrene	ug/l	4.1	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	--
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																	
Benzene	ug/l	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
Ethylbenzene	ug/l	2.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
Toluene	ug/l	24	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
Xylene, o	ug/l	NV	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	--	--	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	--	--
Xylenes, m & p	ug/l	NV	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	--
Xylenes, Total	ug/l	300	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
Petroleum Hydrocarbons (PHCs)																	
Chrom. to baseline at nC50	None	NV	1 U	1 U	1 U	1 U	--	1 U	--	--	1 U	1 U	1 U	1 U	1 U	--	--
Petroleum Hydrocarbons F1 (C6-C10 less BTEX)	ug/l	NV	25 U	25 U	25 U	25 U	--	25 U	--	--	25 U	25 U	25 U	25 U	25 U	--	--
Petroleum Hydrocarbons F1 (C6-C10)	ug/l	750	25 U	25 U	25 U	25 U	--	25 U	--	--	25 U	25 U	25 U	25 U	25 U	--	--
Petroleum Hydrocarbons F2 (C10-C16 less Naphthalene)	ug/l	NV	100 U	100 U	100 U	100 U	--	100 U	--	--	100 U	100 U	100 U	100 U	100 U	--	--
Petroleum Hydrocarbons F2 (C10-C16)	ug/l	150	100 U	100 U	100 U	100 U	--	100 U	--	--	100 U	100 U	100 U	100 U	100 U	--	--
Petroleum Hydrocarbons F3 (C16-C34 less PAHs)	ug/l	NV	250 U	250 U	250 U	250 U	--	250 U	--	--	250 U	250 U	250 U	250 U	250 U	--	--
Petroleum Hydrocarbons F3 (C16-C34)	ug/l	500	250 U	250 U	250 U	250 U	--	250 U	--	--	250 U	250 U	250 U	250 U	250 U	--	--
Petroleum Hydrocarbons F4 (C34-C50)	ug/l	500	250 U	250 U	250 U	250 U	--	250 U	--	--	250 U	250 U	250 U	250 U	250 U	--	--
Total Petroleum Hydrocarbons (C6 to C50)	ug/l	NV	370 U	370 U	370 U	370 U	--	370 U	--	--	370 U	370 U	370 U	370 U	370 U	--	--
Volatile Organic Carbons (VOCs)																	
1,1,1,2-Tetrachloroethane	ug/l	1.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,1,1-Trichloroethane	ug/l	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,1,2,2-Tetrachloroethane	ug/l	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,1,2-Trichloroethane	ug/l	4.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,1-Dichloroethane	ug/l	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	**0.56**	0.5 U	0.5 U	0.5 U	--	--
1,1-Dichloroethene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,2-Dibromoethane	ug/l	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
1,2-Dichlorobenzene	ug/l	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,2-Dichloroethane	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,2-Dichloropropane	ug/l	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,3-Dichlorobenzene	ug/l	59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,3-Dichloropropene	ug/l	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,4-Dichlorobenzene	ug/l	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
2-Butanone	ug/l	1800	20 U	20 U	20 U	20 U	20 U	20 U	--	--	20 U	20 U	20 U	20 U	20 U	--	--
4-Methyl-2-Pentanone	ug/l	640	20 U	20 U	20 U	20 U	20 U	20 U	--	--	20 U	20 U	20 U	20 U	20 U	--	--
Acetone	ug/l	2700	30 U	30 U	30 U	30 U	30 U	30 U	--	--	30 U	30 U	30 U	30 U	30 U	--	--
Bromodichloromethane	ug/l	16	2 U	**4.1**	2 U	2 U	2 U	2 U	--	--	2 U	2 U	2 U	2 U	2 U	--	--
Bromoform	ug/l	25	5 U	5 U	5 U	5 U	5 U	5 U	--	--	5 U	5 U	5 U	5 U	5 U	--	--
Bromomethane	ug/l	0.89	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
Carbon tetrachloride	ug/l	0.79	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--

Table 6-8. Summary of Analytical Results in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location		MW105	MW107				MW107B		MW108		MW109			MW110A	
		Sample ID	MW104	MW105	DUP3	MW107	MW107	MW107	MW107B	MW107B	MW108	MW108	MW109	DUP1	MW109	MW110A	MW110A
		Sample Date	12/20/2019	9/6/2019	9/6/2019	9/6/2019	9/24/2019	12/18/2019	11/26/2019	12/18/2019	9/5/2019	12/19/2019	9/5/2019	12/19/2019	12/19/2019	11/26/2019	12/20/2019
		Sample Type	N	N	FD	N	N	N	N	N	N	N	N	FD	N	N	N
		Start Depth	5.94	5.64	5.33	5.33	5.33	5.33	13.56	13.56	6.71	6.71	7.32	7.32	7.32	5.33	5.33
		End Depth	8.99	8.69	8.38	8.38	8.38	8.38	15.39	15.39	9.75	9.75	10.36	10.36	10.36	8.38	8.38
Analyte	**Units**	**Table 2 SCS [a]**															
Chlorobenzene	ug/l	30	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
Chlorodibromomethane	ug/l	25	2 U	**4.1**	2 U	2 U	2 U	2 U	--	--	2 U	2 U	2 U	2 U	2 U	--	--
Chloroform	ug/l	2.4	1 U	**3.5**	**11.6**	**11.3**	**10.9**	**7.8**	--	--	**2.3**	1 U	1 U	1 U	1 U	--	--
cis-1,2-Dichloroethene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
cis-1,3-Dichloropropene	ug/l	NV	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	--	--	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	--	--
Dichlorodifluoromethane	ug/l	590	2 U	2 U	2 U	2 U	2 U	2 U	--	--	2 U	2 U	2 U	2 U	2 U	--	--
Dichloromethane	ug/l	50	5 U	5 U	5 U	5 U	5 U	5 U	--	--	5 U	5 U	5 U	5 U	5 U	--	--
Methyl tert-butyl ether (MTBE)	ug/l	15	2 U	2 U	2 U	2 U	2 U	2 U	--	--	2 U	2 U	2 U	2 U	2 U	--	--
n-Hexane	ug/l	51	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
Styrene	ug/l	5.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
Tetrachloroethene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
trans-1,2-Dichloroethene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
trans-1,3-Dichloropropene	ug/l	NV	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	--	--	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	--	--
Trichloroethylene	ug/l	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
Trichlorofluoromethane	ug/l	150	5 U	5 U	5 U	5 U	5 U	5 U	--	--	5 U	5 U	5 U	5 U	5 U	--	--
Vinyl Chloride	ug/l	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--

[a] MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, residential/parkland/institutional land use, coarse soil texture.

Source: Ontario Ministry of the Environment, Parks and Conservation (MECP). 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment.* April 15.

Notes:
Bold denote positive detection at or above reportable detection limit
Shading denotes detected results that exceeds the applicable standard
U = Analyte not detected
ug/L = microgram(s) per litre
ug/g = microgram per gram
mg/L = milligram(s) per litre
mS/cm = millisiemen per centimeter
SAR = Sodiuim Absorption Ratio
ID = identification
NV = no value available in applicable standards
-- = Analyte not analyzed

Table 6-8. Summary of Analytical Results in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW110B			MW111		MW113			
		Sample ID	DUP	MW110B	MW110B	MW111	MW111	DUP1	MW113	MW113	MW113
		Sample Date	11/26/2019	11/26/2019	12/20/2019	11/26/2019	12/19/2019	4/15/2020	4/15/2020	4/22/2020	4/29/2020
		Sample Type	FD	N	N	N	N	N	FD	N	N
		Start Depth	13.56	13.56	13.56	13.56	13.56	5.33	5.33	5.33	5.33
		End Depth	15.39	15.39	15.39	15.39	15.39	8.38	8.38	8.38	8.38
Analyte	**Units**	**Table 2 SCS [a]**									
Acids, Bases, Neutrals (ABNs)											
1,1'-Biphenyl	ug/l	0.5	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/l	70	--	--	--	--	--	--	--	--	--
2,4 & 2,6-Dinitrotoluene	ug/l	5	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l	59	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l	10	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l	5	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l	5	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l	0.5	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l	10	--	--	--	--	--	--	--	--	--
Bis (2-chloroethyl) ether	ug/l	5	--	--	--	--	--	--	--	--	--
bis (2-Chloroisopropyl) ether	ug/l	120	--	--	--	--	--	--	--	--	--
Bis (2-ethylhexyl) phthalate	ug/l	10	--	--	--	--	--	--	--	--	--
Diethylphthalate	ug/l	38	--	--	--	--	--	--	--	--	--
Dimethylphthalate	ug/l	38	--	--	--	--	--	--	--	--	--
Phenol	ug/l	890	--	--	--	--	--	--	--	--	--
Inorganics											
Chloride (Cl)	mg/l	790	--	--	--	--	--	**8330**	**4470**	**3010**	--
Conductivity	mS/cm	NV	--	--	--	--	--	**13.9**	**14.2**	**7.79**	--
Cyanide, Weak Acid Dissociable	ug/l	66	--	--	--	--	--	2 U	2 U	2 U	--
pH	pH UNITS	NV	--	--	--	--	--	**7.69**	**7.7**	**7.83**	--
Sodium	ug/l	490000	**2360000**	**2310000**	--	**2490000**	--	**2390000**	**2440000**	**1470000**	**3170000**
Sodium Absorption Ratio	SAR	NV	--	--	--	--	--	--	--	--	--
Metals											
Antimony	ug/l	6	1 U	1 U	--	1 U	--	1 U	1 U	1 U	1 U
Arsenic	ug/l	25	1 U	1 U	--	1 U	--	1 U	1 U	1 U	1 U
Barium	ug/l	1000	**147**	**150**	**147**	**105**	**102**	**274**	**278**	**146**	**319**
Beryllium	ug/l	4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Boron	ug/l	5000	**110**	**110**	**120**	**200**	**240**	100 U	100 U	100 U	100 U
Cadmium	ug/l	2.7	**0.105**	**0.08**	**0.109**	0.05 U	0.05 U	**3.93**	**3.92**	**1.82**	**6.16**
Chromium	ug/l	50	5 U	5 U	5 U	**8.1**	**9.3**	5 U	5 U	**5.9**	**6.4**
Chromium, Hexavalent (Cr6+)	ug/l	25	--	--	--	--	--	**4.89**	**4.95**	**5.74**	--
Cobalt	ug/l	3.8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Copper	ug/l	87	**2.9**	**2.4**	**4.9**	**4**	**5.3**	**2.6**	**2.7**	**2.2**	**3.1**
Lead	ug/l	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Mercury	ug/l	0.29	--	--	--	--	--	0.005 U	**0.0052**	0.005 U	--
Molybdenum	ug/l	70	**0.98**	**1.06**	**1.14**	**1**	**1.17**	**1.5**	**1.52**	**1.61**	**1.53**
Nickel	ug/l	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Selenium	ug/l	10	**0.8**	**0.68**	--	**0.86**	--	**1.24**	**1.2**	**1.38**	**1.25**
Silver	ug/l	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Thallium	ug/l	2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Uranium	ug/l	20	**1.43**	**1.47**	**1.4**	**1.59**	**1.84**	**0.9**	**0.91**	**0.77**	**1.06**
Vanadium	ug/l	6.2	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	ug/l	1100	**19**	**18**	**16**	10 U	10 U	**11**	**11**	10 U	**15**
Polyaromatic Hydrocarbons (PAHs)											
1-Methylnaphthalene	ug/l	3.2	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
2-(1-)Methylnaphthalene	ug/l	3.2	--	--	--	--	--	0.028 U	0.028 U	0.028 U	--
2-Methylnaphthalene	ug/l	3.2	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Acenaphthene	ug/l	4.1	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Acenaphthylene	ug/l	1	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Anthracene	ug/l	2.4	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--

Table 6-8. Summary of Analytical Results in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW110B			MW111		MW113			
		Sample ID	DUP	MW110B	MW110B	MW111	MW111	DUP1	MW113	MW113	MW113
		Sample Date	11/26/2019	11/26/2019	12/20/2019	11/26/2019	12/19/2019	4/15/2020	4/15/2020	4/22/2020	4/29/2020
		Sample Type	FD	N	N	N	N	N	FD	N	N
		Start Depth	13.56	13.56	13.56	13.56	13.56	5.33	5.33	5.33	5.33
		End Depth	15.39	15.39	15.39	15.39	15.39	8.38	8.38	8.38	8.38
Analyte	**Units**	**Table 2 SCS [a]**									
Benzo(a)anthracene	ug/l	1	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Benzo(a)pyrene	ug/l	0.01	--	--	--	--	--	0.01 U	0.01 U	0.01 U	--
Benzo(b)fluoranthene	ug/l	0.1	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Benzo(g,h,i)perylene	ug/l	0.2	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Benzo(k)fluoranthene	ug/l	0.1	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Chrysene	ug/l	0.1	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Dibenzo(a,h)anthracene	ug/l	0.2	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Fluoranthene	ug/l	0.41	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Fluorene	ug/l	120	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Indeno(1,2,3-Cd)Pyrene	ug/l	0.2	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Naphthalene	ug/l	11	--	--	--	--	--	0.05 U	0.05 U	0.05 U	--
Phenanthrene	ug/l	1	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Pyrene	ug/l	4.1	--	--	--	--	--	0.02 U	0.02 U	0.02 U	--
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)											
Benzene	ug/l	5	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
Ethylbenzene	ug/l	2.4	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
Toluene	ug/l	24	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
Xylene, o	ug/l	NV	--	--	--	--	--	0.3 U	0.3 U	0.3 U	--
Xylenes, m & p	ug/l	NV	--	--	--	--	--	0.4 U	0.4 U	0.4 U	--
Xylenes, Total	ug/l	300	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
Petroleum Hydrocarbons (PHCs)											
Chrom. to baseline at nC50	None	NV	--	--	--	--	--	1 U	1 U	1 U	--
Petroleum Hydrocarbons F1 (C6-C10 less BTEX)	ug/l	NV	--	--	--	--	--	25 U	25 U	25 U	--
Petroleum Hydrocarbons F1 (C6-C10)	ug/l	750	--	--	--	--	--	25 U	25 U	25 U	--
Petroleum Hydrocarbons F2 (C10-C16 less Naphthalene)	ug/l	NV	--	--	--	--	--	100 U	100 U	100 U	--
Petroleum Hydrocarbons F2 (C10-C16)	ug/l	150	--	--	--	--	--	100 U	100 U	100 U	--
Petroleum Hydrocarbons F3 (C16-C34 less PAHs)	ug/l	NV	--	--	--	--	--	250 U	250 U	250 U	--
Petroleum Hydrocarbons F3 (C16-C34)	ug/l	500	--	--	--	--	--	250 U	250 U	250 U	--
Petroleum Hydrocarbons F4 (C34-C50)	ug/l	500	--	--	--	--	--	250 U	250 U	250 U	--
Total Petroleum Hydrocarbons (C6 to C50)	ug/l	NV	--	--	--	--	--	370 U	370 U	370 U	--
Volatile Organic Carbons (VOCs)											
1,1,1,2-Tetrachloroethane	ug/l	1.1	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1,1-Trichloroethane	ug/l	200	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1,2,2-Tetrachloroethane	ug/l	1	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1,2-Trichloroethane	ug/l	4.7	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1-Dichloroethane	ug/l	5	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,1-Dichloroethene	ug/l	1.6	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dibromoethane	ug/l	0.2	--	--	--	--	--	0.2 U	0.2 U	0.2 U	--
1,2-Dichlorobenzene	ug/l	3	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dichloroethane	ug/l	1.6	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dichloropropane	ug/l	5	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,3-Dichlorobenzene	ug/l	59	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,3-Dichloropropene	ug/l	0.5	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
1,4-Dichlorobenzene	ug/l	1	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
2-Butanone	ug/l	1800	--	--	--	--	--	20 U	20 U	20 U	--
4-Methyl-2-Pentanone	ug/l	640	--	--	--	--	--	20 U	20 U	20 U	--
Acetone	ug/l	2700	--	--	--	--	--	30 U	30 U	30 U	--
Bromodichloromethane	ug/l	16	--	--	--	--	--	2 U	2 U	2 U	--
Bromoform	ug/l	25	--	--	--	--	--	5 U	5 U	5 U	--
Bromomethane	ug/l	0.89	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
Carbon tetrachloride	ug/l	0.79	--	--	--	--	--	0.2 U	0.2 U	0.2 U	--

Table 6-8. Summary of Analytical Results in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

		Location	MW110B			MW111		MW113			
		Sample ID	DUP	MW110B	MW110B	MW111	MW111	DUP1	MW113	MW113	MW113
		Sample Date	11/26/2019	11/26/2019	12/20/2019	11/26/2019	12/19/2019	4/15/2020	4/15/2020	4/22/2020	4/29/2020
		Sample Type	FD	N	N	N	N	N	FD	N	N
		Start Depth	13.56	13.56	13.56	13.56	13.56	5.33	5.33	5.33	5.33
		End Depth	15.39	15.39	15.39	15.39	15.39	8.38	8.38	8.38	8.38
Analyte	**Units**	**Table 2 SCS [a]**									
Chlorobenzene	ug/l	30	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
Chlorodibromomethane	ug/l	25	--	--	--	--	--	2 U	2 U	2 U	--
Chloroform	ug/l	2.4	--	--	--	--	--	**3.2**	**3.2**	**4.4**	--
cis-1,2-Dichloroethene	ug/l	1.6	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
cis-1,3-Dichloropropene	ug/l	NV	--	--	--	--	--	0.3 U	0.3 U	0.3 U	--
Dichlorodifluoromethane	ug/l	590	--	--	--	--	--	2 U	2 U	2 U	--
Dichloromethane	ug/l	50	--	--	--	--	--	5 U	5 U	5 U	--
Methyl tert-butyl ether (MTBE)	ug/l	15	--	--	--	--	--	2 U	2 U	2 U	--
n-Hexane	ug/l	51	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
Styrene	ug/l	5.4	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
Tetrachloroethene	ug/l	1.6	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
trans-1,2-Dichloroethene	ug/l	1.6	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
trans-1,3-Dichloropropene	ug/l	NV	--	--	--	--	--	0.3 U	0.3 U	0.3 U	--
Trichloroethylene	ug/l	1.6	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--
Trichlorofluoromethane	ug/l	150	--	--	--	--	--	5 U	5 U	5 U	--
Vinyl Chloride	ug/l	0.5	--	--	--	--	--	0.5 U	0.5 U	0.5 U	--

[a] MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, residential/parkland/institutional land use, coarse soil texture.

Source: Ontario Ministry of the Environment, Parks and Conservation (MECP). 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment.* April 15.

Notes:
Bold denote positive detection at or above reportable detection limit
Shading denotes detected results that exceeds the applicable standard
U = Analyte not detected
ug/L = microgram(s) per litre
ug/g = microgram per gram
mg/L = milligram(s) per litre
mS/cm = millisiemen per centimeter
SAR = Sodiuim Absorption Ratio
ID = identification
NV = no value available in applicable standards
-- = Analyte not analyzed

Table 6-9. Maximum Detected Concentrations in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Analyte Group	Analyte Name	Maximum Detected Concentration	Unit	Location	Sample Name	Sample Type	Sample Date	Start Depth (mbgs)	End Depth (mbgs)	SDG
ABNs	Bis (2-ethylhexyl) phthalate	2.3	ug/l	MW104	DUP2-WG-090519-FD	FD	9/5/2019	5.94	8.99	L2343122
Inorganics	Chloride (Cl)	9610	mg/l	MW102B	MW102B-WG-090619-N	N	9/6/2019	8.84	10.36	L2343122
Inorganics	Cyanide, Weak Acid Dissociable	8.4	ug/l	MW102A	MW102A-WG-121919-N	N	12/19/2019	2.13	5.18	L2399298
Inorganics	Sodium	6100000	ug/l	MW102B	MW102B-WG-090619-N	N	9/6/2019	8.84	10.36	L2343122
Metals	Antimony	0.43	ug/l	MW108	MW108-WG-090519-N	N	9/5/2019	6.71	9.75	L2343122
Metals	Arsenic	1.2	ug/l	MW103	DUP1-WG-090519-FD	FD	9/5/2019	2.13	5.18	L2343122
Metals	Barium	744	ug/l	MW110A	MW110A-WG-122019-N	N	12/20/2019	5.33	8.38	L2399298
Metals	Boron	240	ug/l	MW111	MW111-WG-121919-N	N	12/19/2019	13.56	15.39	L2399298
Metals	Cadmium	6.16	ug/l	MW113	MW113-WG-042920-N	N	4/29/2020	5.33	8.38	L2441806
Metals	Chromium	9.3	ug/l	MW111	MW111-WG-121919-N	N	12/19/2019	13.56	15.39	L2399298
Metals	Chromium, Hexavalent (Cr6+)	5.74	ug/l	MW113	MW113-WG-042220-N	N	4/22/2020	5.33	8.38	L2439186
Metals	Cobalt	1.4	ug/l	MW103	MW103-WG-121819-N	N	12/18/2019	2.13	5.18	L2399298
Metals	Copper	5.3	ug/l	MW111	MW111-WG-121919-N	N	12/19/2019	13.56	15.39	L2399298
Metals	Lead	0.72	ug/l	MW109	MW109-WG-090519-N	N	9/5/2019	7.32	10.36	L2343122
Metals	Mercury	0.0054	ug/l	MW107	DUP3-WG-090619-FD	FD	9/6/2019	5.33	8.38	L2343122
Metals	Molybdenum	17.6	ug/l	MW104	MW104-WG-090519-N	N	9/5/2019	5.94	8.99	L2343122
Metals	Nickel	3.44	ug/l	MW108	MW108-WG-090519-N	N	9/5/2019	6.71	9.75	L2343122
Metals	Selenium	4.66	ug/l	MW101	MW101-WG-090519-N	N	9/5/2019	5.71	8.76	L2343122
Metals	Thallium	0.12	ug/l	MW103	MW103-WG-090519-N	N	9/5/2019	2.13	5.18	L2343122
Metals	Uranium	5.79	ug/l	MW103	MW103-WG-121819-N	N	12/18/2019	2.13	5.18	L2399298
Metals	Vanadium	0.76	ug/l	MW108	MW108-WG-090519-N	N	9/5/2019	6.71	9.75	L2343122
Metals	Zinc	19	ug/l	MW110B	DUP-WG-112619-FD	FD	11/26/2019	13.56	15.39	L2387876
VOCs	1,1-Dichloroethane	0.56	ug/l	MW108	MW108-WG-121919-N	N	12/19/2019	6.71	9.75	L2399298
VOCs	Bromodichloromethane	7.1	ug/l	MW101	MW101-WG-092419-N	N	9/24/2019	5.71	8.76	L2352720
VOCs	Chlorodibromomethane	5.4	ug/l	MW101	MW101-WG-122019-N	N	12/20/2019	5.71	8.76	L2399298
VOCs	Chloroform	12	ug/l	MW101	MW101-WG-090519-N	N	9/5/2019	5.71	8.76	L2343122

Notes:

µg/l = microgram per gram

ABN - acid, base, and neutral compounds

BTEX = benzene, toluene, ethylbenzene, and xylenes

F = fraction

FD = field duplicate

mbgs = metres below ground surface

mS/cm = milliSiemens per centimetre

N = normal sample

ORP = other regulated parameters

PAH = polycyclic aromatic hydrocarbons

PCB = polychlorinated biphenyls

PHC = petroleum hydrocarbons

SAR = sodium adsorption ratio

SDG = sample delivery group

VOC = volatile organic compounds

Table 6-10a. Preliminary COC Screening in Groundwater

Phase Two Environmental Site Assesment, 55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Contaminant [a]	Parameter Group	No. of Stations	No. of Samples	Max Detected Concentration	Max Nondetect Concentration	Maximum Measured Concentration [b]	Units	Minimum Detection Limit	Applicable SCS [c]	Other Criteria [d]	No. of Detects Exceeding Table 2 SCS	No. of Nondetects Exceeding Table 2 SCS	No. of Detected with no Table 2 SCS	No. of Nondetects with no Table 2 SCS	Retained as a Contaminant for Phase Two ESA? (Rationale)
Cadmium	Metal	15	36	6.16	0.5	6.16	µg/L	0.01	2.7	--	7	--	--	--	**Yes, included (Max > Table 2 SCS)**
1,1'-Biphenyl	ABN	1	4	--	0.4	0.4	µg/L	0.4	0.5	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,2,4-Trichlorobenzene	ABN	1	4	--	0.4	0.4	µg/L	0.4	70	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
2,4 & 2,6-Dinitrotoluene	ABN	1	4	--	0.57	0.57	µg/L	0.566	5	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
2,4-Dimethylphenol	ABN	1	4	--	0.5	0.5	µg/L	0.5	59	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
2,4-Dinitrophenol	ABN	1	4	--	1	1	µg/L	1	10	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
3,3'-Dichlorobenzidine	ABN	1	4	--	0.4	0.4	µg/L	0.4	0.5	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
4-Chloroaniline	ABN	1	4	--	0.4	0.4	µg/L	0.4	10	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Bis (2-chloroethyl) ether	ABN	1	4	--	0.4	0.4	µg/L	0.4	5	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Bis (2-Chloroisopropyl) ether	ABN	1	4	--	0.4	0.4	µg/L	0.4	120	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Bis (2-ethylhexyl) phthalate	ABN	1	4	2.3	2	2.3	µg/L	2	10	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Diethylphthalate	ABN	1	4	--	0.2	0.2	µg/L	0.2	38	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Dimethylphthalate	ABN	1	4	--	0.2	0.2	µg/L	0.2	38	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Phenol	ABN	1	4	--	0.5	0.5	µg/L	0.5	890	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Benzene	BTEX	11	27	--	0.5	0.5	µg/L	0.5	5	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Ethylbenzene	BTEX	11	27	--	0.5	0.5	µg/L	0.5	2.4	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Toluene	BTEX	11	27	--	0.5	0.5	µg/L	0.5	24	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Xylenes, Total	BTEX	11	27	--	0.5	0.5	µg/L	0.5	300	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Chloride (Cl)	Inorganics	11	25	9610	--	9610	mg/L	2.5	790	--	19	--	--	--	No, excluded (See Table 6-10b)
Cyanide, Weak Acid Dissociable	Inorganics	11	25	8.4	2	8.4	µg/L	2	66	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Sodium	Inorganics	15	22	6100000	--	6100000	µg/L	500	490000	--	18	--	--	--	No, excluded (See Table 6-10b)
Antimony	Metal	15	22	0.43	10	10	µg/L	0.1	6	--	--	3	--	--	No, excluded (See Table 6-10b)
Arsenic	Metal	15	22	1.2	10	10	µg/L	0.1	25	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Barium	Metal	15	36	744	--	744	µg/L	0.1	1000	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Beryllium	Metal	15	36	--	10	10	µg/L	0.1	4	--	--	7	--	--	No, excluded (See Table 6-10b)
Boron	Metal	15	36	240	1000	1000	µg/L	10	5000	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Chromium	Metal	15	36	9.3	50	50	µg/L	0.5	50	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Chromium, Hexavalent (Cr6+)	Metal	11	25	5.74	0.5	5.74	µg/L	0.5	25	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Cobalt	Metal	15	36	1.4	10	10	µg/L	0.1	3.8	--	--	7	--	--	No, excluded (See Table 6-10b)
Copper	Metal	15	36	5.3	20	20	µg/L	0.2	87	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Lead	Metal	15	36	0.72	5	5	µg/L	0.05	10	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Mercury	Metal	11	25	0.0054	0.005	0.0054	µg/L	0.005	0.29	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Molybdenum	Metal	15	36	17.6	5	17.6	µg/L	0.05	70	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Nickel	Metal	15	36	3.44	50	50	µg/L	0.5	100	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Selenium	Metal	15	22	4.66	5	5	µg/L	0.05	10	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Silver	Metal	15	36	--	5	5	µg/L	0.05	1.5	--	--	7	--	--	No, excluded (See Table 6-10b)
Thallium	Metal	15	36	0.12	1	1	µg/L	0.01	2	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Uranium	Metal	15	36	5.79	1	5.79	µg/L	0.01	20	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Vanadium	Metal	15	36	0.76	50	50	µg/L	0.5	6.2	--	--	8	--	--	No, excluded (See Table 6-10b)
Zinc	Metal	15	36	19	100	100	µg/L	1	1100	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1+2-Methylnaphthalenes	PAH	11	25	--	0.028	0.028	µg/L	0.02	3.2	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Acenaphthene	PAH	11	25	--	0.02	0.02	µg/L	0.02	4.1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Acenaphthylene	PAH	11	25	--	0.02	0.02	µg/L	0.02	1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Anthracene	PAH	11	25	--	0.02	0.02	µg/L	0.02	2.4	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Benzo(a)anthracene	PAH	11	25	--	0.02	0.02	µg/L	0.02	1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Benzo(a)pyrene	PAH	11	25	--	0.01	0.01	µg/L	0.01	0.01	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Benzo(b)fluoranthene	PAH	11	25	--	0.02	0.02	µg/L	0.02	0.1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Benzo(g,h,i)perylene	PAH	11	25	--	0.02	0.02	µg/L	0.02	0.2	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Benzo(k)fluoranthene	PAH	11	25	--	0.02	0.02	µg/L	0.02	0.1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Chrysene	PAH	11	25	--	0.02	0.02	µg/L	0.02	0.1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Dibenzo(a,h)anthracene	PAH	11	25	--	0.02	0.02	µg/L	0.02	0.2	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Fluoranthene	PAH	11	25	--	0.02	0.02	µg/L	0.02	0.41	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Fluorene	PAH	11	25	--	0.02	0.02	µg/L	0.02	120	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Indeno(1,2,3-Cd)Pyrene	PAH	11	25	--	0.02	0.02	µg/L	0.02	0.2	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Naphthalene	PAH	11	25	--	0.05	0.05	µg/L	0.05	11	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Phenanthrene	PAH	11	25	--	0.02	0.02	µg/L	0.02	1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)

Table 6-10a. Preliminary COC Screening in Groundwater

Phase Two Environmental Site Assesment, 55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Contaminant [a]	Parameter Group	No. of Stations	No. of Samples	Max Detected Concentration	Max Nondetect Concentration	Maximum Measured Concentration [b]	Units	Minimum Detection Limit	Applicable SCS [c]	Other Criteria [d]	No. of Detects Exceeding Table 2 SCS	No. of Nondetects Exceeding Table 2 SCS	No. of Detected with no Table 2 SCS	No. of Nondetects with no Table 2 SCS	Retained as a Contaminant for Phase Two ESA? (Rationale)
Pyrene	PAH	11	25	--	0.02	0.02	µg/L	0.02	4.1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Petroleum Hydrocarbons F1 (C6-C10)	PHCs	11	25	--	25	25	µg/L	25	750	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Petroleum Hydrocarbons F2 (C10-C16)	PHCs	11	25	--	100	100	µg/L	100	150	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Petroleum Hydrocarbons F3 (C16-C34)	PHCs	11	25	--	250	250	µg/L	250	500	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Petroleum Hydrocarbons F4 (C34-C50)	PHCs	11	25	--	250	250	µg/L	250	500	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,1,1,2-Tetrachloroethane	VOC	11	27	--	0.5	0.5	µg/L	0.5	1.1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,1,1-Trichloroethane	VOC	11	27	--	0.5	0.5	µg/L	0.5	200	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,1,2,2-Tetrachloroethane	VOC	11	27	--	0.5	0.5	µg/L	0.5	1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,1,2-Trichloroethane	VOC	11	27	--	0.5	0.5	µg/L	0.5	4.7	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,1-Dichloroethane	VOC	11	27	0.56	0.5	0.56	µg/L	0.5	5	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,1-Dichloroethene	VOC	11	27	--	0.5	0.5	µg/L	0.5	1.6	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,2-Dibromoethane	VOC	11	27	--	0.2	0.2	µg/L	0.2	0.2	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,2-Dichlorobenzene	VOC	11	27	--	0.5	0.5	µg/L	0.5	3	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,2-Dichloroethane	VOC	11	27	--	0.5	0.5	µg/L	0.5	1.6	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,2-Dichloropropane	VOC	11	27	--	0.5	0.5	µg/L	0.5	5	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,3-Dichlorobenzene	VOC	11	27	--	0.5	0.5	µg/L	0.5	59	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,3-Dichloropropene	VOC	11	27	--	0.5	0.5	µg/L	0.5	0.5	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
1,4-Dichlorobenzene	VOC	11	27	--	0.5	0.5	µg/L	0.5	1	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
2-Butanone	VOC	11	27	--	20	20	µg/L	20	1800	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
4-Methyl-2-Pentanone	VOC	11	27	--	20	20	µg/L	20	640	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Acetone	VOC	11	27	--	30	30	µg/L	30	2700	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Bromodichloromethane	VOC	11	27	7.1	2	7.1	µg/L	2	16	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Bromoform	VOC	11	27	--	5	5	µg/L	5	25	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Bromomethane	VOC	11	27	--	0.5	0.5	µg/L	0.5	0.89	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Carbon tetrachloride	VOC	11	27	--	0.2	0.2	µg/L	0.2	0.79	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Chlorobenzene	VOC	11	27	--	0.5	0.5	µg/L	0.5	30	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Chlorodibromomethane	VOC	11	27	5.4	2	5.4	µg/L	2	25	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Chloroform	VOC	11	27	12	1	12	µg/L	1	2.4	--	12	--	--	--	No, excluded (See Table 6-10b)
cis-1,2-Dichloroethene	VOC	11	27	--	0.5	0.5	µg/L	0.5	1.6	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Dichlorodifluoromethane	VOC	11	27	--	2	2	µg/L	2	590	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Dichloromethane	VOC	11	27	--	5	5	µg/L	5	50	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Methyl tert-butyl ether (MTBE)	VOC	11	27	--	2	2	µg/L	2	15	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
n-Hexane	VOC	11	27	--	0.5	0.5	µg/L	0.5	51	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Styrene	VOC	11	27	--	0.5	0.5	µg/L	0.5	5.4	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Tetrachloroethene	VOC	11	27	--	0.5	0.5	µg/L	0.5	1.6	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
trans-1,2-Dichloroethene	VOC	11	27	--	0.5	0.5	µg/L	0.5	1.6	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Trichloroethylene	VOC	11	27	--	0.5	0.5	µg/L	0.5	1.6	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Trichlorofluoromethane	VOC	11	27	--	5	5	µg/L	5	150	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)
Vinyl Chloride	VOC	11	27	--	0.5	0.5	µg/L	0.5	0.5	--	--	--	--	--	No, excluded (Max < or = Table 2 SCS)

[a.] The representative maximum concentration (the maximum concentration of similar analytes or total concentration of multiple isomers) is used for comparison.

[b.] Column lists the greater of the maximum detected concentration and the maximum nondetect concentration.

[c.] Ontario Regulation 153/04, Table 2: Full Depth Generic Site Condition Standards in a Potale Ground Water Condition, for Residential/ Parkland/ Institutional Property Type Use and Coarse Textured Soils (MECP, 2011a).

Notes:

Bold parameters are identified as COCs

Grey shaded parameters have been reviewed further. Refer to Table 6-10b.

Blue shaded parameters have been reviewed further as the concentrations greater than the SCS are likely due to introduced water. Refer to Table 6-10b.

-- = no value or not applicable

> = greater than

< = less than

µg/L = microgram(s) per litre

ABN = acid base neutral compounds

BTEX = benzene, toluene, ethylbenzene, and xylenes

COC = contaminant of concern

MECP = Ontario Ministry of the Environment, Conservation and Parks

No. = number

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = Site Condition Standard

VOC = volatile organic compound

Table 6-10b. Rationale for the Removal of Groundwater COCs

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Parameter Group	Parameter	Category	Sample(s)	Comment/Rationale
METALS	Antimony	Parameter with existing SCS but RL exceedances only	Three samples (MW100, MW102A, MW102B) had RL exceedances of the SCS in September 2019 (COA L2343122)	One sample collected from each location listed had RL exceedances for antimony in September 2019. All other samples collected on the Phase Two Property had nondetected concentrations of the parameter, with the exception of one sample (MW108) that had detected concentrations of antimony, approximatlely an order-of-magnitude less than the SCS. Laboratory reports indicated that these detection limits were adjusted as the samples required dilution due to high concentrations of other target analytes (in this case, assumed to be sodium and chloride). Based on the available information, this parameter was determined to likely not be present at concentrations exceeding the SCS; therefore, at the discretion of the QPESA, was not considered to be a COC for the Phase Two Property.
METALS	Beryllium Cobalt Silver	Parameters with existing SCS but RL exceedances only	Seven samples (MW100 x 2, MW102A x 2, MW102B x 2, MW110A) had RL exceedances of the SCS in September 2019 (COA L2343122) and December 2019 (COA L2399298).	Two samples collected from MW100, MW102A and MW102B, and one sample collected from MW110A had RL exceedances for each of the noted metals in September and December 2019. All other samples collected on the Phase Two Property had nondetected concentrations of the noted metals, with the exception of three samples (September and December 2019 at MW108 and December 2019 at MW103) that had detected concentrations of cobalt approximatlely 2.5 times less than the SCS. Laboratory reports indicated that these detection limits were adjusted as the samples required dilution due to high concentrations of other target analytes (in this case, assumed to be sodium and chloride). Based on the available information, these parameters were determined to likely not be present at concentrations exceeding the SCS; therefore, at the discretion of the QPESA, were not considered to be COCs for the Phase Two Property.
METALS	Vanadium	Parameter with existing SCS but RL exceedances only	Eight samples (MW100 x 2, MW102A x 2, MW102B x 2, MW110A x 2) had RL exceedances of the SCS in September 2019 (COA L2343122) or November 2019 (COA L2387876), and December 2019 (COA L2399298).	Two samples collected from each location listed had RL exceedances for vanadium in September or November 2019, and December 2019. All other samples collected on the Phase Two Property had nondetected concentrations of the noted metal, with the exception of one sample (MW108) that had a detected concentration of vanadium approximatlely an order-of-magnitude less than the SCS. Laboratory reports indicated that these detection limits were adjusted as the samples required dilution due to high concentrations of other target analytes (in this case, assumed to be sodium and chloride).

Notes:

The rationale for exclusion of COCs listed in this table is based on the data collected as part of the ESA and only applies to this ESA.

µg/L = micrograms per gram
COA = certificate of analysis
COC = contaminant of concern
O. Reg. = Ontario Regulation
RL = laboratory reporting limit
PCA = potentially contaminating activity
QPESA = MECP Qualified Person for Environmental Site Assessment
SCS = Site Condition Standards

Table 6-10c. Rationale for the Exclusion of Groundwater COCs

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Parameter Group	Parameter	Category	Sample(s)	Comment/Rationale
INORGANICS	Chloride Sodium	Parameter associated with salt that has been applied to surfaces for the safety of vehicular or pedestrian traffic.	Nineteen chloride samples and eighteen sodium samples from across the Site.	The presence of sodium and chloride in groundwater at the Site are related to the application of salt on the parking lot surface during winter conditions. The application of salt has been used for the safety of vehicular and pedestrian traffic. Under Section 49.1 of the revised O. Reg. 153/04, the SCS is deemed to not be exceeded for the purpose of Part XV.1 of the Act should a substance be applied to surfaces for hte safety of vehicularor pedestrian traffic under conditions of snow or ice or both. Therefore, at the discretion of the QPESA, sodium and chloride were not considered to be COCs for the Phase Two Property.
VOC	Chloroform	Parameter with "introduced" exceedance; exemptions in Section 49.1 of O. Reg. 153/04	Twelve samples (MW101 x 3, MW104, MW105, MW107 x 4, MW113 x 3) had a detected exceedance of the SCS from September and/or December 2019, or April 2020.	The initial groundwater samples collected in early September 2019 from each location listed (or April 2020 for MW113) after drilling/bedrock coring, purging, and well development had concentrations of chloroform ranging from 3.2 µg/L to 12 µg/L, greater than the SCS of 2.4 µg/L. The source of the chloroform exceedance was believed to be related to the municipal water that was used during the bedrock coring process. Jacobs has encountered a similar issue during a previous drilling program in the City of Guelph in 2018. For that project, two samples, one from the water truck and one from the water truck hose that was used during the coring activities, were analyzed for VOCs. All VOCs were non detect in the municipal water water samples apart from bromodichloromethane (12.5 to 12.9 µg/L), dibromochloromethane (11.5 to 11.8 µg/L), and chloroform (9.8 to 10.1 µg/L). These analytes are trihalomethanes that are typically present in municipally-treated water substantiating that municipal water introduced during drilling activities as the likely source of trihalomethanes in groundwater. For the current project, all VOCs were nondetect in groundwater apart from these same three analytes, and from one sample for 1,1-dichloroethane. Additional groundwater samples were collected in late September 2019 and December 2019 from the two locations with the highest reported chloroform concentrations (MW101 and MW107). Slightly lower concentrations of chloroform were detected in the second set of samples and in the third set of samples. MW113 was installed in April 2020, and three samples have been collected (two normal and one field duplicate) with concentrations of chloroform ranging from 3.2 to 4.4 µg/L. Based on the available information, the QPESA determined there was a discharge of drinking water (within the meaning of the Safe Drinking Water Act, 2002), resulting in chloroform exceeding the SCS. Under Section 49.1 of the revised O. Reg. 153/04, the SCS is deemed to not be exceeded for the purpose of Part XV.1 of the Act. Therefore, at the discretion of the QPESA, chloroform was not considered to be a COC for the Phase Two Property.

Notes:

The rationale for exclusion of COCs listed in this table is based on the data collected as part of the ESA and only applies to this ESA.

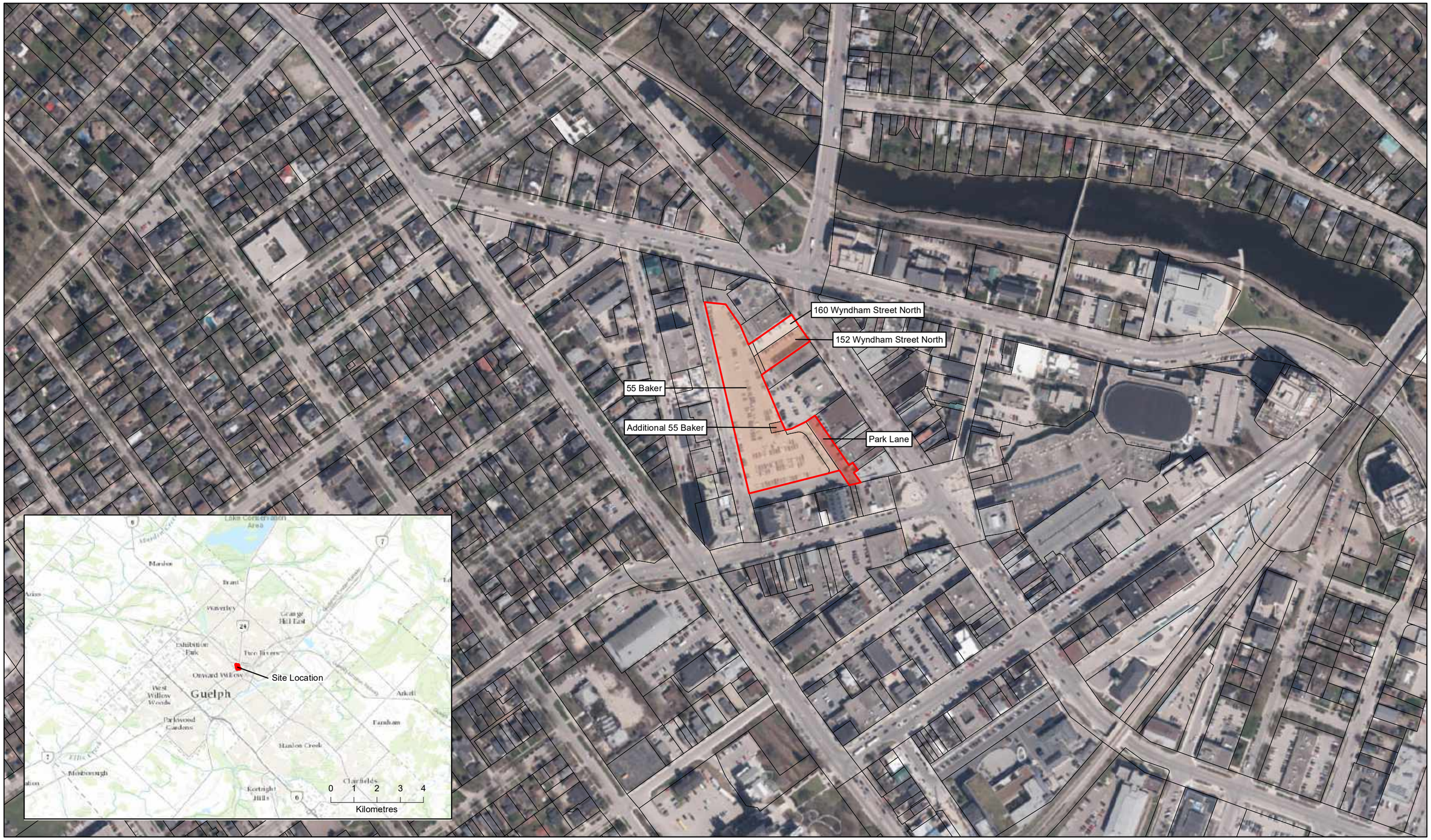
µg/L = micrograms per gram
COC = contaminant of concern
O. Reg. = Ontario Regulation
RL = laboratory reporting limit
PCA = potentially contaminating activity
QPESA = MECP Qualified Person for Environmental Site Assessment
SCS = Site Condition Standards
VOC = volatile organic compound

Table 6-10d. Contaminants of Concern Identified in Groundwater

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Analytical Group	Analyte
Metals	Cadmium

Figures



N

0 1 2 3 4
Kilometers

Site Boundary
Property Boundary

Notes:
1. Aerial Imagery: ESRI World Imagery 2019. Imagery Date May 6, 2019.
2. Inset Basemap: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
3. Property Boundaries: City of Guelph.

Figure 2-1
Site Location
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\SITELOCATION.MXD SCYR 11/25/2020 2:34:20 PM

Jacobs

Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Site Boundary
- Property Boundary
- Historical Building
- Historical Transformer

N

0 5 10 15 20
Metres

Notes:
1. Historical sample locations and site boundaries are approximate. Current sample locations have been surveyed.

BH - Borehole
MW - Monitoring Well

Figure 2-2a
Site Plan and Historical Buildings
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\SITEPLAN_HISTORICALBUILDINGS.MXD SBEGG1 11/25/2020 8:35:55 AM

Jacobs

Sample Location (Current)
- Borehole
- Monitoring Well

- Gas Meter
- Catch Basin
- Man Hole
- Light
- Storm Sewer
- Sanitary Sewer
- Water Line
- Gas Line
- Overhead Hydro
- Underground Hydro
- Site Boundary
- Property Boundary

N

0 5 10 15 20
Metres

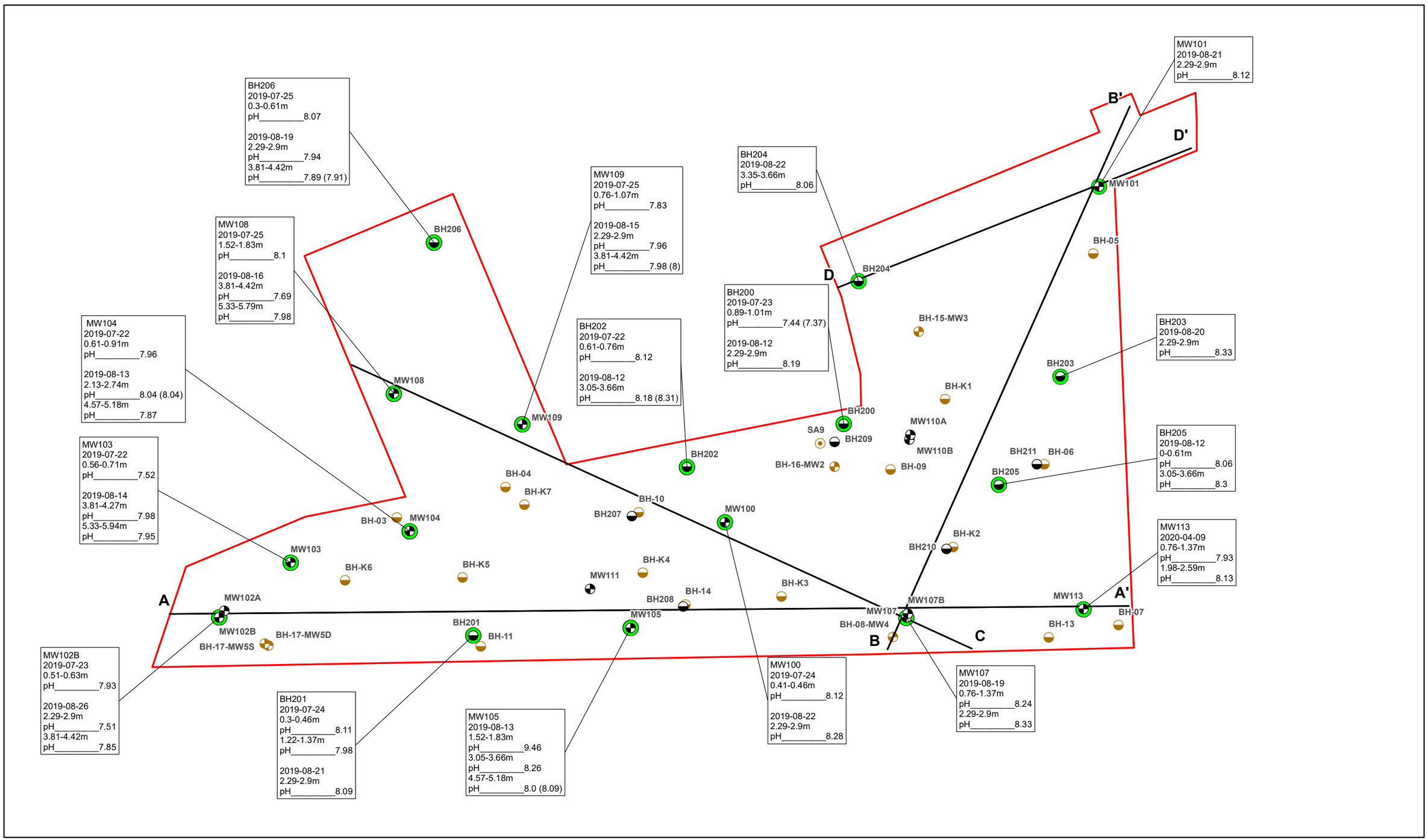
Notes:
1. Historical sample locations and site boundaries are approximate. Current sample locations have been surveyed.

BH - Borehole
MW - Monitoring Well

Figure 2-2b
Site Plan and Known Utilities
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\SITEPLAN_UTILITIES.MXD SBEGG1 11/25/2020 8:37:25 AM

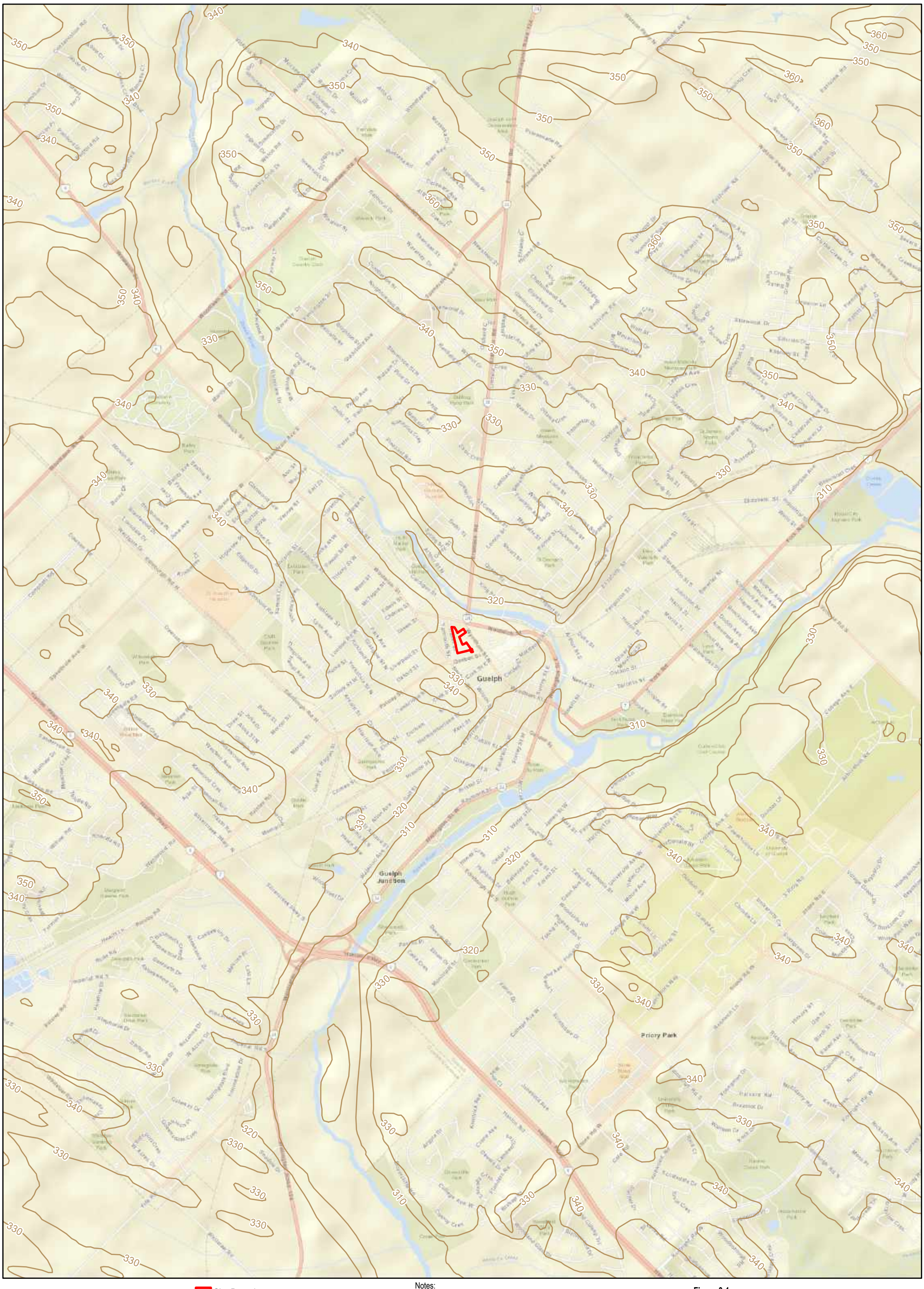
Jacobs



Notes:
1. Location is shown as an exceedance if: Sample Depth <1.5m and pH >9 or Sample Depth >1.5m and pH >11

2. Results in ( ) indicate field duplicates.

Figure 2-3
Soil pH Results
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 10/19/2020



Site Boundary
Elevation Contour (10 m)

N

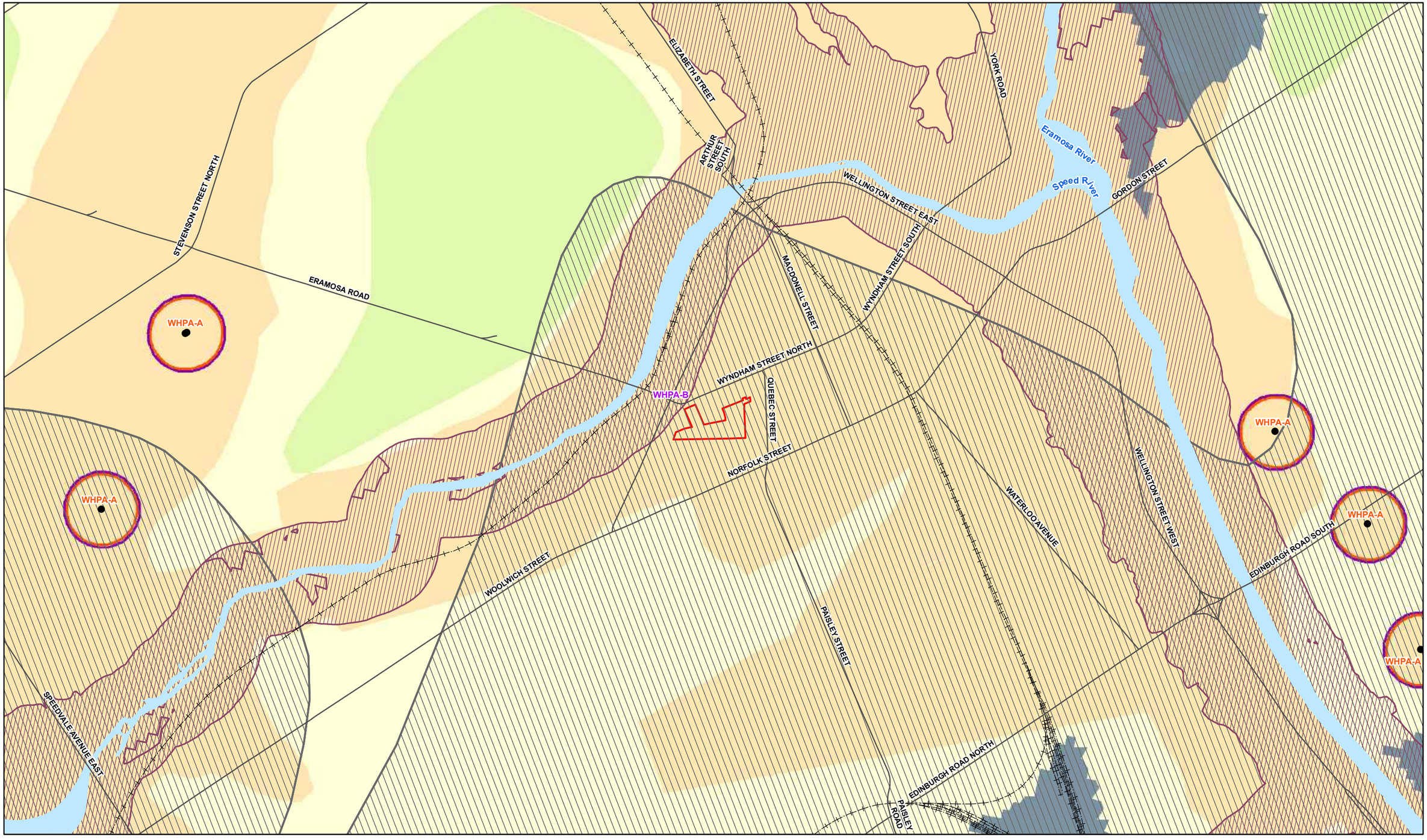
0 400 800
Meters

Notes:
1. Topography Contours obtained from Canvec.
2. Basemap Sources: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Figure 3-1
Regional Topography
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 6/9/2020

Jacobs

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\REGIONALTOPOGRAPHY.MXD SBEGG1



Notes:
1. Contains Information made available under Grand River Conservation Authority's Open Data Licence v2.0." https://data.grandriver.ca/downloads-geospatial.html

Figure 3-2
Source Water Protection Areas
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario
Date Exported: 7/6/2020

Jacobs

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\3_2_SOURCE_WATER_PROTECTION_AREAS.MXD SBEGG1 7/6/2020 10:32:34 AM

Property Boundary
Site Boundary

Area of Potential Concern
APEC-1 (Historical Industrial Property Use)
APEC-2 (Unknown Poor Quality Fill Material) and APEC-4 (Use of Road Salts)
APEC-3 (Historical Transformer)
APEC-18 (Former Oil Shed)
APEC-19 (Former Oil House)
APEC-20 (Former Coke Storage) and APEC-21 (Former Garage)

N

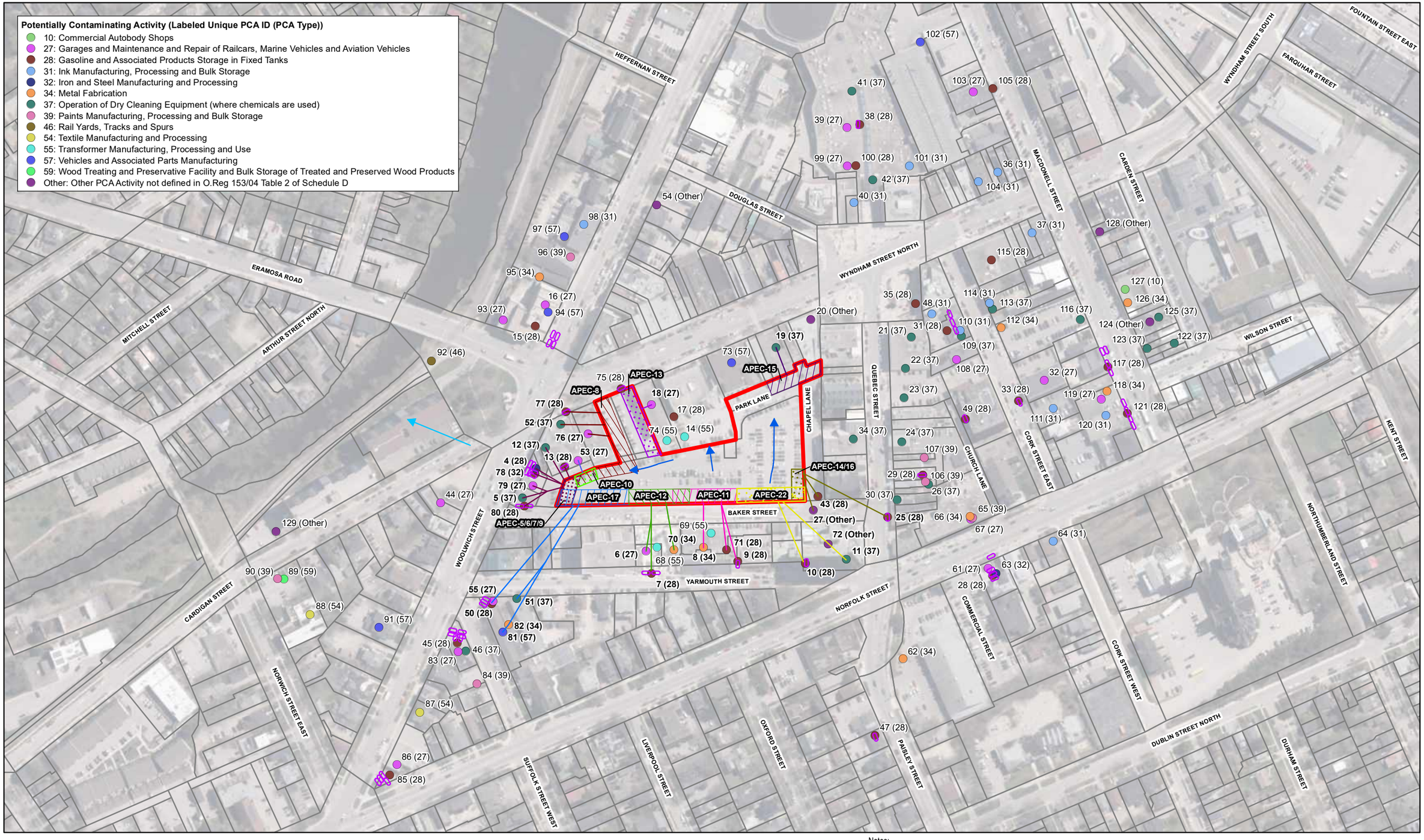
0 5 10 15 20
Metres

Notes:
1. 1. Aerial Imagery: ESRI World Imagery 2019. Imagery Date May 6, 2019.
2. Property Boundaries: City of Guelph.
3. Site boundaries are approximate.
4. PCA Unique IDs are as assigned in the Phase One ESA (Pinchin 2018) and those added by Jacobs (above 56).
5. See Table 4-2 for PCA descriptions.

Figure 4-1a
Potentially Contaminating Activities (PCAs) - Onsite
Phase One Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 1/13/2021

\\dc1vs01\GISProj\G\GuelphCityOf\55BakerStreet\MapFiles\PhaseII\Jan2021_Update\PCAs_Onsite.mxd SCYR

Jacobs



Notes:
1. 1. Aerial Imagery: ESRI World Imagery 2019. Imagery Date May 6, 2019.
2. Property Boundaries: City of Guelph.
3. Site boundaries are approximate.
4. PCA Unique IDs are as assigned in the Phase One ESA (Pinchin 2018) and those added by Jacobs (above 56).
5. PCAs contributing to an APEC are bolded and are shown with a connecting corresponding coloured line.
6. See Table 4-2 for PCA descriptions and rationale on whether the PCA contributes to a APEC on the Site.

Figure 4-1b
Potentially Contaminating Activities (PCAs) - Offsite
Phase One Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 1/13/2021

\\dc1vs01\GISProj\G\GuelphCityOf\55BakerStreet\MapFiles\PhaseII\Jan2021_Update\PCAs_Offsite.mxd SCYR

Jacobs

- APEC-1 (Historical Industrial Property Use)
- APEC-2 (Unknown Poor Quality Fill Material) and APEC-4 (Use of Road Salts)
- APEC-3 (Historical Transformer)
- APEC-5/6/7/9 (Off-site Historical Dry Cleaning, Off-site Historical RFO and Off-site Historical Fuel Oil UST)
- APEC-8 (Off-site Historical Dry Cleaning)
- APEC-10 (Off-site Historical Automotive Repair Garage)
- APEC-11 (Off-site Industrial Operations and Historical UST)
- APEC-12 (Off-site Historical Automotive Repair and Historical UST)
- APEC-13 (Off-site Historical Automotive Repair Garage)
- APEC-14/16 (Historical Gasoline Spill/Off-Site Historical Below Grade AST and Historical UST)
- APEC-15 (Off-site Historical Dry Cleaning)
- APEC-17 (Off-site Dry Cleaning, Historical RFO, and Automotive Repair)
- APEC-18 (Former Oil Shed)
- APEC-19 (Former Oil House)
- APEC-20 (Former Coke Storage) and APEC-21 (Former Garage)
- APEC-22 (Off-site Dry Cleaning and Historical UST)

Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Site Boundary
- Property Boundary

N

0 5 10 15 20
Metres

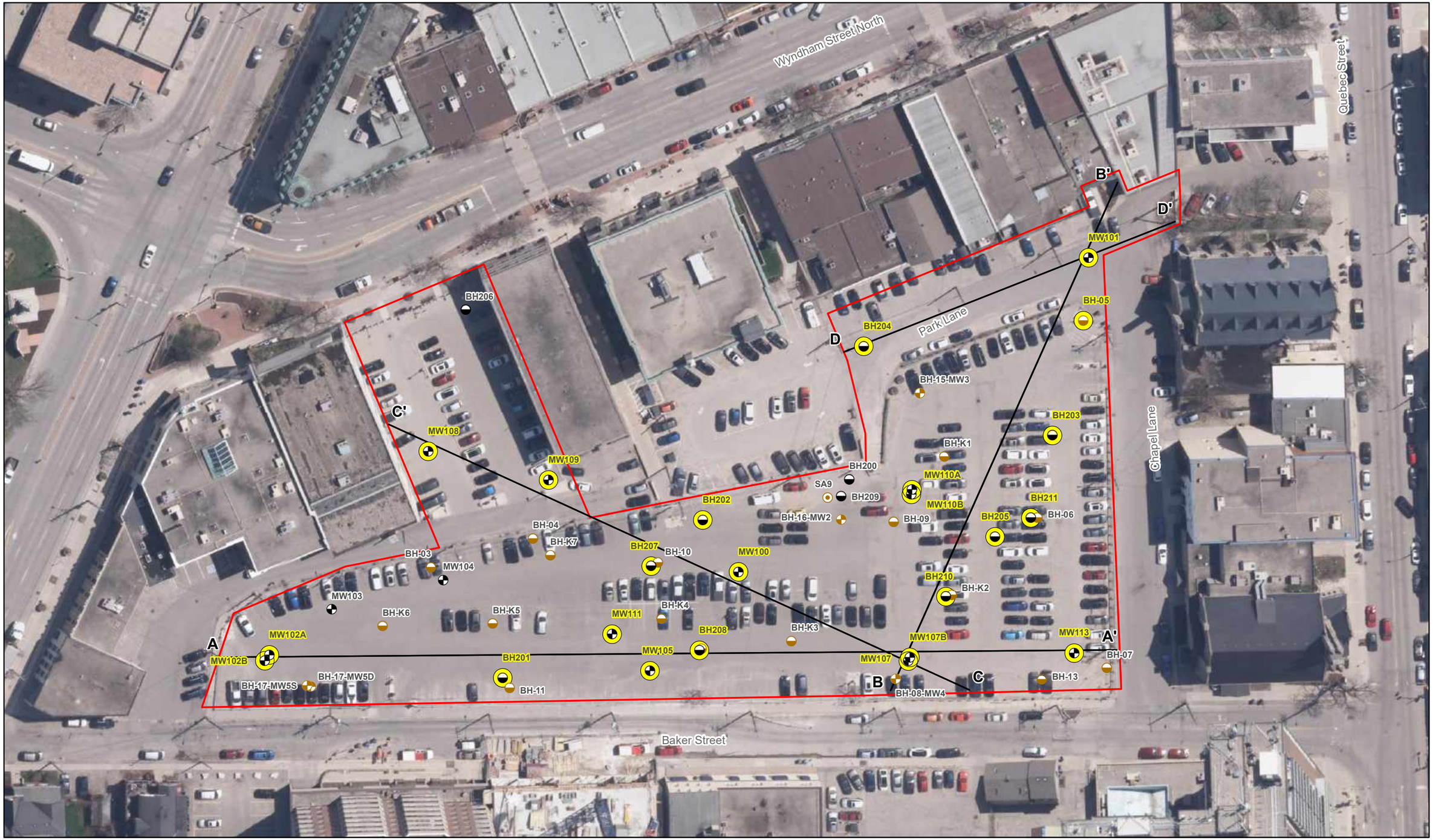
Notes:
1. 1. Aerial Imagery: ESRI World Imagery 2019. Imagery Date May 6, 2019.
2. Property Boundaries: City of Guelph.
3. Historical sample locations and site boundaries are approximate. Current sample locations have been surveyed.

BH - Borehole
MW - Monitoring Well

Figure 4-2
Areas of Potential Environmental Concern and Sampling Locations
Phase One Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 1/13/2021

\\dc1vs01\GISProj\G\GuelphCityOf\55BakerStreet\MapFiles\PhaseII\Jan2021_Update\APECs.mxd SCYR

Jacobs



Notes:
1. Aerial Imagery: ESRI World Imagery 2019. Imagery Date May 6, 2019.
2. Historical sample locations and site boundaries are approximate. Current sample locations have been surveyed.

BH - Borehole
MW - Monitoring Well

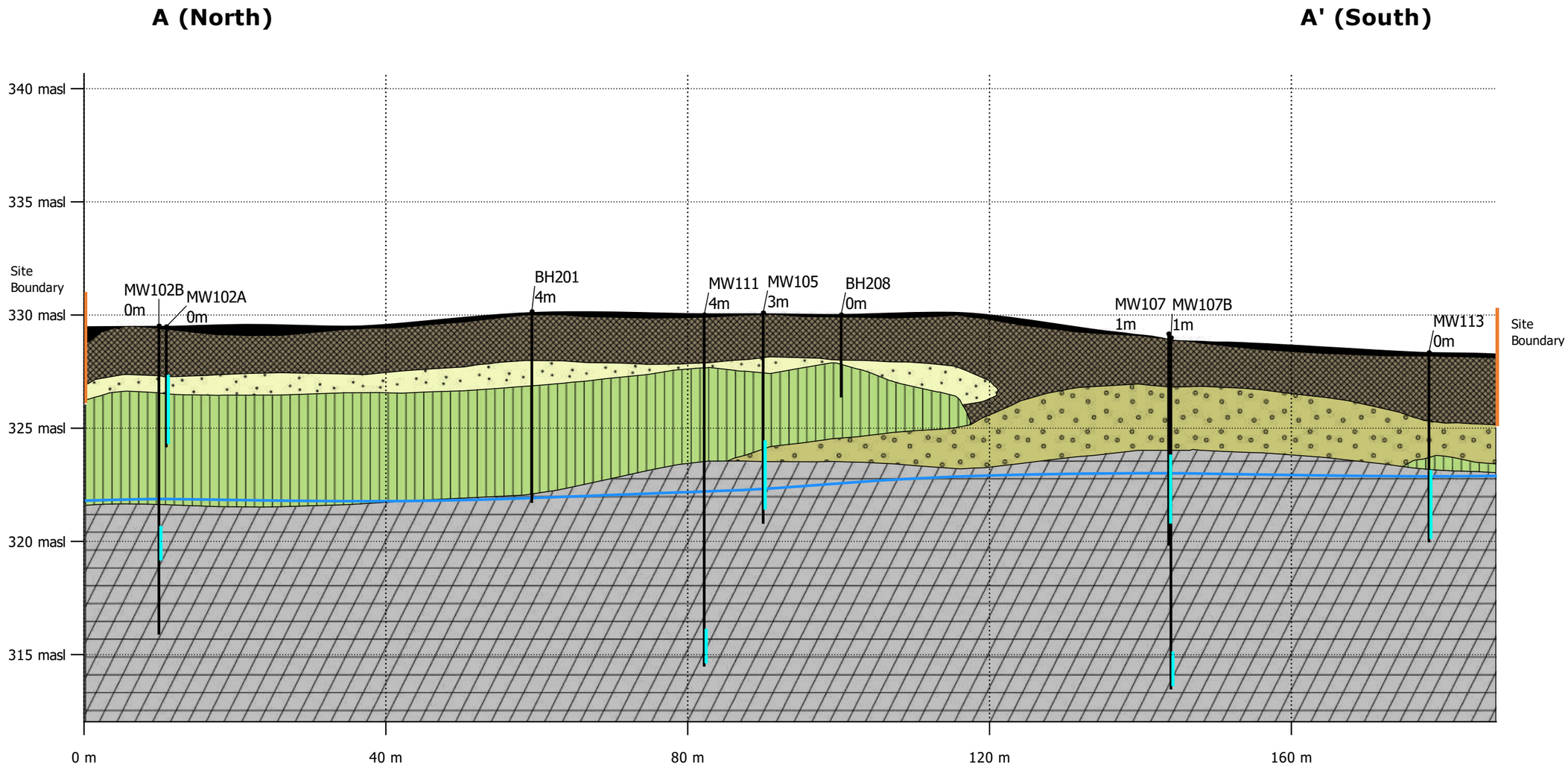
Figure 6-1
Cross-section Locations
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 6/9/2020

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\CROSSSECTION_LOCATIONS.MXD SBEGG1 6/9/2020 12:56:35 PM

Jacobs

Cross-Section A-A'

Export Date: June 11, 2020



Vertical exaggeration: 3x

Legend

- Asphalt
- Fill
- Sand and Gravel
- Guelph formation dolostone
- Sand
- Silt
- Water Table Elevation Elevation (April 15, 2020)
- Boring Interval
- Monitoring Well Screen Interval

Notes:
1. Ground surface elevations at borehole locations may be different than current grade as some locations are projected onto the cross-section line and ground surface elevations may have changed since the time of drilling for historical locations. Distance of projection is presented below each location name on the section.
2. Stratigraphic units presented on the cross-sections are based on Jacobs' interpretation of the Site's geology and may differ from those noted on logs from investigations by others.
3. masl = metres above sea level

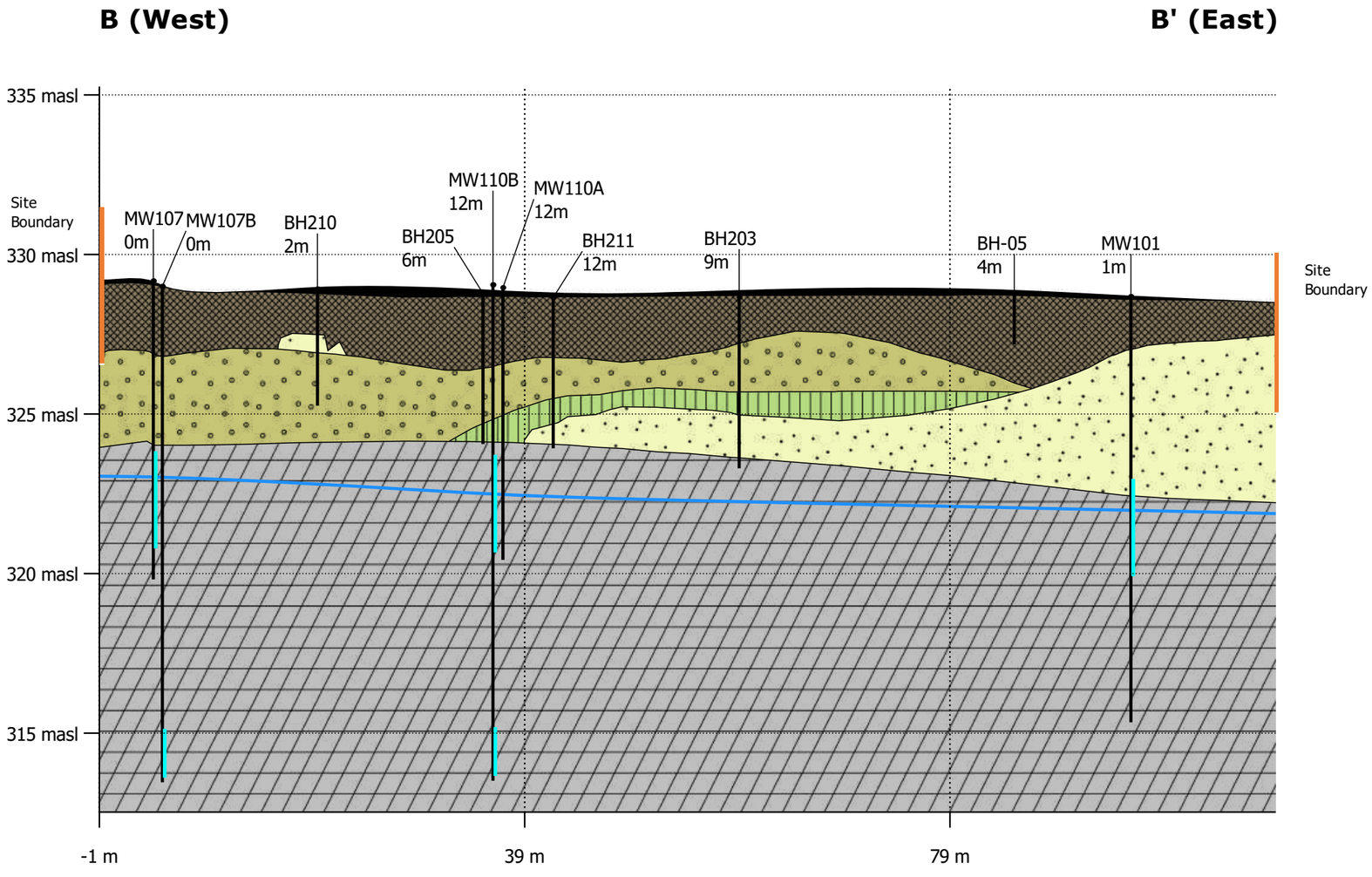
Figure 6-1a

Geologic Conceptual Cross-Section A-A'
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario

Jacobs

Cross-Section B-B'

Export Date: June 11, 2020



Vertical exaggeration: 3x

Legend

- Asphalt
- Fill
- Sand and Gravel
- Guelph formation dolostone
- Sand
- Silt
- Water Table Elevation (April 15, 2020)
- Boring Interval
- Monitoring Well Screen Interval

Notes:
1. Ground surface elevations at borehole locations may be different than current grade as some locations are projected onto the cross-section line and ground surface elevations may have changed since the time of drilling for historical locations. Distance of projection is presented below each location name on the section.
2. Stratigraphic units presented on the cross-sections are based on Jacobs' interpretation of the Site's geology and may differ from those noted on logs from investigations by others.
3. masl = metres above sea level

Figure 6-1b

Geologic Conceptual Cross-Section B-B'
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario

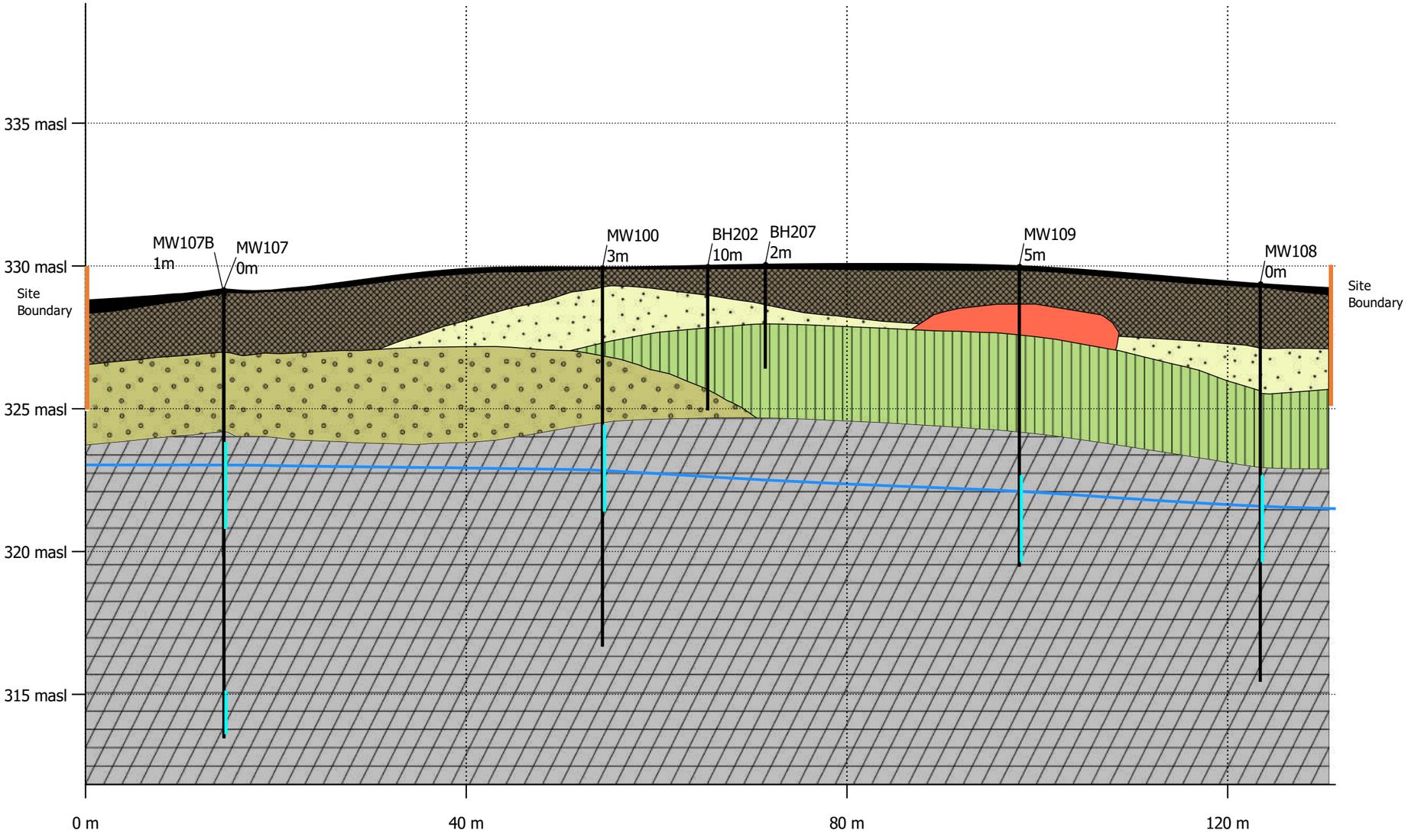
Jacobs

Cross-Section C-C'

C (West)

C' (East)

Export Date: June 11, 2020



Vertical exaggeration: 3x

Legend

- Asphalt
- Fill
- Sand and Gravel
- Sand
- Silt
- Guelph formation dolostone
- Clay
- Water Table Elevation (April 15, 2020)
- Boring Interval
- Monitoring Well Screen Interval

Notes:
1. Ground surface elevations at borehole locations may be different than current grade as some locations are projected onto the cross-section line and ground surface elevations may have changed since the time of drilling for historical locations. Distance of projection is presented below each location name on the section.
2. Stratigraphic units presented on the cross-sections are based on Jacobs' interpretation of the Site's geology and may differ from those noted on logs from investigations by others.
3. masl = metres above sea level

Figure 6-1c

Conceptual Geologic Cross-Section C-C'
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario

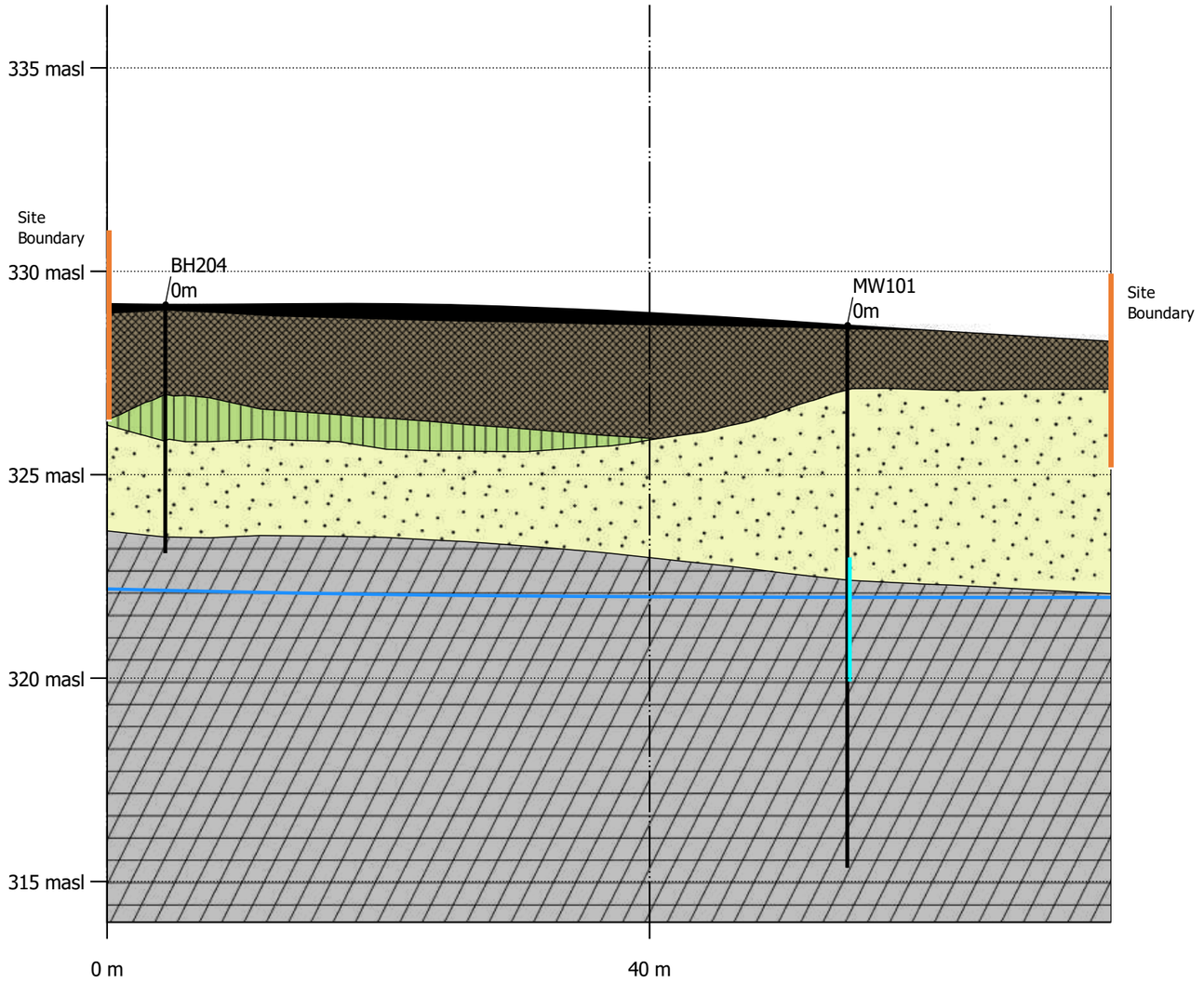
Jacobs

Cross-Section D-D'

D (North)

D' (South)

Export Date: June 11, 2020



Vertical exaggeration: 3x

Legend

- Asphalt
- Fill
- Guelph formation dolostone
- Sand
- Silt
- Water Table Elevation Elevation (April 15, 2020)
- Boring Interval
- Monitoring Well Screen Interval

Notes:
1. Ground surface elevations at borehole locations may be different than current grade as some locations are projected onto the cross-section line and ground surface elevations may have changed since the time of drilling for historical locations.
2. Stratigraphic units presented on the cross-sections are based on Jacobs' interpretation of the Site's geology and may differ from those noted on logs from investigations by others.
3. masl = metres above sea level

Figure 6-1d

Conceptual Geologic Cross-Section D-D'
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario

Jacobs

September 18, 2019 Groundwater Elevations (mASL)
- Monitoring Well - Water Table Elevation
- Shallow Monitoring Well - Perched Water Table Elevation

Groundwater Contour (September 18, 2019)
Flow Direction
Site Boundary

N

0 5 10 15 20
Metres

Notes:
1. Historical sample locations and site boundaries are approximate. Current sample locations have been surveyed.

BH - Borehole
MW - Monitoring Well
GW - Groundwater

Figure 6-2a
Groundwater Contours - September 2019
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 6/9/2020

Jacobs

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\GWCONTOURS_SEPT2019.MXD SBEGG1 6/9/2020 1:10:58 PM

December 18, 2019 Groundwater Elevations (mASL)

- Shallow Monitoring Well - Perched Water Table Elevation
- Monitoring Well - Water Table Elevation
- Monitoring Well - Deep
- Water Table Elevation Contour (masl) - December 18, 2019
- Flow Direction
- Site Boundary

N

0 5 10 15 20

Metres

Notes:
1. Historical sample locations and site boundaries are approximate. Current sample locations have been surveyed.

BH - Borehole
MW - Monitoring Well
GW - Groundwater

Figure 6-2b
Groundwater Contours - December 2019
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 6/9/2020

Jacobs

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\GWCONTOURS_DEC2019.MXD SBEGG1 6/9/2020 1:12:45 PM

April 15, 2020 Groundwater Elevations (mASL)
- Shallow Monitoring Well - Perched Water Table Elevation
- Monitoring Well - Water Table Elevation
- Monitoring Well - Deep

- Water Table Elevation Contour (masl) - April 15, 2020
- Flow Direction
- Site Boundary

N

0 5 10 15 20
Metres

Notes:
1. Historical sample locations and site boundaries are approximate. Current sample locations have been surveyed.

BH - Borehole
MW - Monitoring Well
GW - Groundwater

Figure 6-2c
Groundwater Contours - April 2020
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 6/9/2020

Jacobs

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\GWCONTOURS_APR2020.MXD SBEGG1 6/9/2020 12:55:40 PM

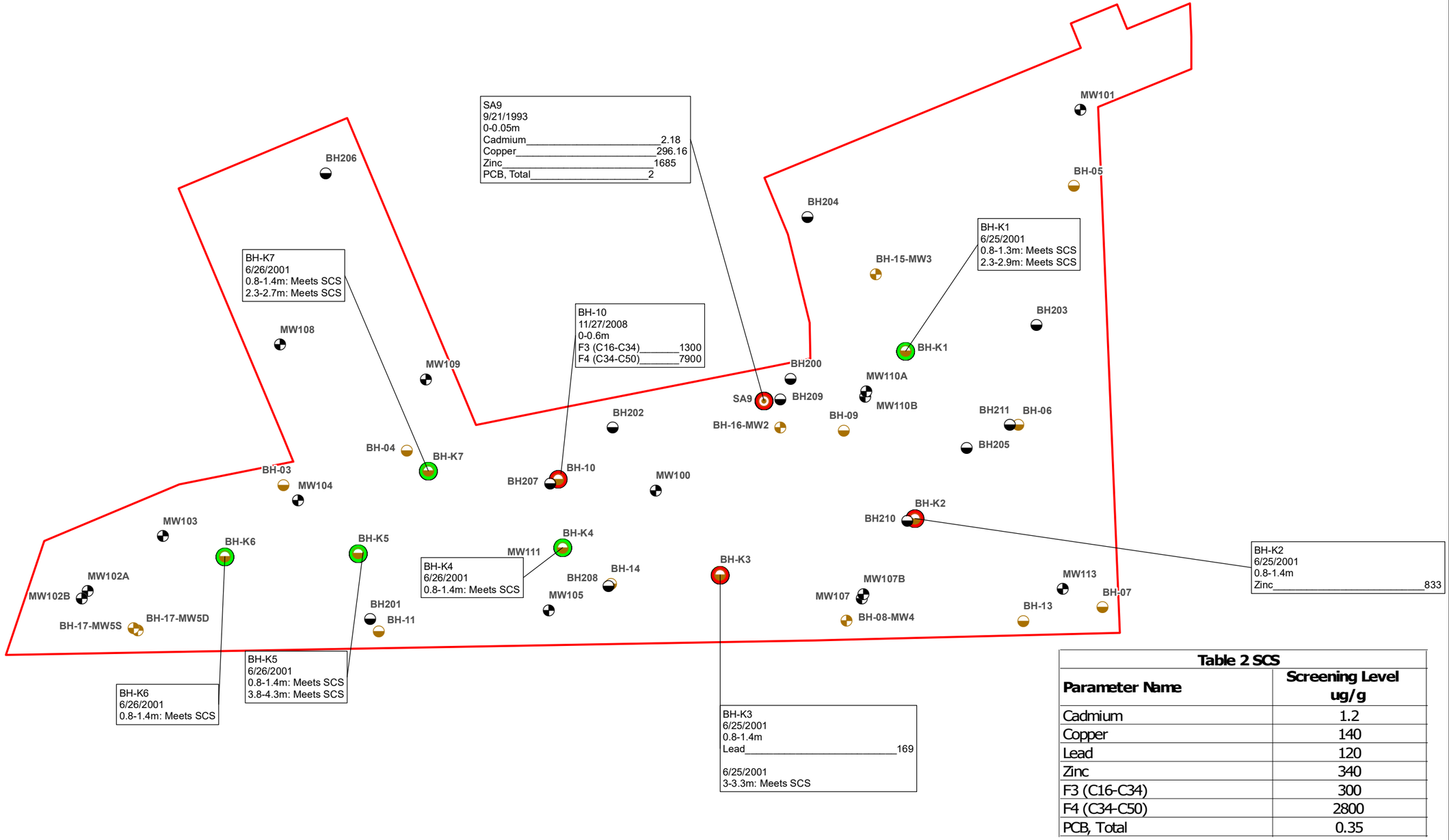


Table 2 SCS	
Parameter Name	**Screening Level ug/g**
Cadmium	1.2
Copper	140
Lead	120
Zinc	340
F3 (C16-C34)	300
F4 (C34-C50)	2800
PCB, Total	0.35

Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Location without Table 2 Exceedance
- Location with Table 2 Exceedance
- Site Boundary

N

0 5 10 15
Metres

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of soil impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.
5.. Data shown will not be used for RSC purposes, but for screening only. Samples shown have one or more parameters under the Metals and Metals, Hydride-Forming O. Reg. 153/04 Analytical Groups are missing (specifically uranium analysis, and select samples are missing one or more of antimony, arsenic, boron, or selenium). Samples shown with PCB and PHC results were resampled in the current investigation (see discussion in text).

Figure 6-3
Soil Screening Data- Historical Metals (Incomplete), PHCs and PCBs
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 7/21/2020

Jacobs

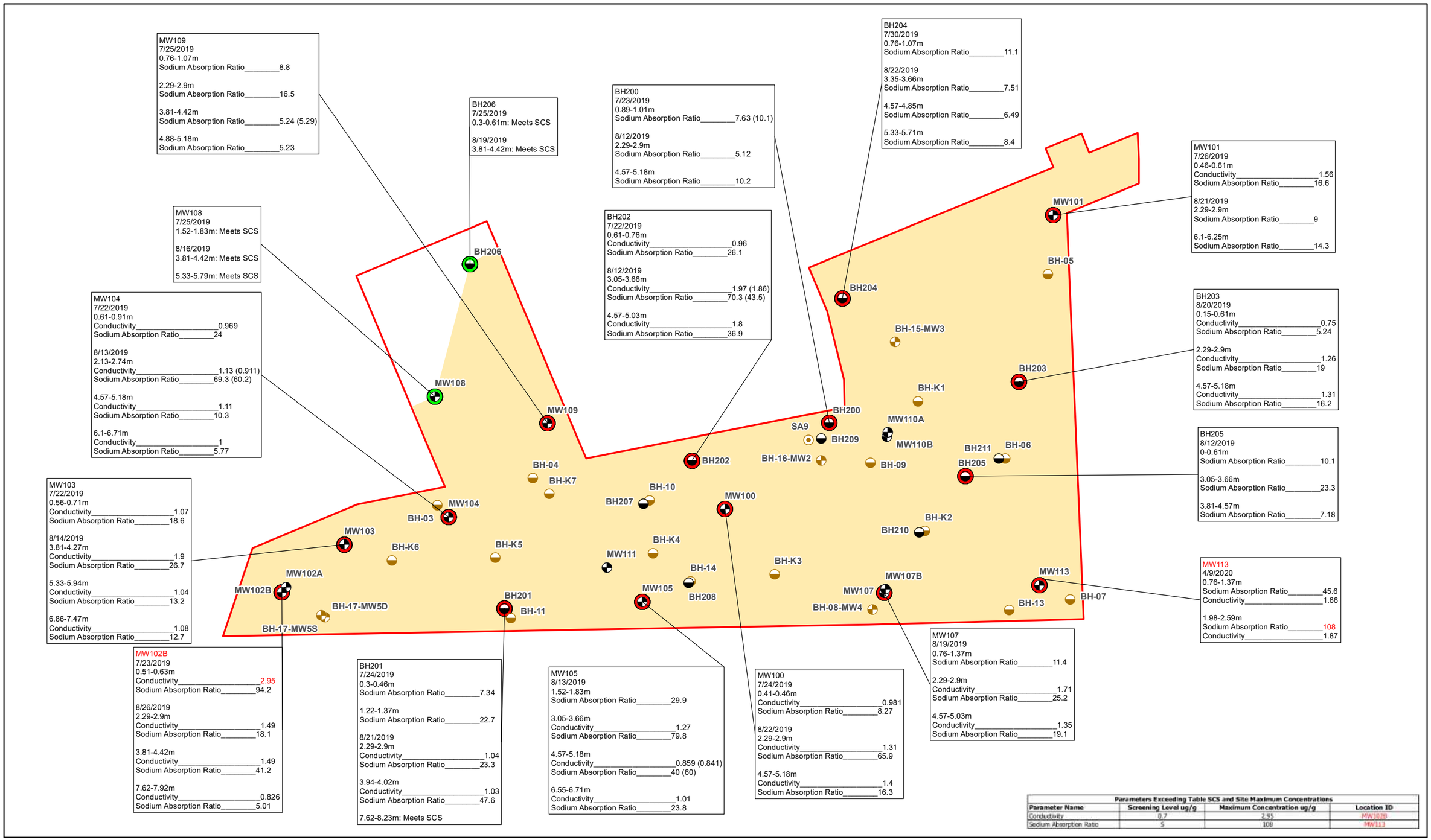
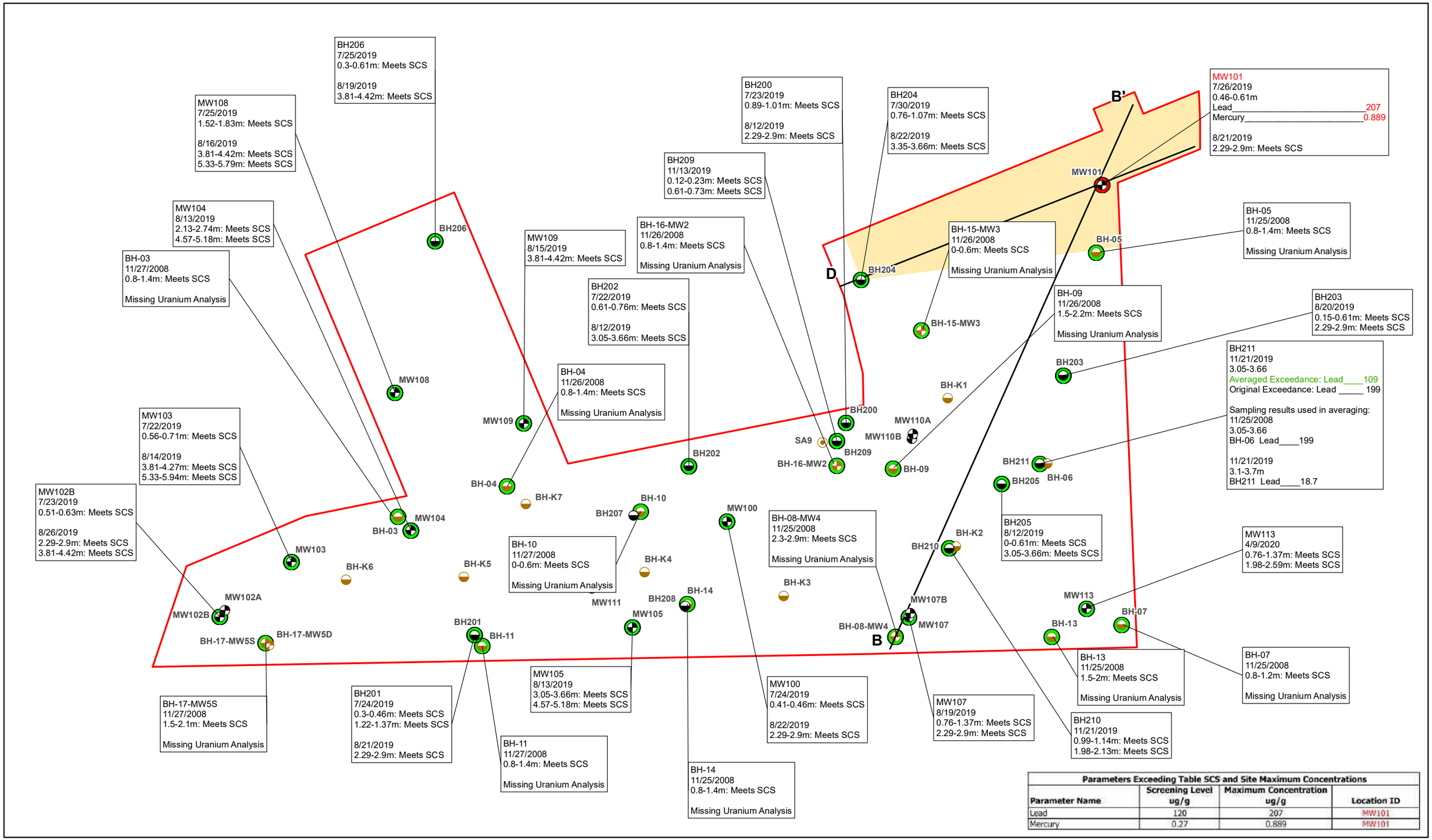


Figure 6-4
Soil Results - ORPs: EC, SAR, and Cyanide
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs



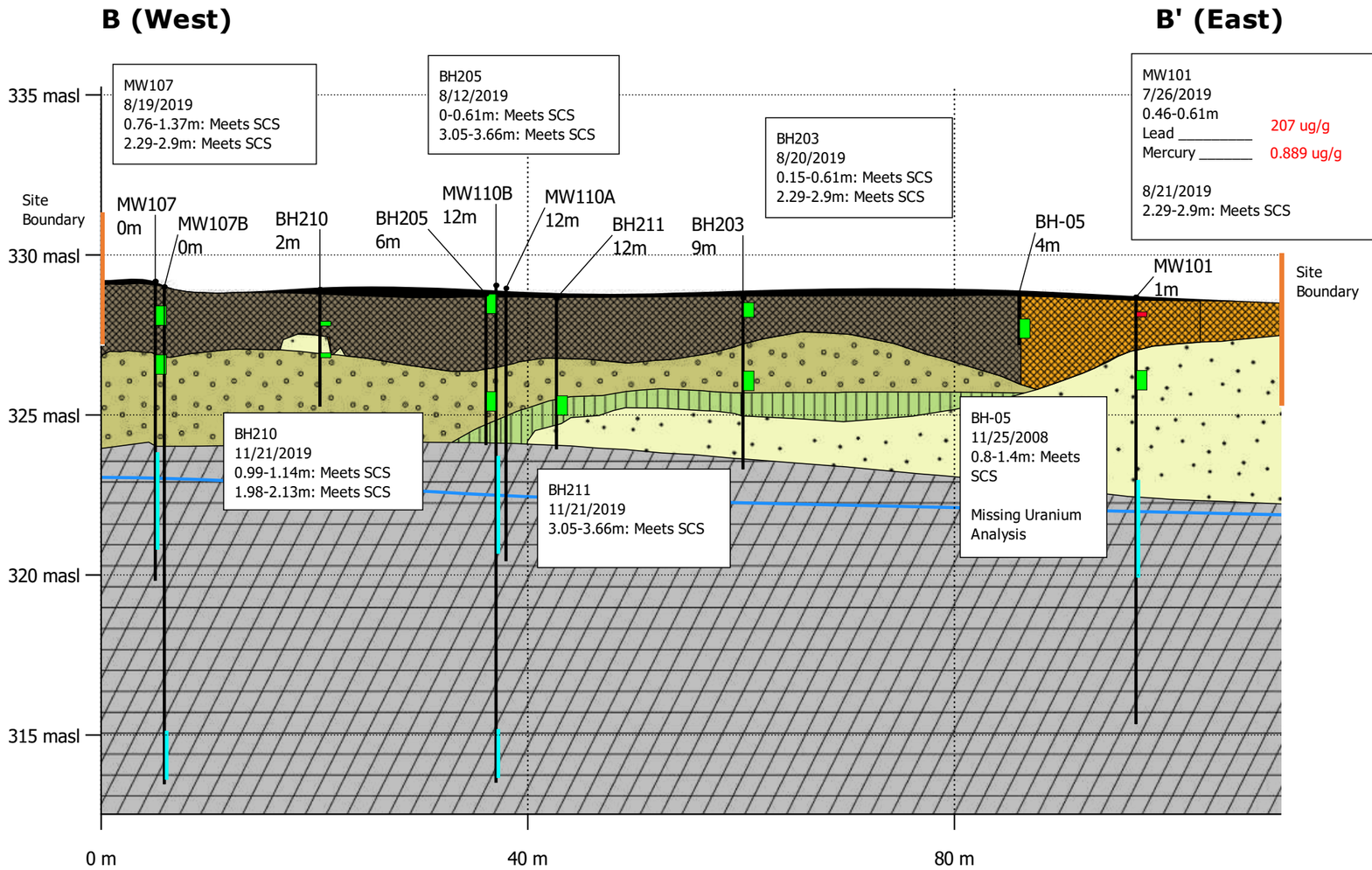
Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of soil impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.
5. Samples from 2008 were collected in accordance with O. Reg. 153/04, but are missing analysis of uranium, which was not regulated under the Regulation at the time of investigation. This data is considered valid for RSC purposes.

Figure 6-5
Soil Results - Metals and Select ORPs: Metals, Hydride-Forming Metals, Hg, MeHg, and CrVI
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs

Cross-Section B-B'

Export Date: June 17, 2020



Vertical exaggeration: 3x

Legend

- Asphalt
- Fill
- Sand and Gravel
- Guelph formation dolostone
- Sand
- Silt
- Soil Sample Exceeds SCS
- Soil Sample Meets SCS
- Inferred Maximum Extent of Soil > SCS
- Boring Interval
- Monitoring Well Screen Interval
- Water Table Elevation Elevation (April 15, 2020)

Notes:
1. Ground surface elevations at borehole locations may be different than current grade as some locations are projected onto the cross-section line and ground surface elevations may have changed since the time of drilling for historical locations. Distance of projection is presented below each location name on the section.
2. Stratigraphic units presented on the cross-sections are based on Jacobs' interpretation of the Site's geology and may differ from those noted on logs from investigations by others.
3. masl = metres above sea level
4. Results in ( ) indicate field duplicates.
5. Red text indicates the locaiton of the site maximum concentration of the analyte.
6. Samples from 2008 were collected in accordance with O.Reg. 153/04, but are missing analysis of uranium, which was not regulated under the Regulation at the time of investigation. This data is considered valid for RSC purposes.

Figure 6-5a

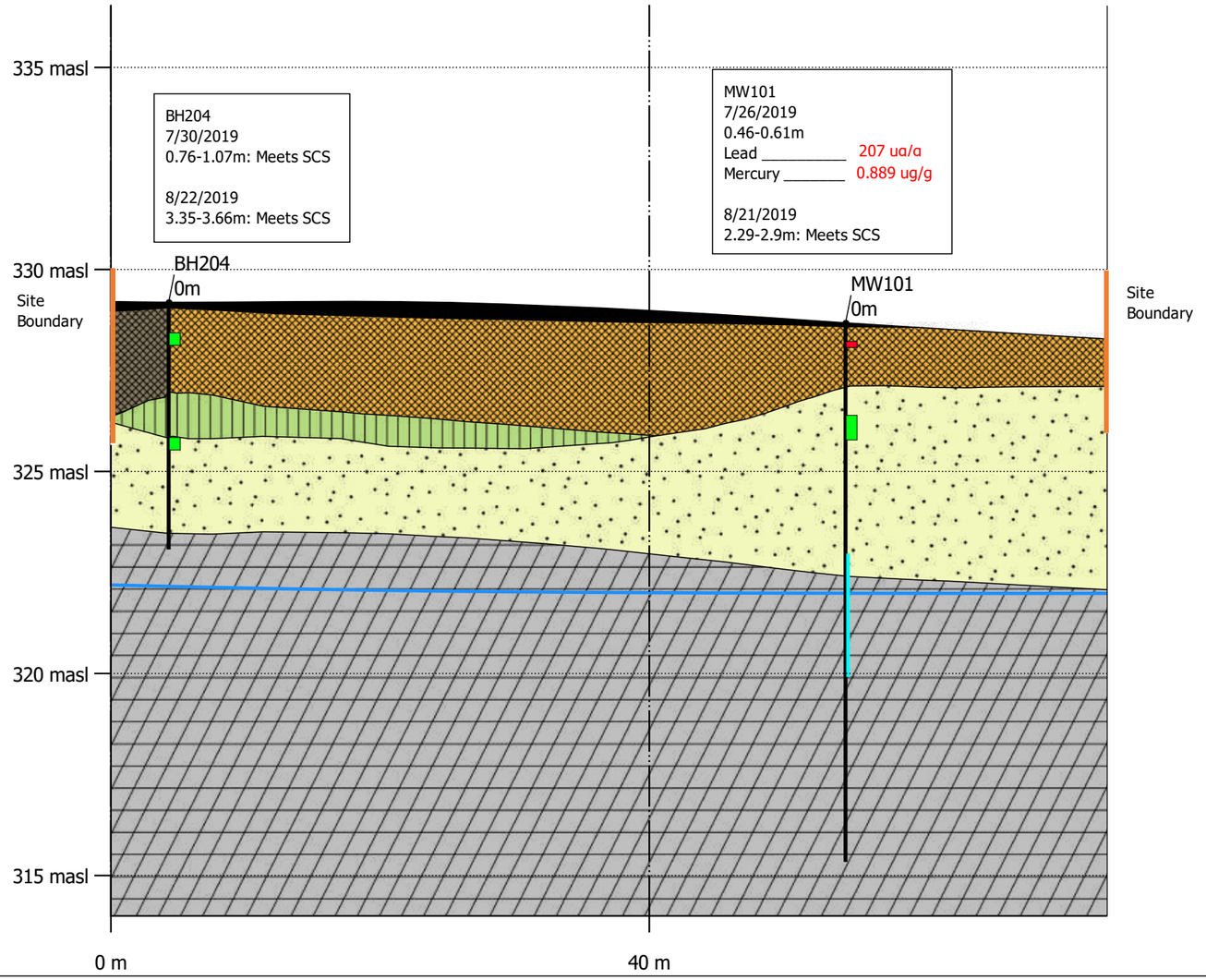
Soil Results - Metals and Select ORPs: Metals, Hydride-Forming Metals, Hg, MeHG, and CrVI
Cross-Section B-B'
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario

Jacobs

Cross-Section D-D'

D (North) **D' (South)**

Export Date: June 11, 2020



Vertical exaggeration: 3x

Legend

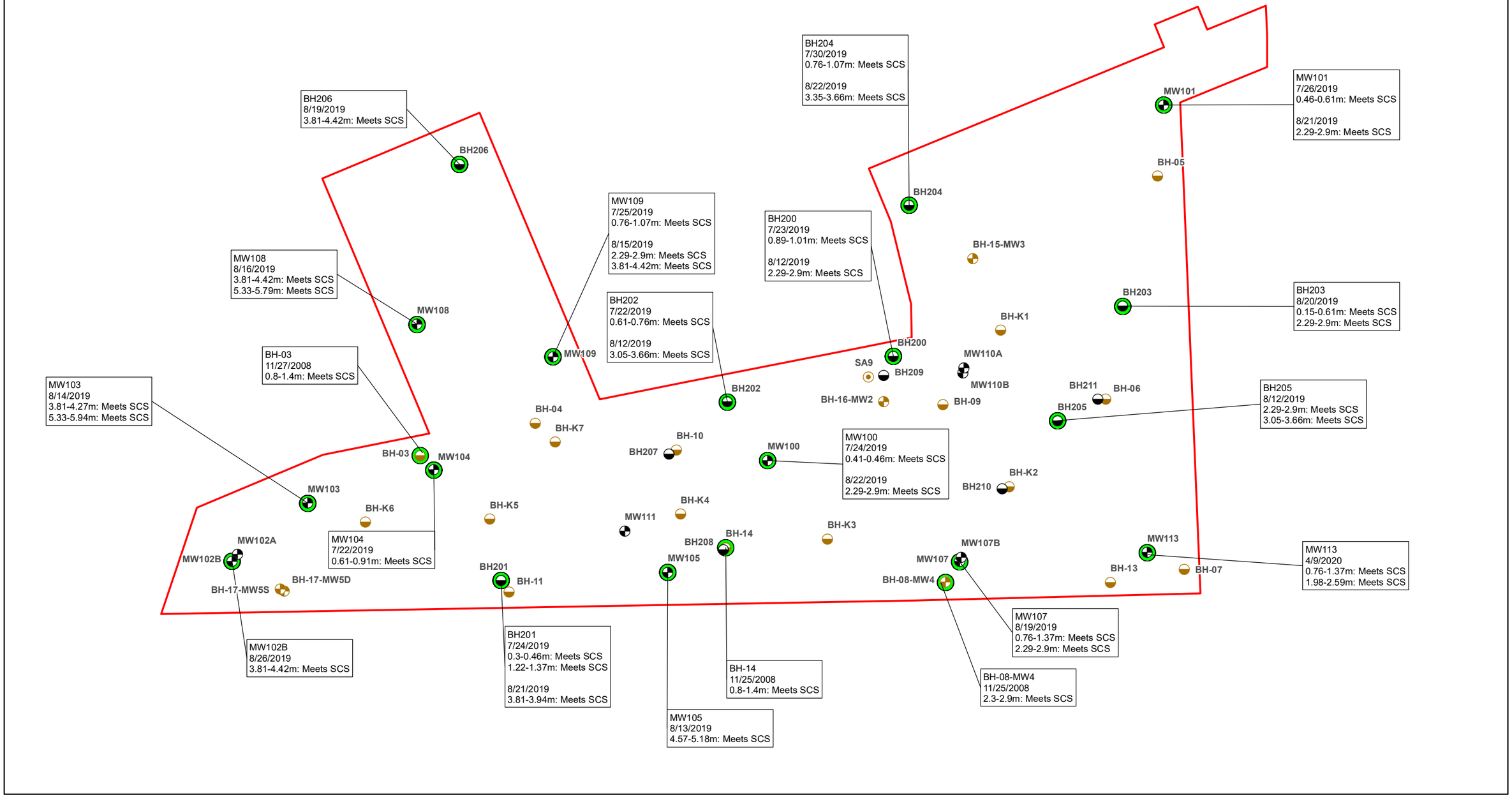
- Asphalt
- Fill
- Guelph formation dolostone
- Sand
- Silt
- Soil Sample Exceeds SCS
- Soil Sample Meets SCS
- Inferred Maximum Extent of Soil > SCS
- Boring Interval
- Monitoring Well Screen Interval
- Water Table Elevation Elevation (April 15, 2020)

Notes:
1. Ground surface elevations at borehole locations may be different than current grade as some locations are projected onto the cross-section line and ground surface elevations may have changed since the time of drilling for historical locations.
2. Stratigraphic units presented on the cross-sections are based on Jacobs' interpretation of the Site's geology and may differ from those noted on logs from investigations by others.
3. masl = metres above sea level
4. Results in ( ) indicate field duplicates.
5. Red text indicates the locaiton of the site maximum concentration of the analyte.
6. Samples from 2008 were collected in accordance with O.Reg. 153/04, but are missing analysis of uranium, which was not regulated under the Regulation at the time of investigation. This data is considered valid for RSC purposes.

Figure 6-5b

Soil Results - Metals and Select ORPs: Metals, Hydride-Forming Metals, Hg, MeHG, and CrVI
Cross-Section D-D'
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario

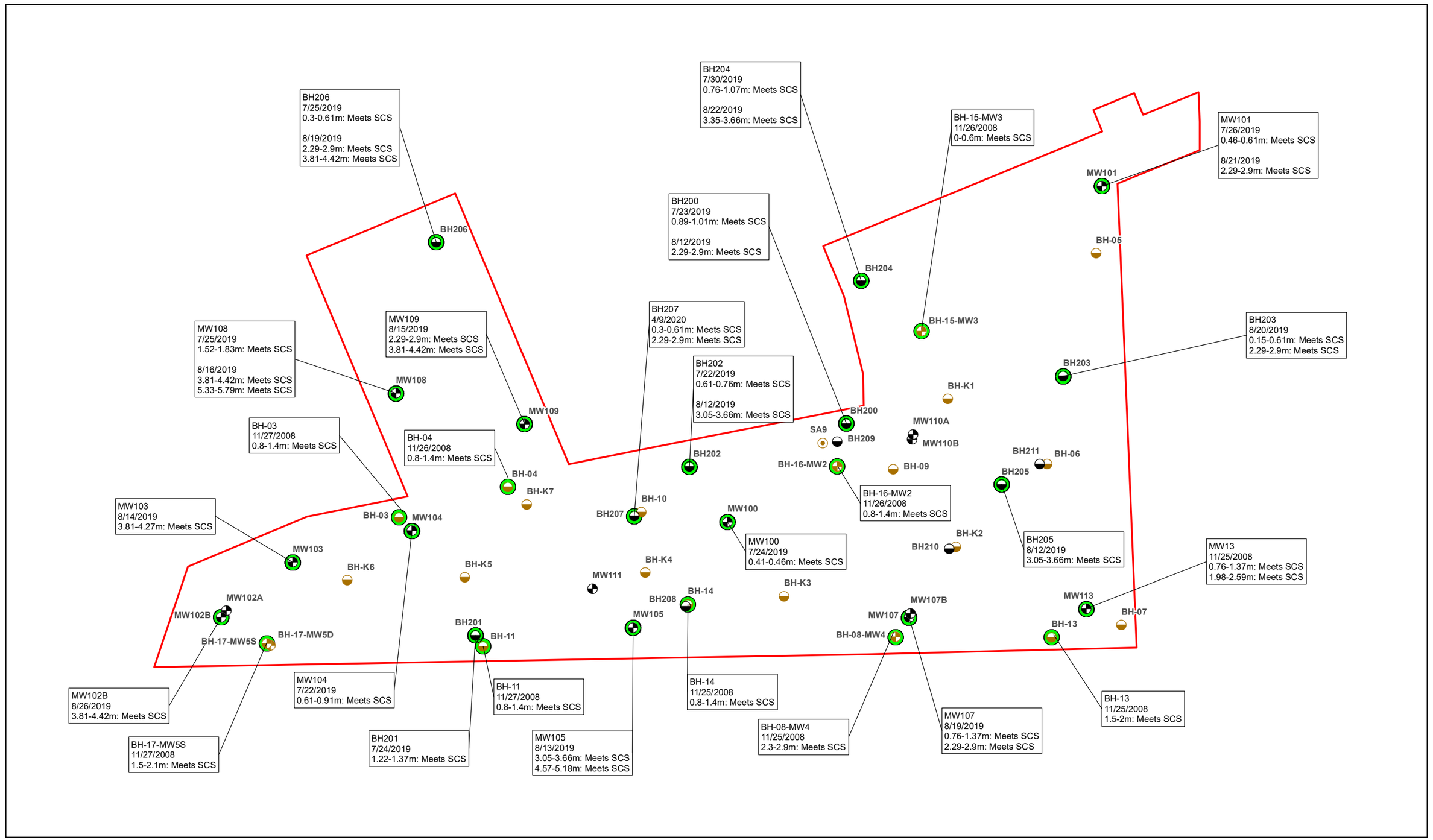
Jacobs



Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of soil impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-6
Soil Results - BTEX
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs



Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Location without Table 2 Exceedance
- Site Boundary

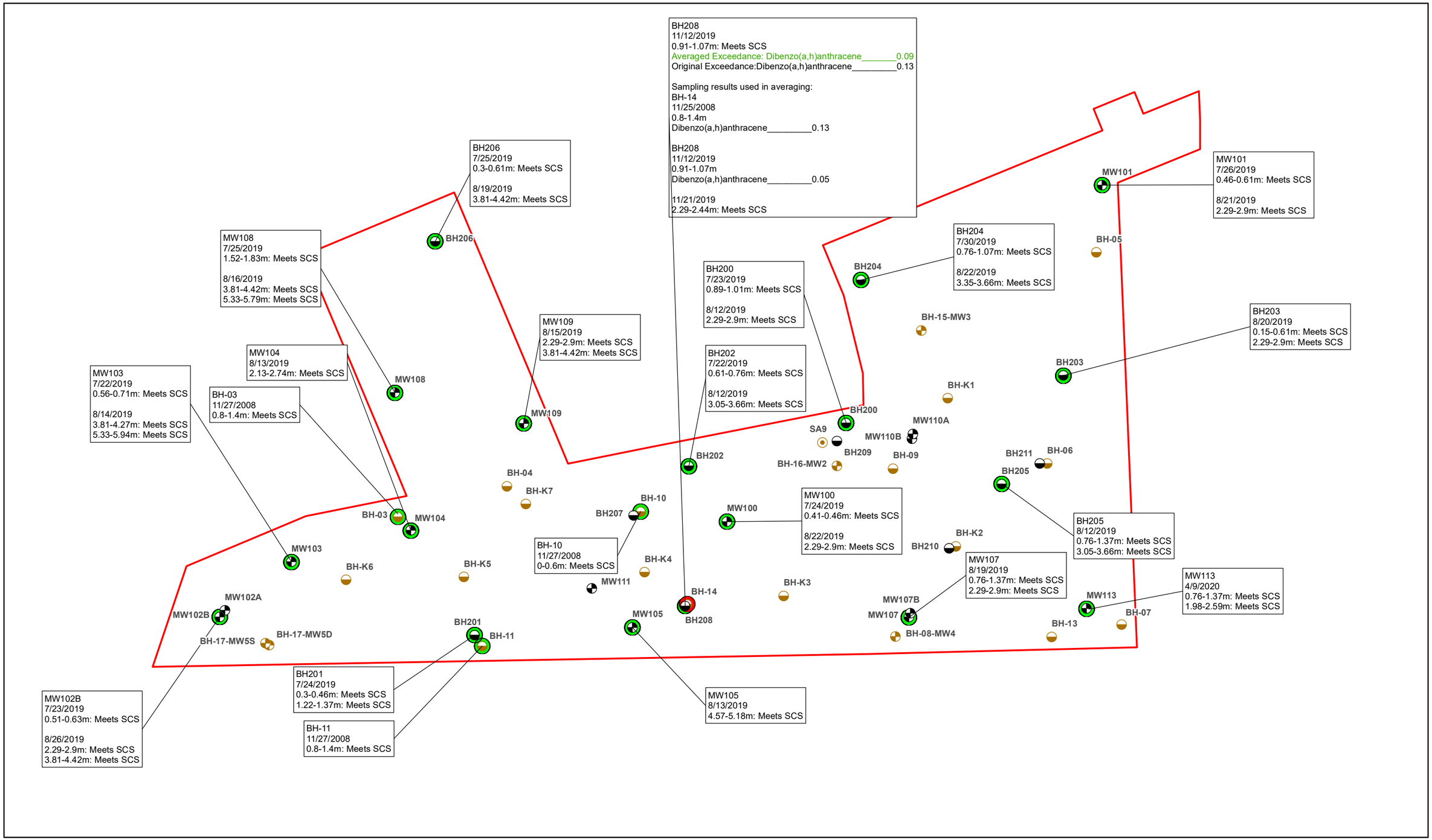
N

0 5 10 15
Metres

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of soil impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-7
Soil Results - Petroleum Hydrocarbons
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

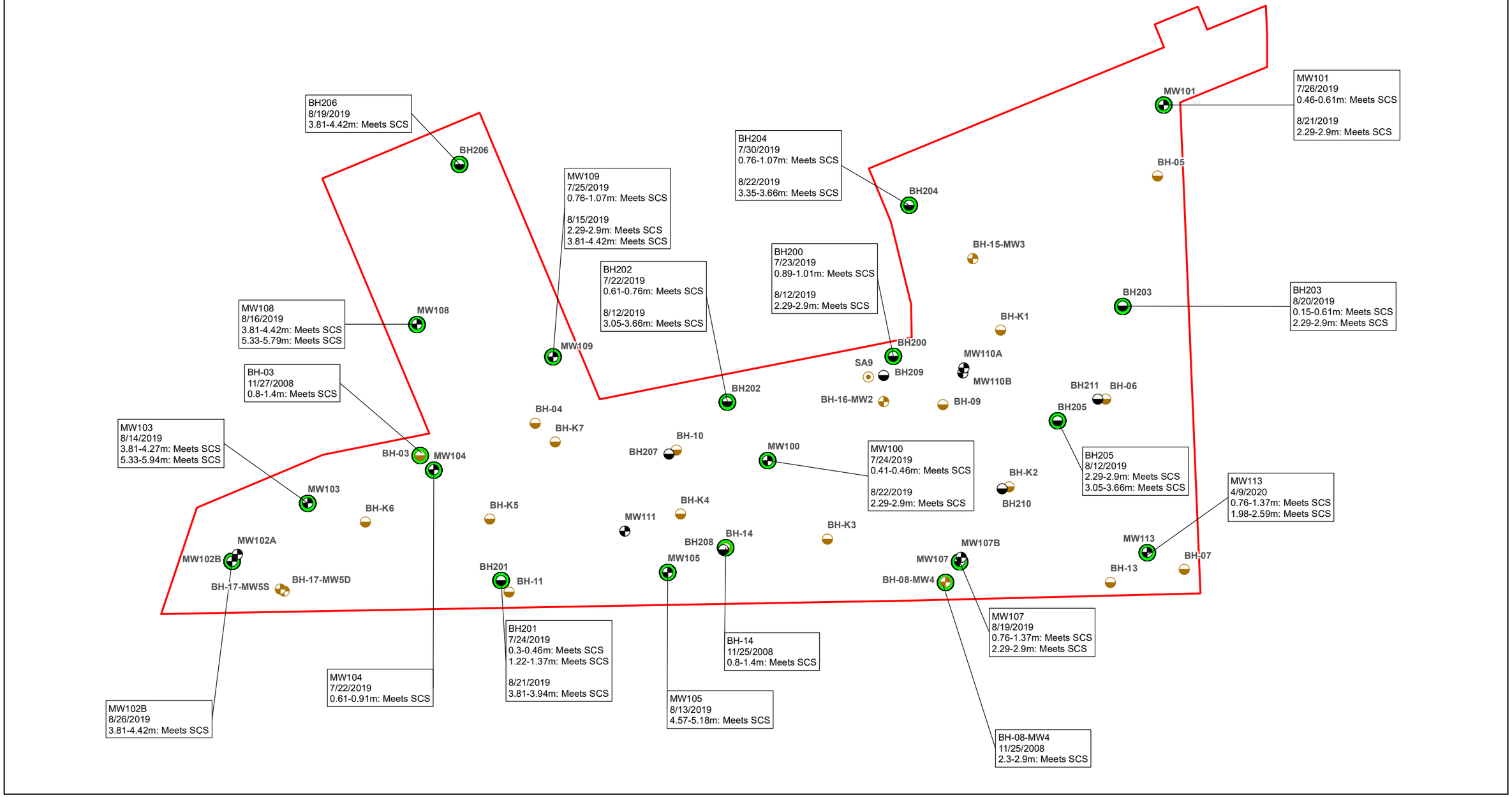
Jacobs



Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of soil impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-8
Soil Results - Polycyclic Aromatic Hydrocarbons
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs



Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

Location without Table 2 Exceedance

Site Boundary

N

0 5 10 15

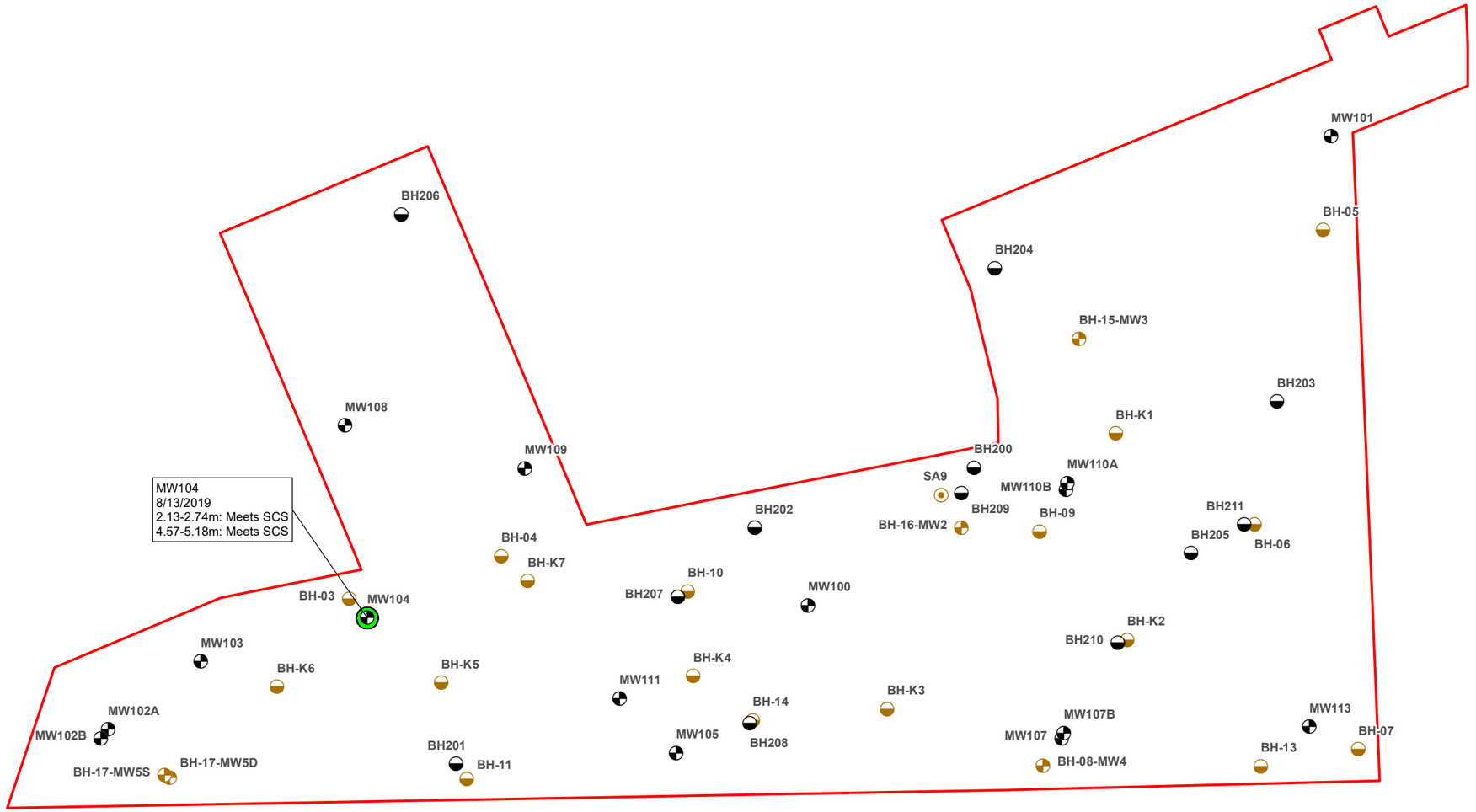
Metres

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of soil impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-9
Soil Results - Volatile Organic Compounds
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\EXCEEDANCEFIGURES_DDP.MXD SBEGG1 11/25/2020 9:42:47 AM



Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Location without Table 2 Exceedance
- Site Boundary

N

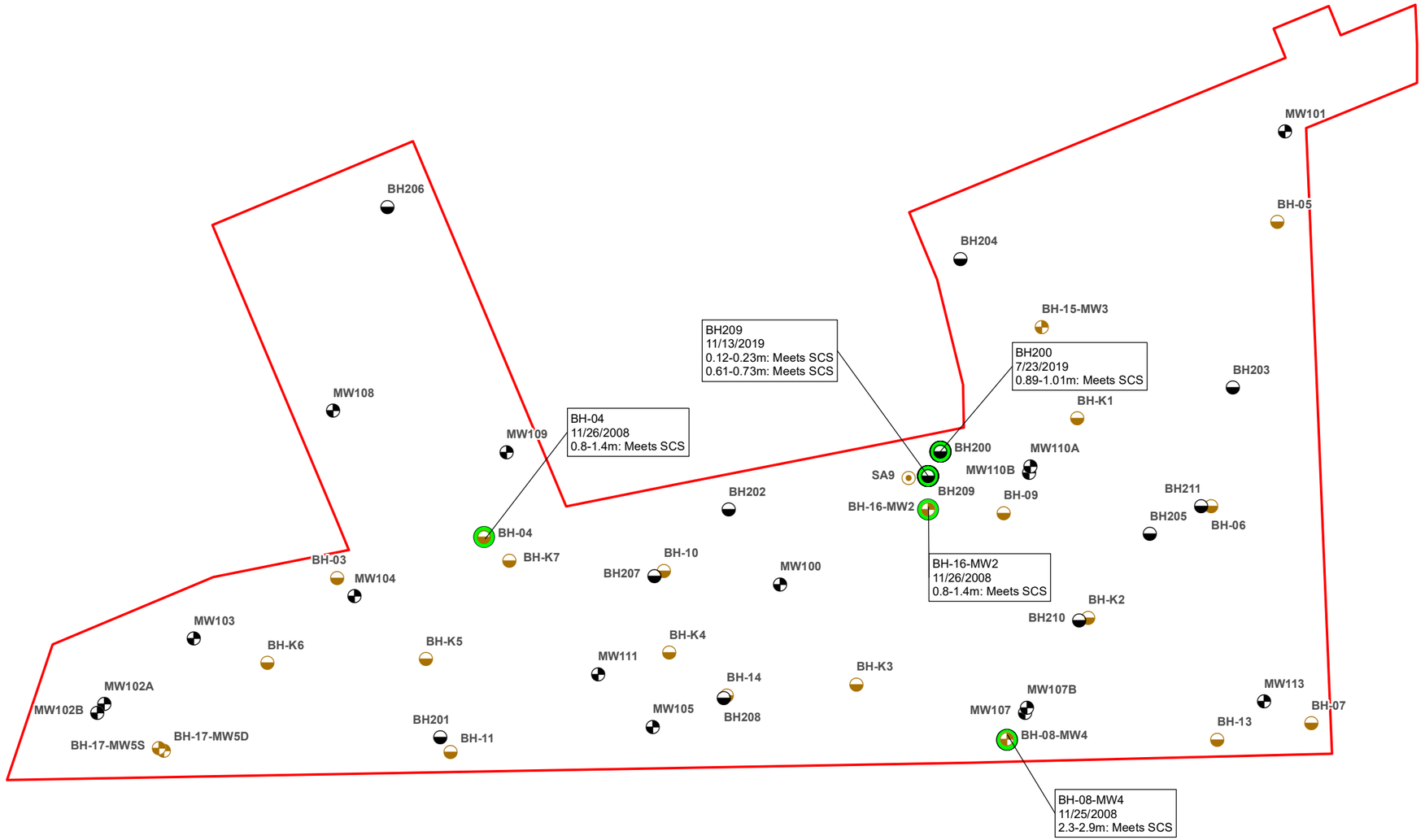
0 5 10 15
Metres

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of soil impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-10
Soil Results - Acid/Base/Neutral Compounds
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\EXCEEDANCEFIGURES_DDP.MXD SBEGG1 11/25/2020 9:42:47 AM



Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Location without Table 2 Exceedance
- Site Boundary

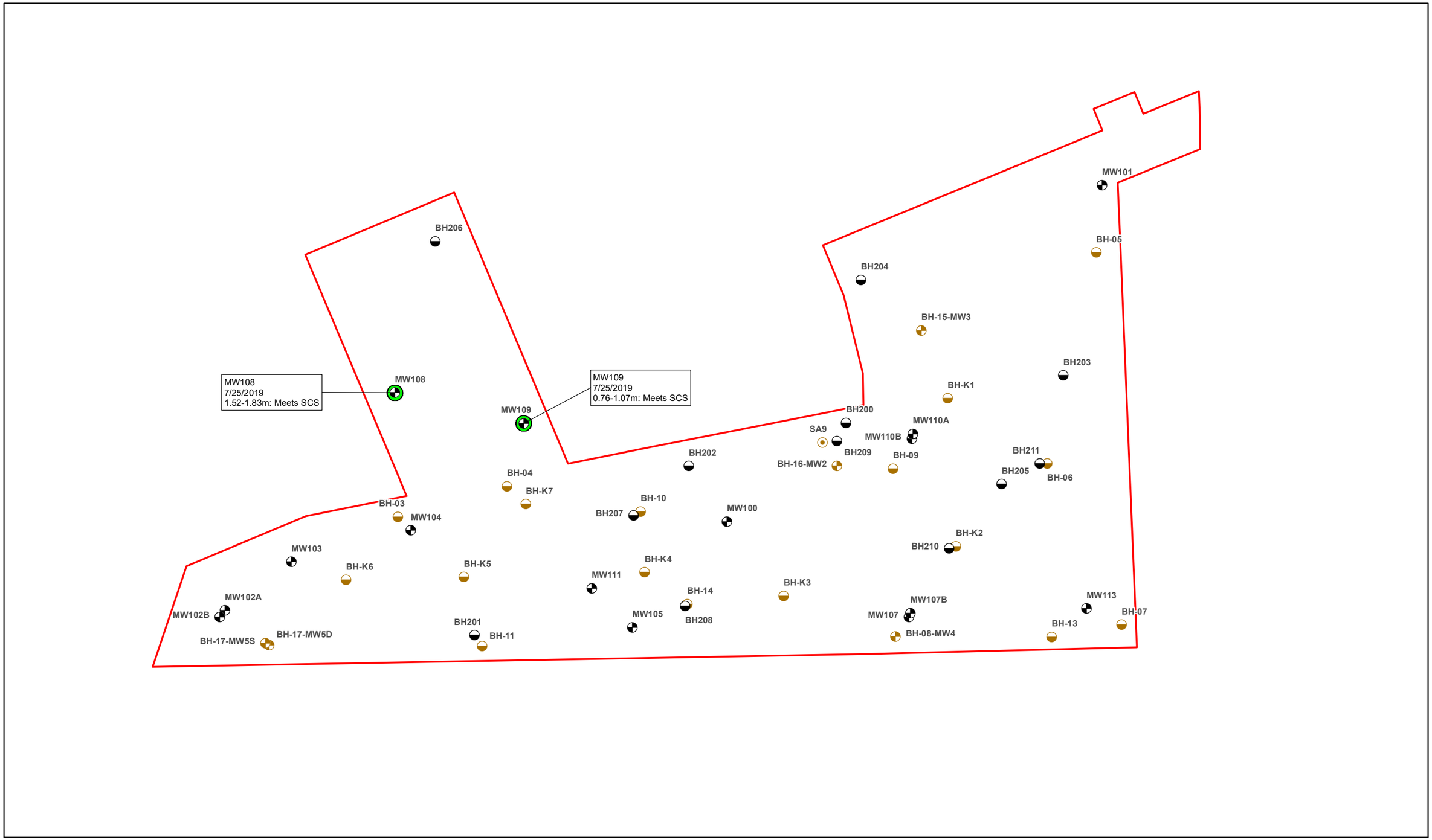
N

0 5 10 15
Metres

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of soil impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-11
Soil Results - Polychlorinated Biphenyls
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs



Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of soil impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-12
Soil Results - Dioxins/Furans
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\EXCEEDANCEFIGURES_DDP.MXD SBEGG1 11/25/2020 9:42:47 AM

MW108
6.71-9.75m
9/5/2019
Chloride (Cl)_____2640000

MW110A
5.33-8.38
11/26/2019
Sodium_____4750000

MW101
5.71-8.76m
9/5/2019
Chloride (Cl)_____1380000
Sodium_____725000

12/20/2019: Meets SCS

MW110B
13.56-15.39
11/26/2019
Sodium_____2310000(2360000)

MW103
2.13-5.18m
9/5/2019
Chloride (Cl)_____6580000 (498000)
Sodium_____3140000 (3150000)

12/18/2019
Chloride (Cl)_____5890000

MW109
7.32-10.36m
9/5/2019: Meets SCS
12/19/2019: Meets SCS

MW102B
8.84-10.36m
9/6/2019
Chloride (Cl)_____9610000
Sodium_____6100000

12/19/2019
Chloride (Cl)_____8500000

MW111
13.56-15.39
11/26/2019
Sodium_____2490000

MW113
5.33-8.38m
4/15/2020
Chloride (Cl)_____4470000(8330000)
Sodium_____2440000

4/22/2020
Chloride (Cl)_____3010000
Sodium_____1470000

4/29/2020
Sodium_____3170000

MW107B
13.56-15.39m
11/26/2019: Meets SCS

MW102A
2.13-5.18m
9/6/2019
Chloride (Cl)_____6010000
Sodium_____3960000

12/19/2019
Chloride (Cl)_____8140000

MW104
5.94-8.99m
9/5/2019
Chloride (Cl)_____2660000
Sodium_____1360000

12/20/2019
Chloride (Cl)_____4170000

MW100
5.49-8.53m
9/6/2019
Chloride (Cl)_____6970000
Sodium_____4590000

12/19/2019
Chloride (Cl)_____8010000

MW107
5.33-8.38m
9/6/2019
Chloride (Cl)_____969000 (918000)
Sodium_____505000 (506000)

12/18/2019: Meets SCS

MW105
5.64-8.69m
9/6/2019
Chloride (Cl)_____2170000
Sodium_____1200000

BH206, MW108, MW109, MW103, BH-K6, MW102A, MW102B, BH-17-MW5S, BH-17-MW5D, BH-03, MW104, BH-K5, BH201, BH-11, MW111, BH207, BH-10, BH202, BH200, SA9, BH209, BH-16-MW2, MW110A, MW110B, BH-09, BH204, BH-15-MW3, BH-K1, BH203, BH-05, MW101, BH211, BH-06, BH205, MW100, BH-K4, BH208, BH-14, BH-K3, BH-K2, BH210, MW105, MW107B, MW107, BH-08-MW4, MW113, BH-13, BH-07

Parameters Exceeding Table SCS and Site Maximum Concentrations

Parameter Name	Screening Level ug/L	Maximum Concentration ug/L	Location ID
Chloride (Cl)	790000	9610000	MW102B
Sodium	490000	6100000	MW102B

Sample Location (Current)
- Borehole
- Monitoring Well

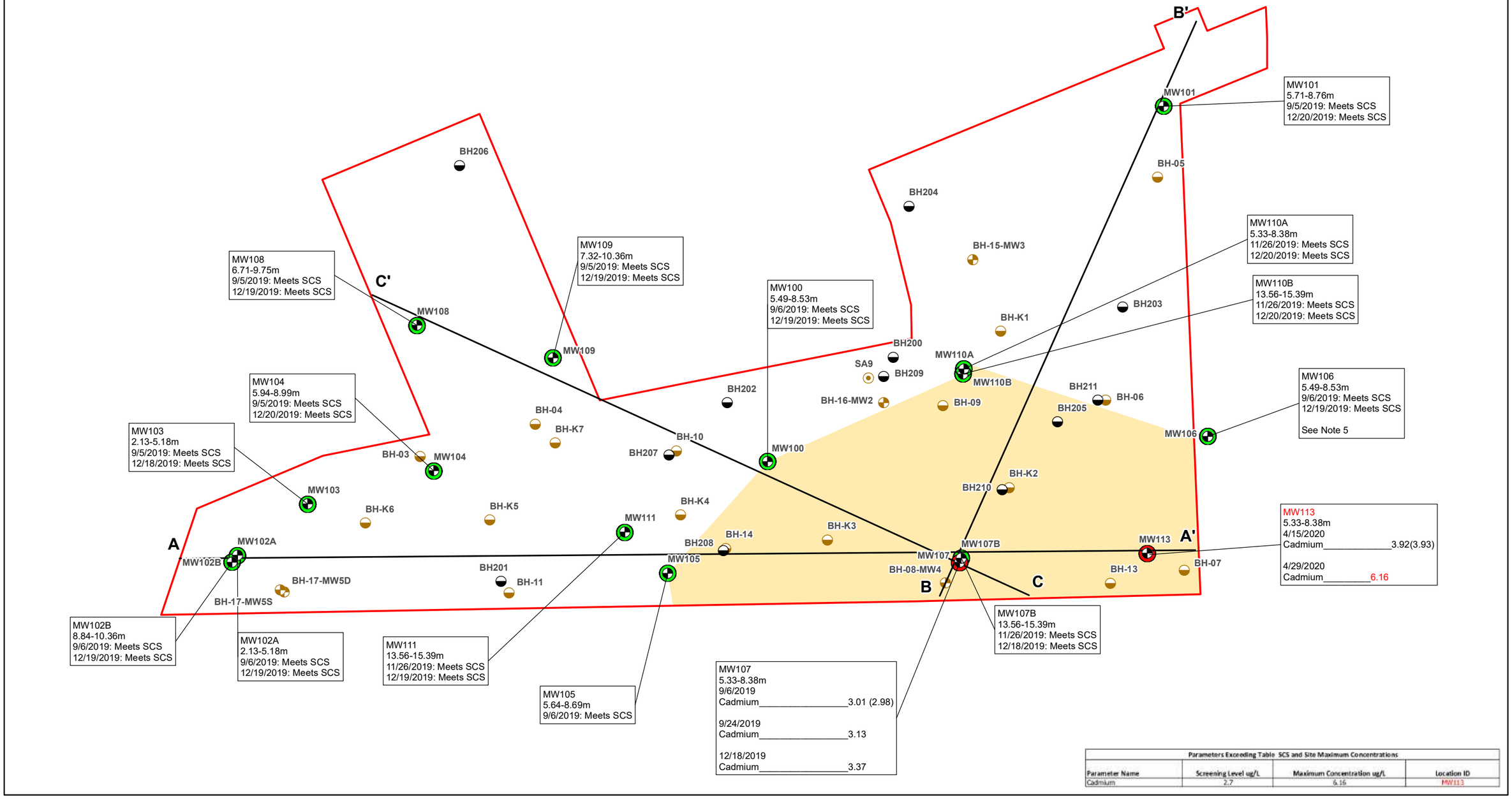
Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Location without Table 2 Exceedance
- Location with Table 2 Exceedance
- Inferred Lateral Extent of Concentration Greater than the Table 2 SCS
- Site Boundary

0 5 10 15
Metres

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of groundwater impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-13
Groundwater Results - Sodium and Select ORPs: Chloride and Cyanide
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020



Parameters Exceeding Table SCS and Site Maximum Concentrations			
Parameter Name	Screening Level ug/L	Maximum Concentration ug/L	Location ID
Cadmium	2.7	6.16	MW113

Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Location without Table 2 Exceedance
- Location with Table 2 Exceedance
- Cross-section Location
- Inferred Lateral Extent of Concentration Greater than the Table 2 SCS
- Site Boundary

N

0 5 10 15
Metres

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of groundwater impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.
5. Offsite location with the same property owner, was installed as part of the same sampling program and has been shown for horizontal delineation purposes only.

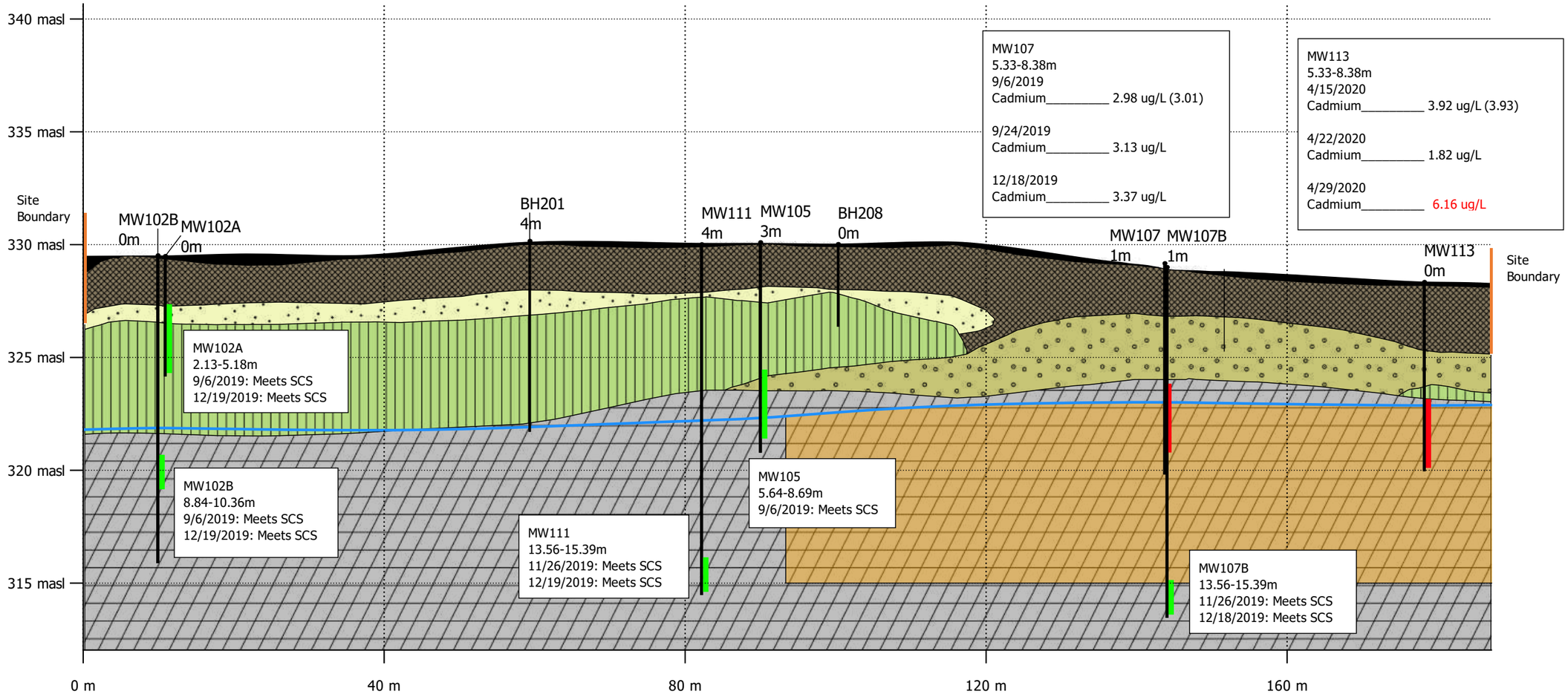
Figure 6-14
Groundwater Results - Metals and Select ORPs: Metals, Hydride-Forming Metals, Hg, and CrVI
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs

Cross-Section A-A'

Export Date: June 11, 2020

A (North) **A' (South)**



Vertical exaggeration: 3x

Legend

- Asphalt
- Fill
- Sand and Gravel
- Guelph formation doloston
- Sand
- Silt
- Water Table Elevation Elevation (April 15, 2020)
- Inferred Maximum Extent of Groundwater > SCS
- Boring Interval
- Groundwater Sample Meets SCS
- Groundwater Sample Exceeds SCS

Notes:
1. Ground surface elevations at borehole locations may be different than current grade as some locations are projected onto the cross-section line and ground surface elevations may have changed since the time of drilling for historical locations. Distance of projection is presented below each location name on the section.
2. Stratigraphic units presented on the cross-sections are based on Jacobs' interpretation of the Site's geology and may differ from those noted on logs from investigations by others.
3. masl = metres above sea level
4. Results in ( ) indicate field duplicates.
5. Red text indicates the locaiton of the site maximum concentration of the analyte.
6. Samples from 2008 were collected in accordance with O.Reg. 153/04, but are missing analysis of uranium, which was not regulated under the Regulation at the time of investigation. This data is considered valid for RSC purposes.

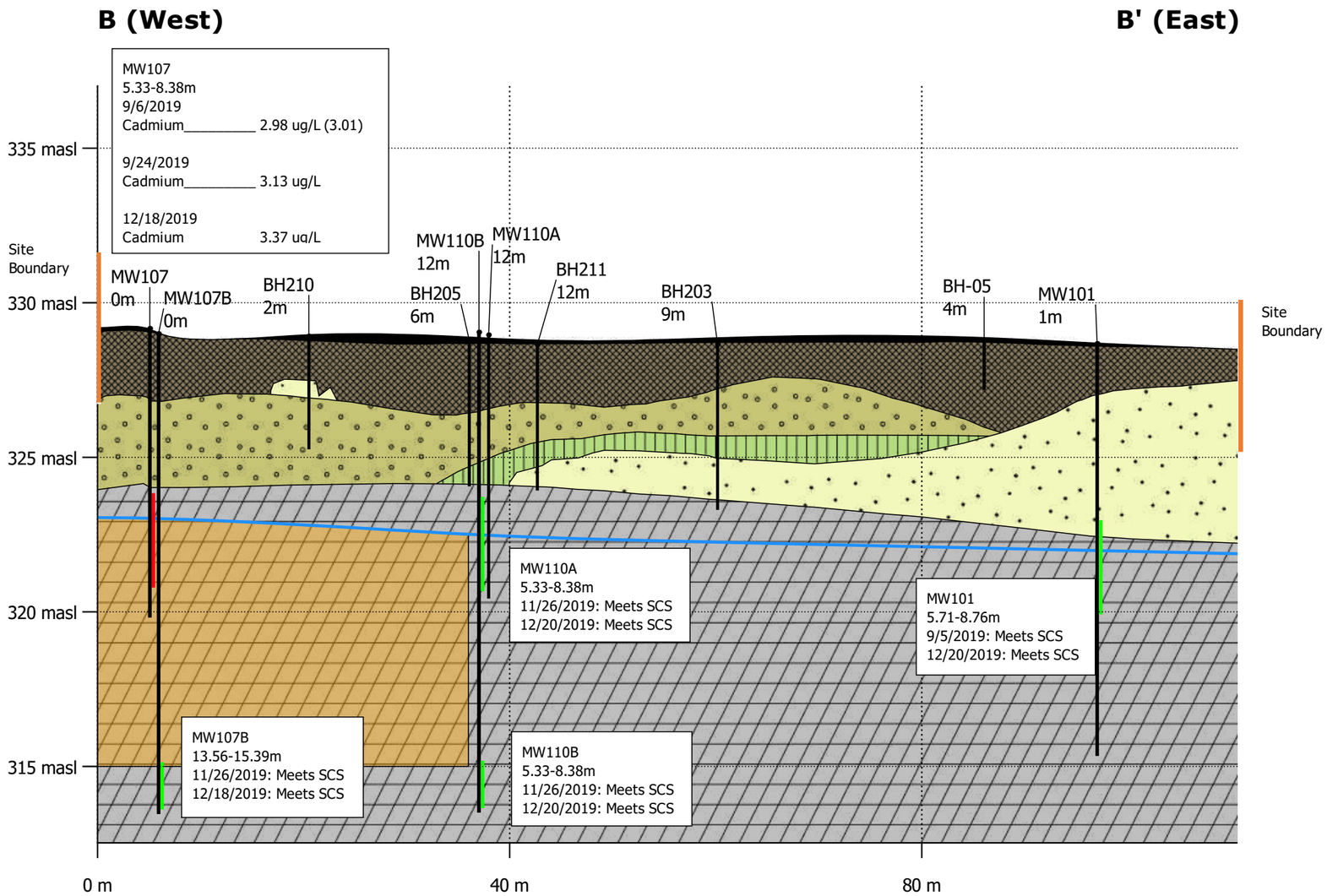
Figure 6-14a

Groundwater Results - Metals and Select ORPs:
Metals, Hydride-Forming Metals, Hg, MeHG, and CrVI
Cross-Section A-A'
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario

JACOBS

Cross-Section B-B'

Export Date: June 11, 2020



Vertical exaggeration: 3x

Legend

- Asphalt
- Fill
- Sand and Gravel
- Guelph formation dolostone
- Sand
- Silt
- Inferred Maximum Extent of Groundwater > SCS
- Water Table Elevation (April 15, 2020)
- Boring Interval
- Groundwater Sample Meets SCS
- Groundwater Sample Exceeds SCS

Notes:
1. Ground surface elevations at borehole locations may be different than current grade as some locations are projected onto the cross-section line and ground surface elevations may have changed since the time of drilling for historical locations. Distance of projection is presented below each location name on the section.
2. Stratigraphic units presented on the cross-sections are based on Jacobs' interpretation of the Site's geology and may differ from those noted on logs from investigations by others.
3. masl = metres above sea level
4. Results in ( ) indicate field duplicates.
5. Red text indicates the locaiton of the site maximum concentration of the analyte.
6. Samples from 2008 were collected in accordance with O.Reg. 153/04, but are missing analysis of uranium, which was not regulated under the Regulation at the time of investigation. This data is considered valid for RSC purposes.

Figure 6-14b

Groundwater Results - Metals and Select ORPs:
Metals, Hydride-Forming Metals, Hg, MeHG, and CrVI
Cross-Section B-B'
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario

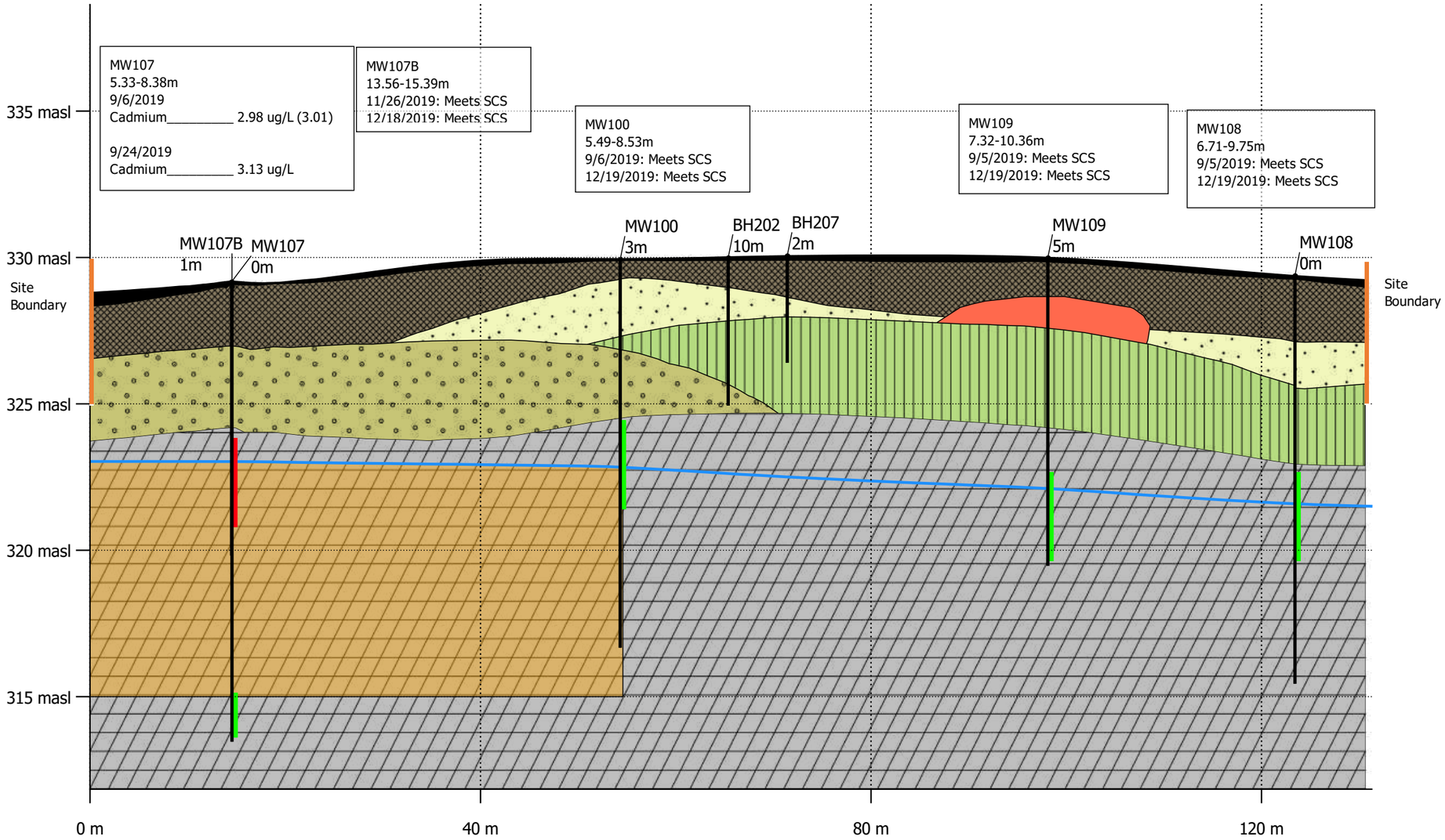
Jacobs

Cross-Section C-C'

C (West)

C' (East)

Export Date: June 11, 2020



Vertical exaggeration: 3x

Legend

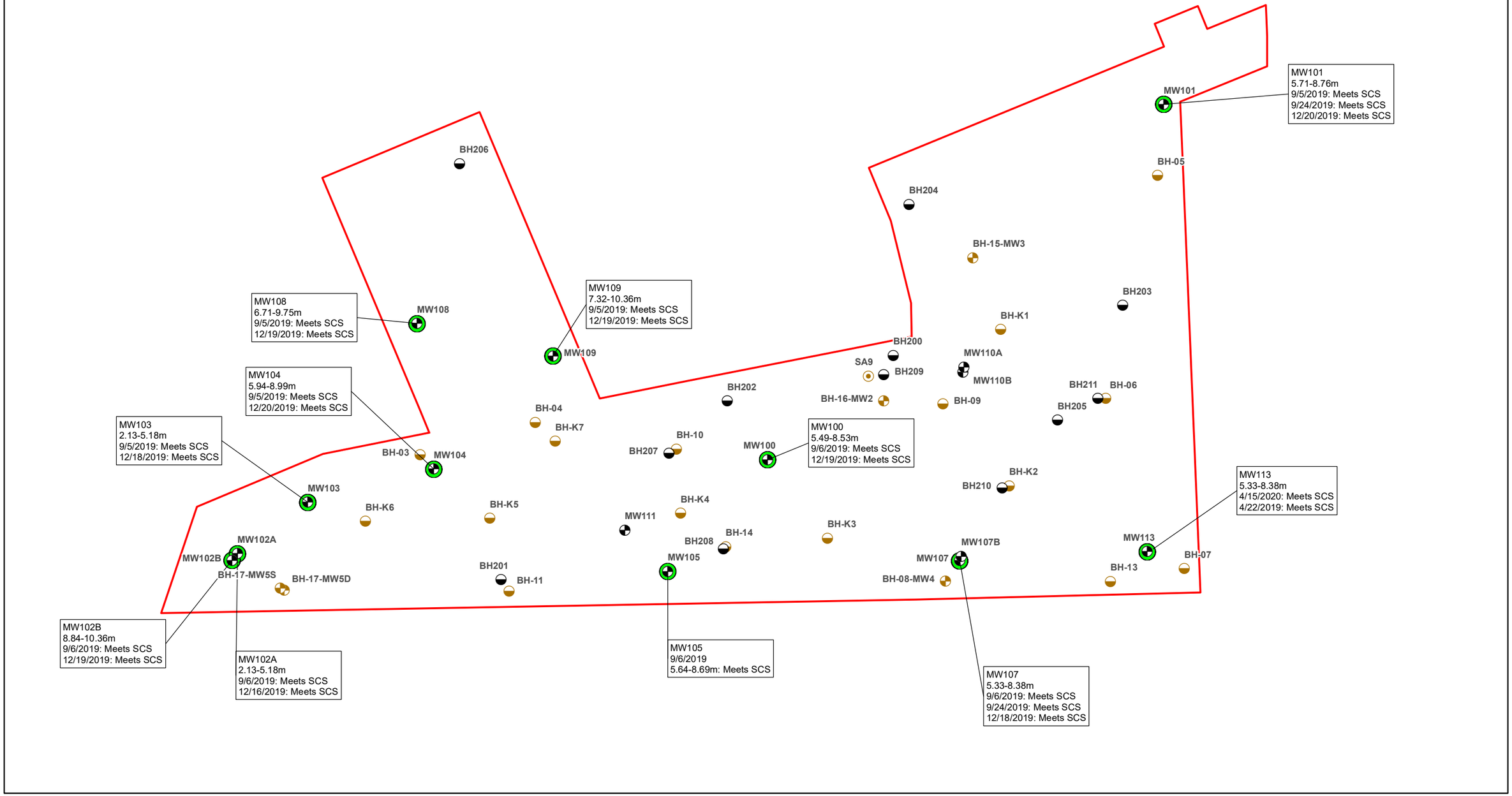
- Asphalt
- Fill
- Sand and Gravel
- Sand
- Silt
- Guelph formation dolostone
- Clay
- Inferred Maximum Extent of Groundwater > SCS
- Groundwater Elevation (April 15, 2020)
- Boring Interval
- Groundwater Sample Meets SCS
- Groundwater Sample Exceeds SCS

Notes:
1. Ground surface elevations at borehole locations may be different than current grade as some locations are projected onto the cross-section line and ground surface elevations may have changed since the time of drilling for historical locations. Distance of projection is presented below each location name on the section.
2. Stratigraphic units presented on the cross-sections are based on Jacobs' interpretation of the Site's geology and may differ from those noted on logs from investigations by others.
3. masl = metres above sea level
4. Results in ( ) indicate field duplicates.
5. Red text indicates the locaiton of the site maximum concentration of the analyte.
6. Samples from 2008 were collected in accordance with O.Reg. 153/04, but are missing analysis of uranium, which was not regulated under the Regulation at the time of investigation. This data is considered valid for RSC purposes.

Figure 6-14c

Groundwater Results - Metals and Select ORPs:
Metals, Hydride-Forming Metals, Hg, MeHG, and CrVI
Cross-Section C-C'
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street North and Park Lane, Guelph, Ontario

Jacobs



Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Location without Table 2 Exceedance
- Site Boundary

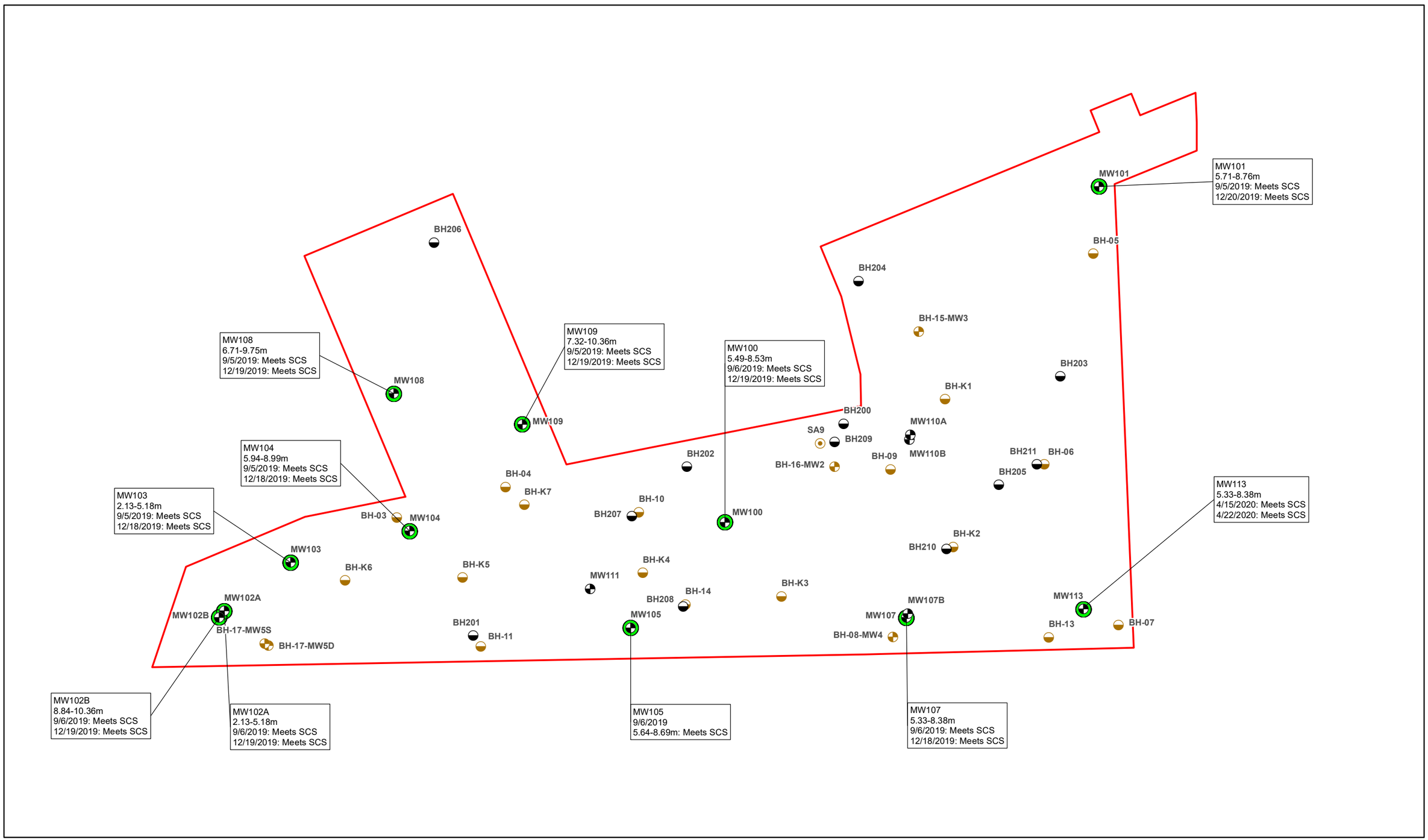
N

0 5 10 15
Metres

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of groundwater impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-15
Groundwater Results - BTEX
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

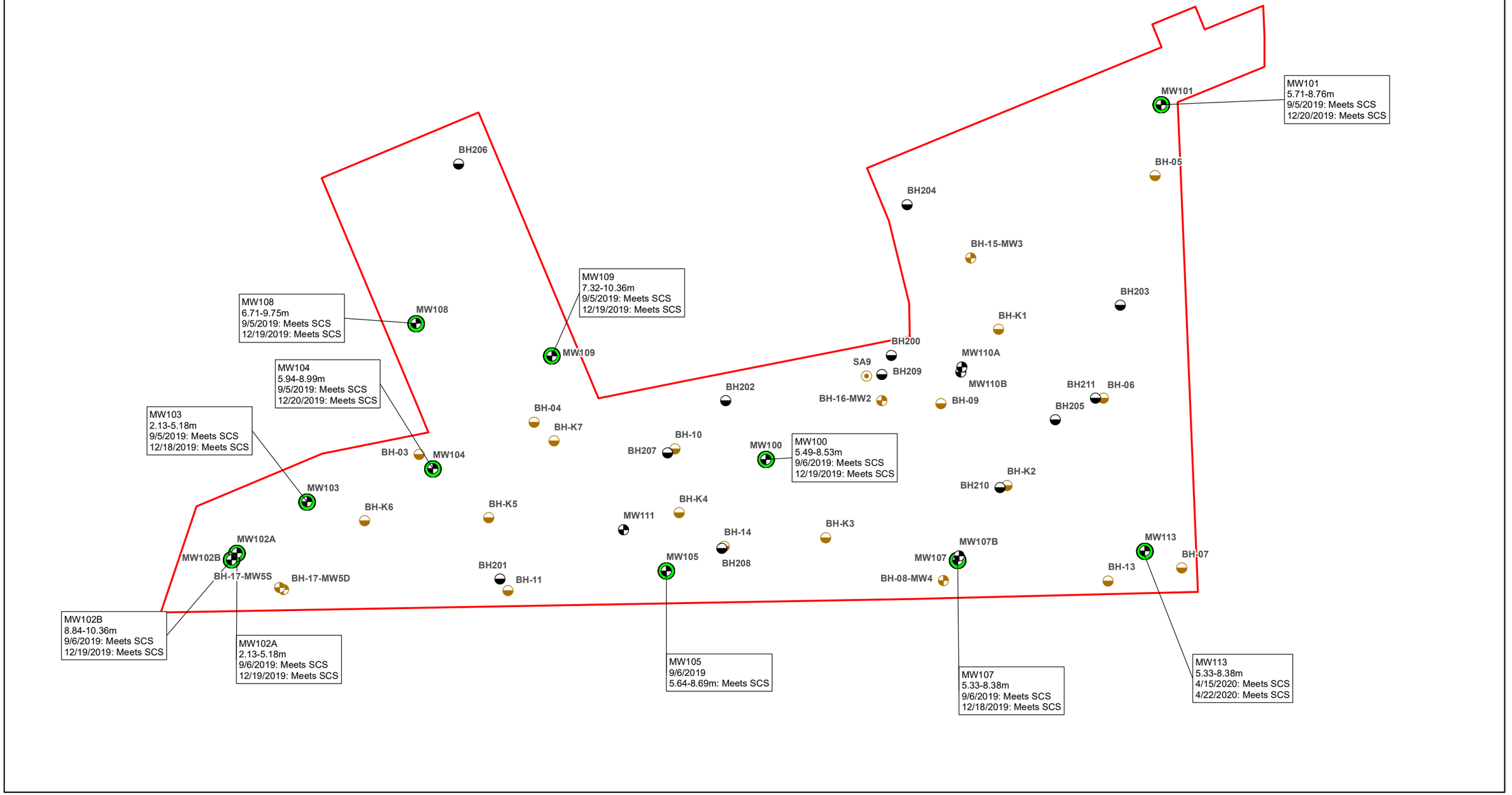
Jacobs



Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of groundwater impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-16
Groundwater Results - Petroleum Hydrocarbons
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

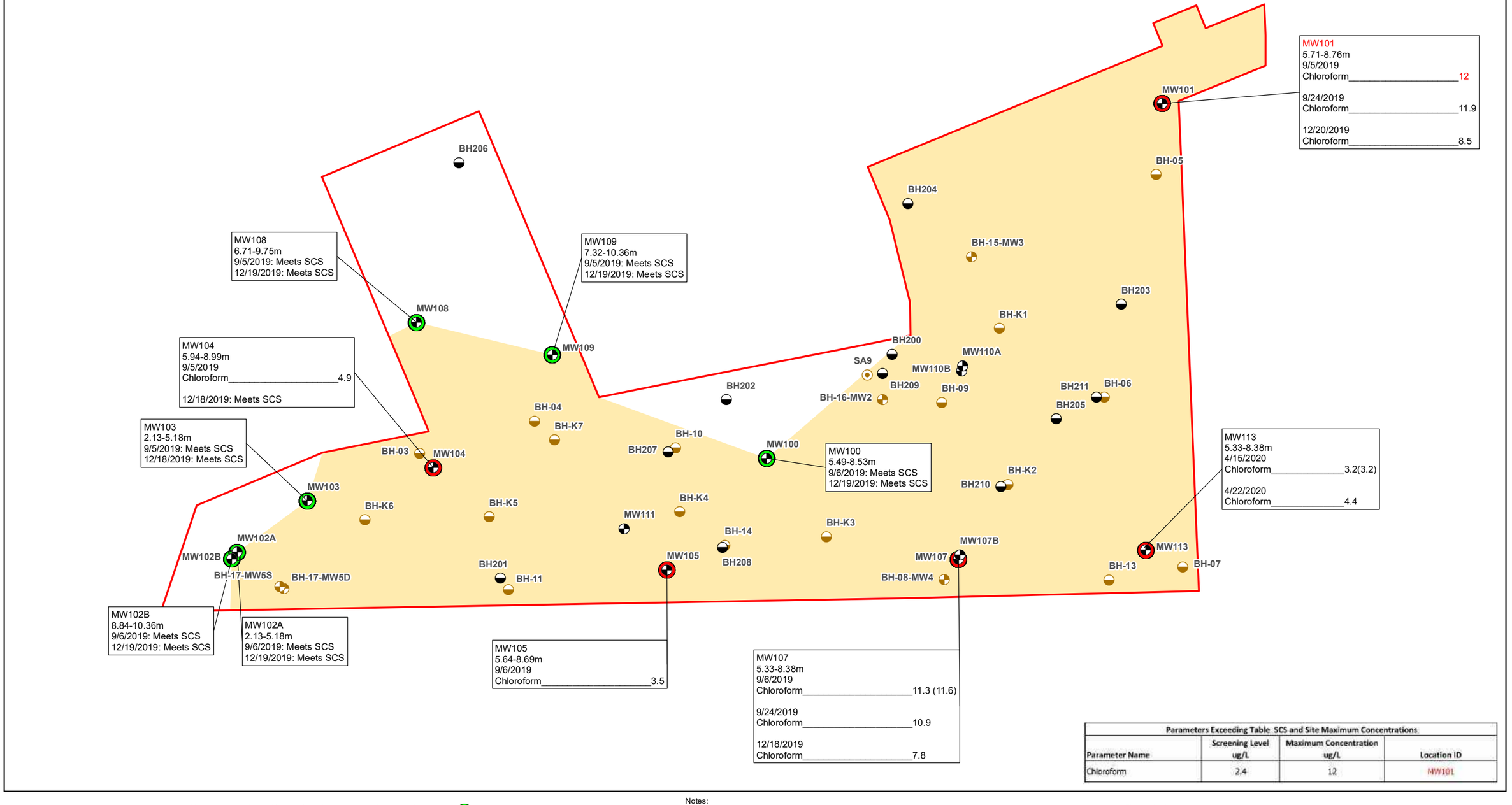
Jacobs



Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of groundwater impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-17
Groundwater Results - Polycyclic Aromatic Hydrocarbons
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs

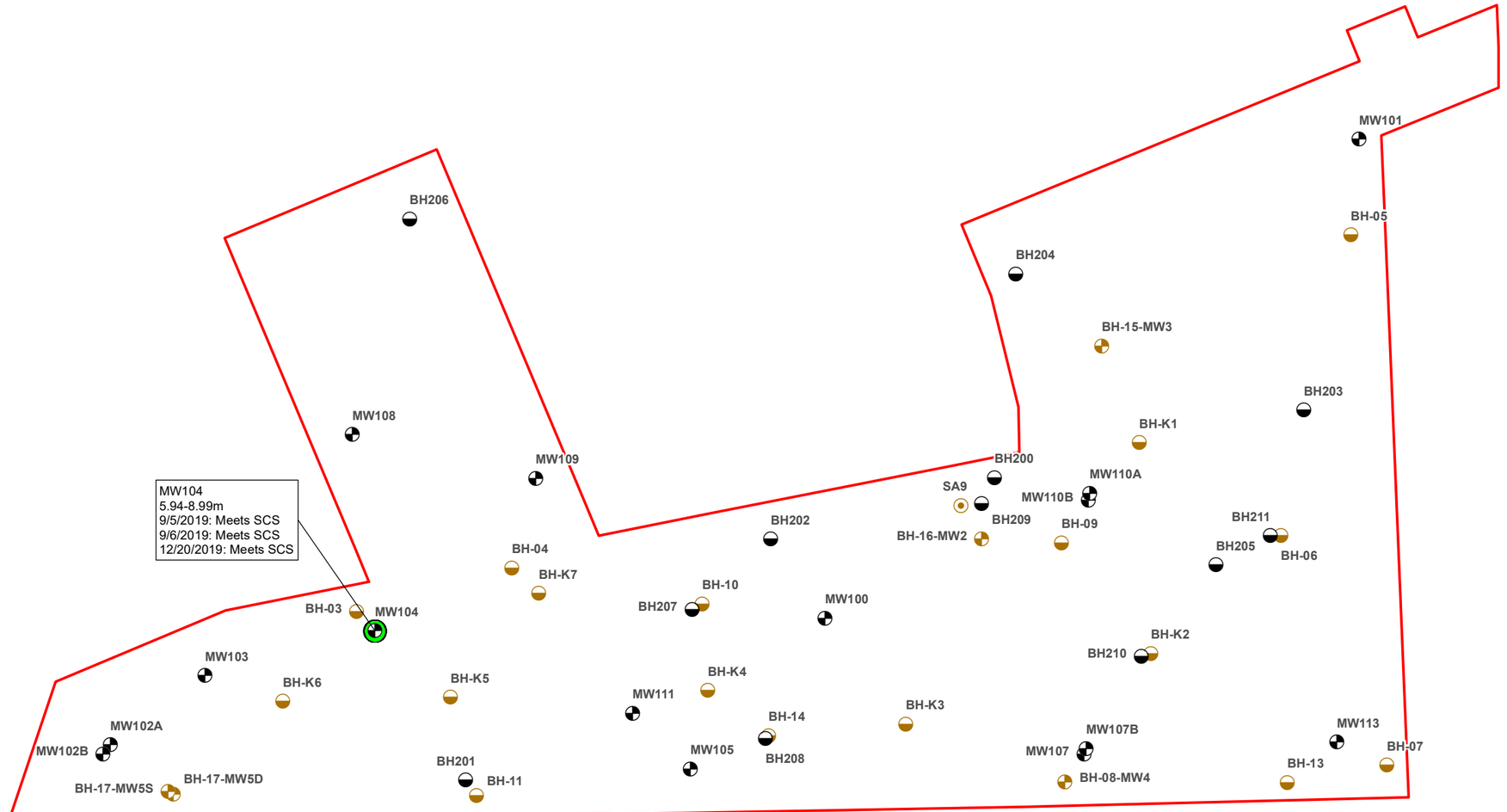


Parameters Exceeding Table SCS and Site Maximum Concentrations			
Parameter Name	Screening Level ug/L	Maximum Concentration ug/L	Location ID
Chloroform	2.4	12	MW101

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of groundwater impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.
5. These chloroform exceedances are believed to be due to the introduction of municipal water during the monitoring well installation activities. Chloroform is, therefore, not considered a COC for the Site.

Figure 6-18
Groundwater Results - Volatile Organic Compounds
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

Jacobs



Sample Location (Current)
- Borehole
- Monitoring Well

Sample Location (Historical)
- Borehole
- Monitoring Well
- Soil Sample

- Location without Table 2 Exceedance
- Site Boundary

N

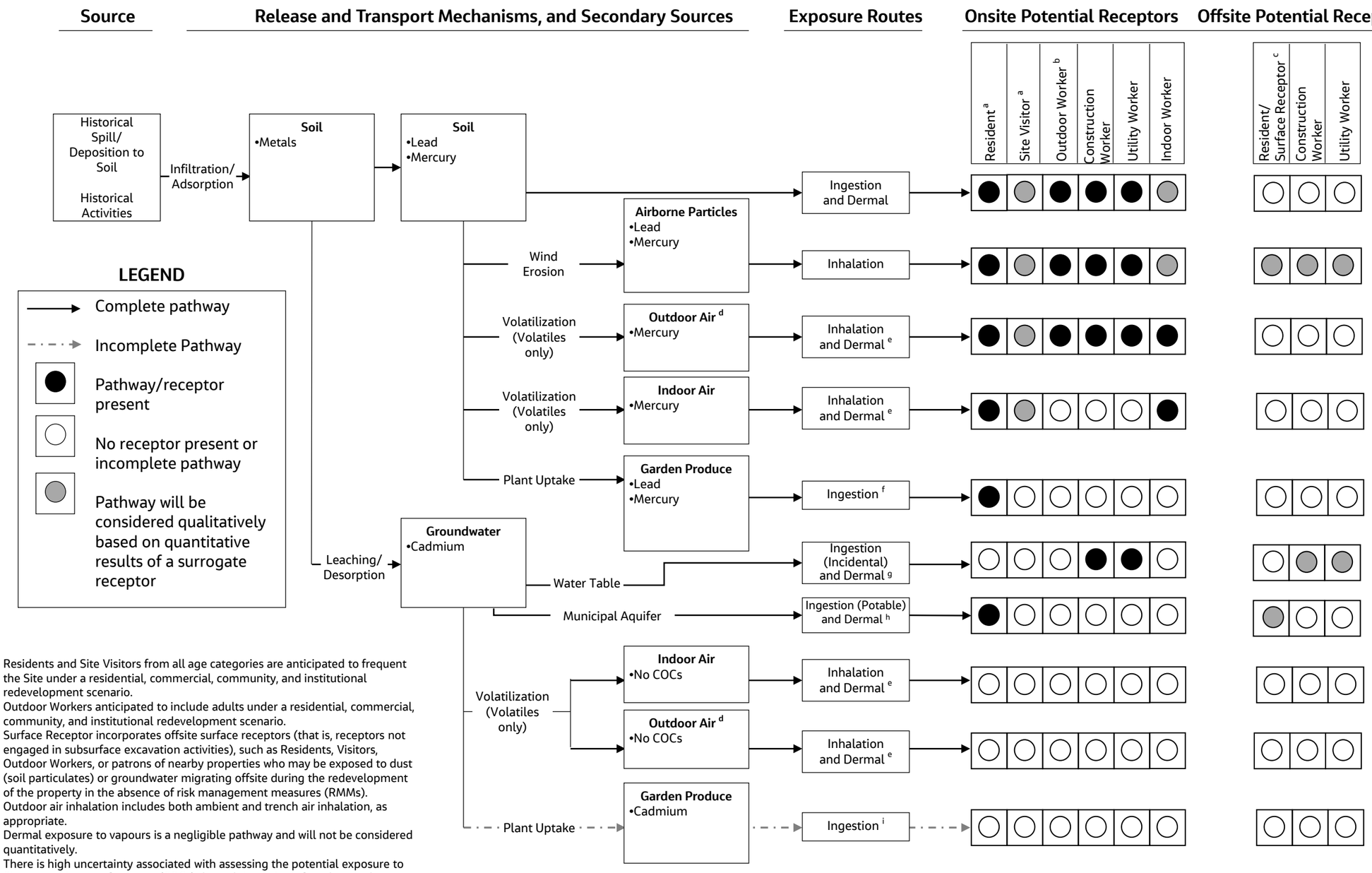
0 5 10 15
Metres

Notes:
1. Results in ( ) indicate field duplicates.
2. The estimated extent of groundwater impacts was assumed to extend from sampling locations that exceeded the Standards to the next available sampling location that did not exceed the Standards and extrapolated to the property boundary, where applicable.
3. Red text indicates the location of the site maximum concentration of the analyte.
4. Exceedances were delineated horizontally in accordance with the applied Table 2 SCS.

Figure 6-19
Groundwater Results - Acid/Base/Neutral Compounds
Phase Two Environmental Site Assessment
55 Baker Street, 152 and 160 Wyndham Street
North and Park Lane, Guelph, Ontario
Date Exported: 11/25/2020

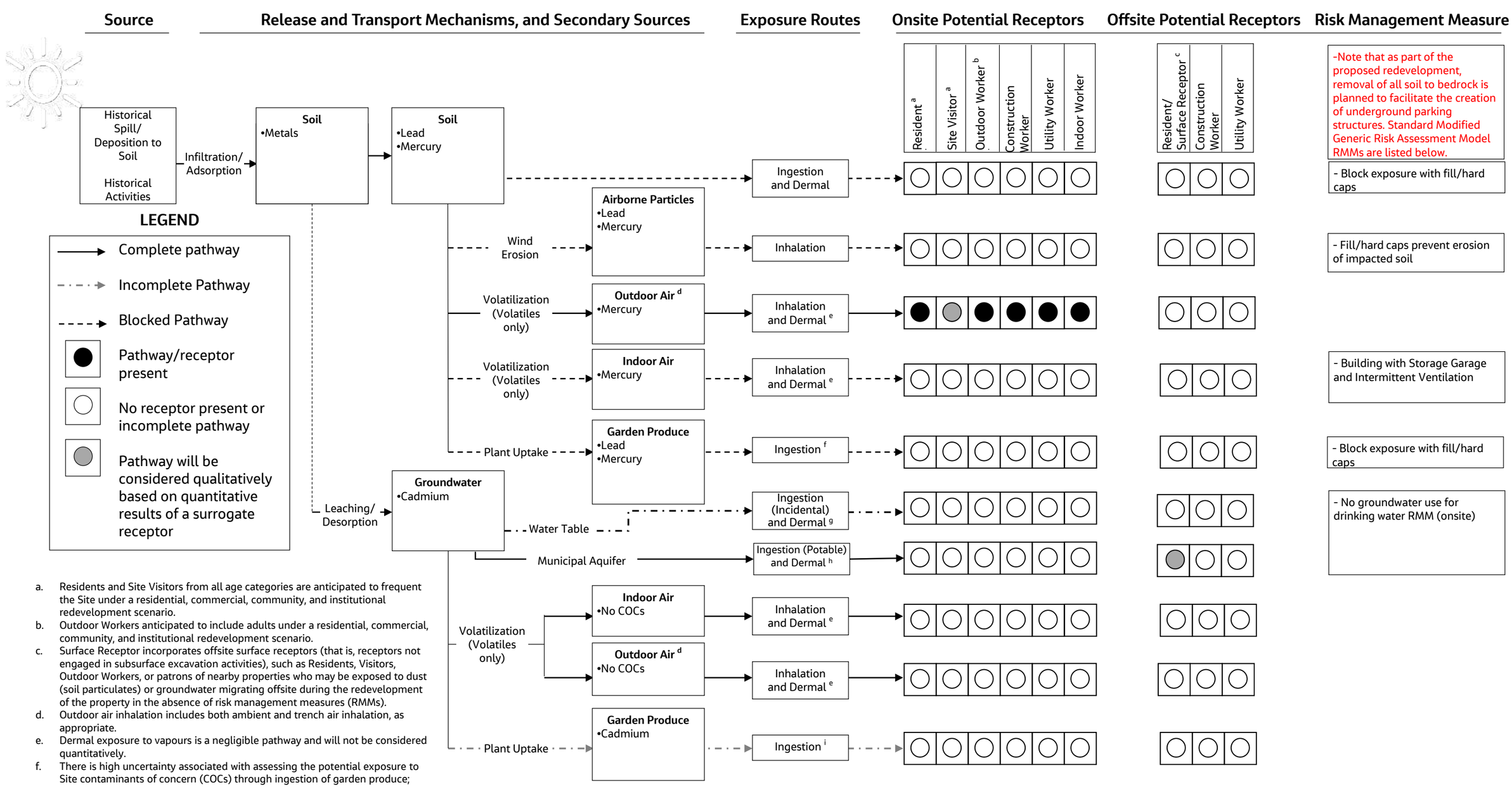
Jacobs

\\DC1VS01\GISPROJ\G\GUELPHCITYOF\55BAKERSTREET\MAPFILES\PHASEII\MAY2020_UPDATE\EXCEEDANCEFIGURES_DDP.MXD SBEGG1 11/25/2020 9:42:47 AM



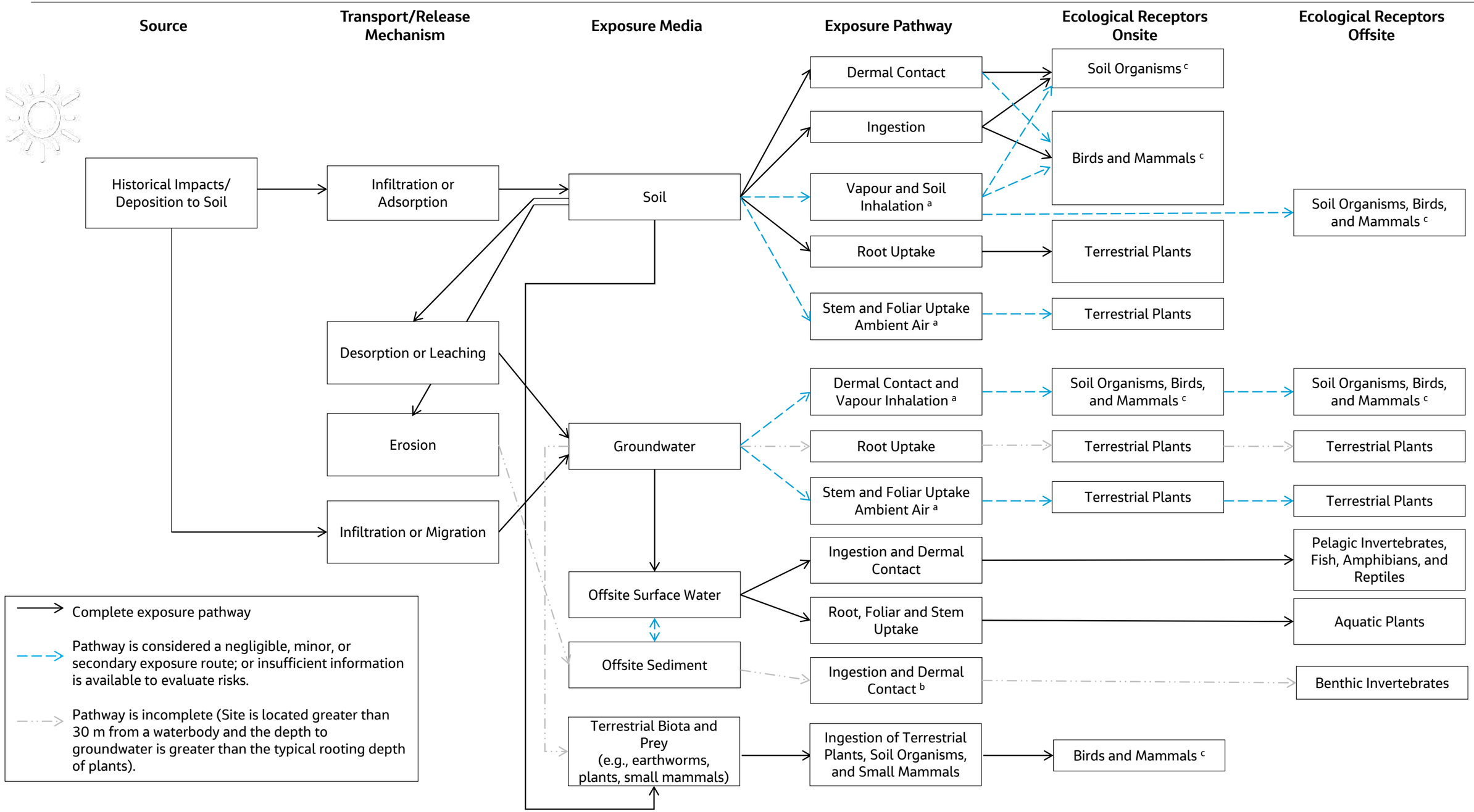
a. Residents and Site Visitors from all age categories are anticipated to frequent the Site under a residential, commercial, community, and institutional redevelopment scenario.
b. Outdoor Workers anticipated to include adults under a residential, commercial, community, and institutional redevelopment scenario.
c. Surface Receptor incorporates offsite surface receptors (that is, receptors not engaged in subsurface excavation activities), such as Residents, Visitors, Outdoor Workers, or patrons of nearby properties who may be exposed to dust (soil particulates) or groundwater migrating offsite during the redevelopment of the property in the absence of risk management measures (RMMs).
d. Outdoor air inhalation includes both ambient and trench air inhalation, as appropriate.
e. Dermal exposure to vapours is a negligible pathway and will not be considered quantitatively.
f. There is high uncertainty associated with assessing the potential exposure to Site contaminants of concern (COCs) through ingestion of garden produce; therefore, this pathway will not be considered quantitatively.
g. The depth to groundwater ranges from 3.78 to 4.43 metres below ground surface (mbgs) (perched) or 5.82 to 8.66 mbgs (water table).
h. The extent of cadmium impacts in groundwater have been delineated both horizontally and vertically. Based on this information, concentrations greater than the generic potable standards are not anticipated to extend downgradient or to adversely affect the municipal aquifer.
i. Potential exposure to Site COCs in groundwater through ingestion of garden produce pathway is incomplete, as the water table is below the rooting depths of plants.

Figure 6-20a. Human Health Conceptual Site Model
55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario



a. Residents and Site Visitors from all age categories are anticipated to frequent the Site under a residential, commercial, community, and institutional redevelopment scenario.
b. Outdoor Workers anticipated to include adults under a residential, commercial, community, and institutional redevelopment scenario.
c. Surface Receptor incorporates offsite surface receptors (that is, receptors not engaged in subsurface excavation activities), such as Residents, Visitors, Outdoor Workers, or patrons of nearby properties who may be exposed to dust (soil particulates) or groundwater migrating offsite during the redevelopment of the property in the absence of risk management measures (RMMs).
d. Outdoor air inhalation includes both ambient and trench air inhalation, as appropriate.
e. Dermal exposure to vapours is a negligible pathway and will not be considered quantitatively.
f. There is high uncertainty associated with assessing the potential exposure to Site contaminants of concern (COCs) through ingestion of garden produce; therefore, this pathway will not be considered quantitatively.
g. The depth to groundwater ranges from 3.78 to 4.43 metres below ground surface (mbgs) (perched) or 5.82 to 8.66 mbgs (water table).
h. The extent of cadmium impacts in groundwater have been delineated both horizontally and vertically. Based on this information, concentrations greater than the generic potable standards are not anticipated to extend downgradient or to adversely affect the municipal aquifer.
i. Potential exposure to Site COCs in groundwater through ingestion of garden produce pathway is incomplete, as the water table is below the rooting depths of plants.

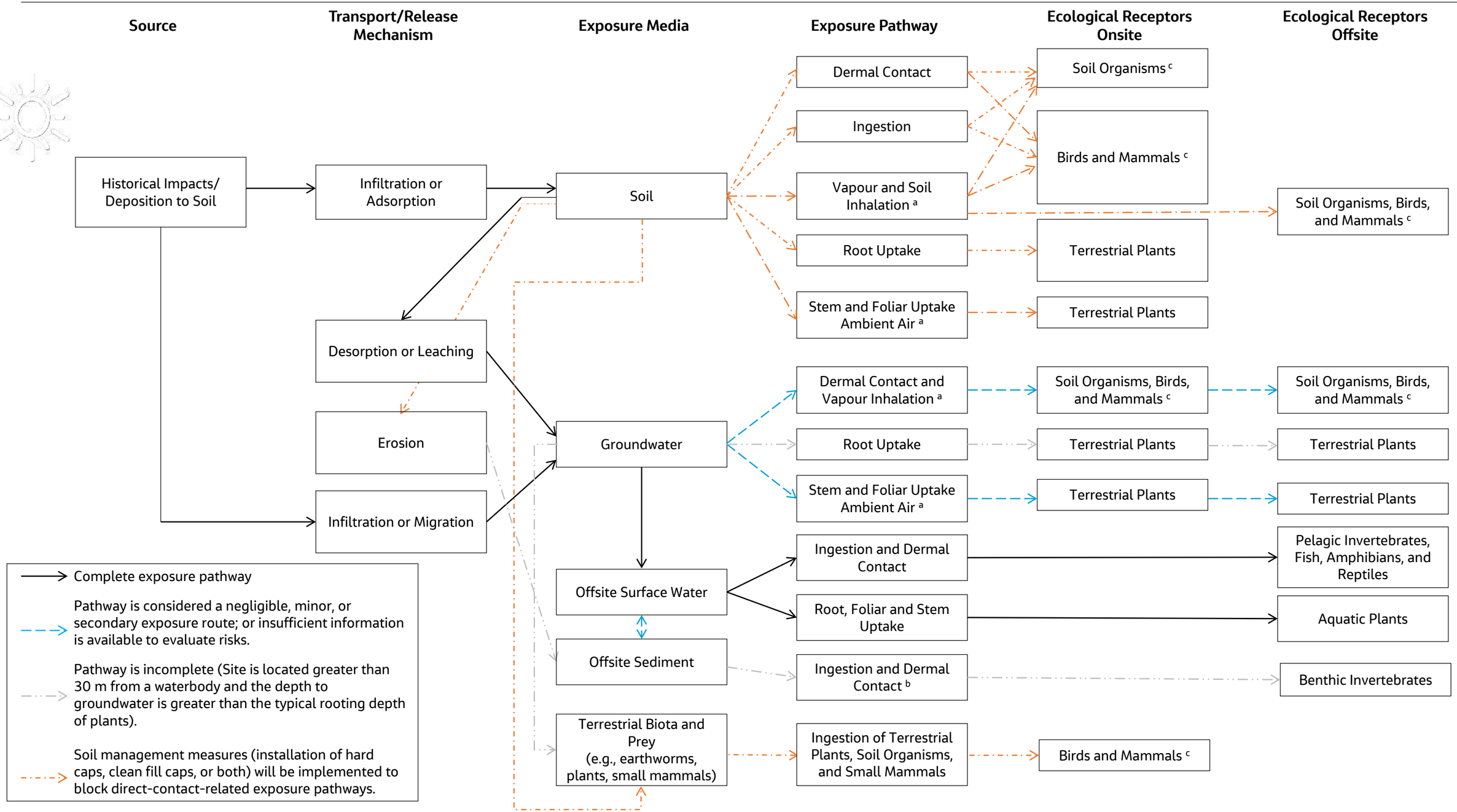
Figure 6-20b. Human Health Conceptual Site Model with Risk Management Measures
55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario



Notes:

a. Vapour and soil inhalation, and uptake of ambient air are secondary routes of exposure; limited toxicological information is available to evaluate these pathways.
b. Pathway considered incomplete under current conditions and will also be considered incomplete under future redevelopment conditions.
c. The VECs are consistent with those in the MECP Modified Generic Risk Assessment Model: Earthworms for soil organisms; American Woodcock, Red-winged Blackbird, and Red-tailed Hawk for birds; Meadow Vole, Red Fox, and Short-tailed Shrew for mammals.

Figure 6-21a. Ecological Conceptual Site Model without Risk Management Measures
55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario



Notes:

a. Vapour and soil inhalation, and uptake of ambient air are secondary routes of exposure; limited toxicological information is available to evaluate these pathways.
b. Pathway considered incomplete under current conditions and will also be considered incomplete under future redevelopment conditions.
c. The VECs are consistent with those in the MECP Modified Generic Risk Assessment Model: Earthworms for soil organisms; American Woodcock, Red-winged Blackbird, and Red-tailed Hawk for birds; Meadow Vole, Red Fox, and Short-tailed Shrew for mammals.

Figure 6-21b. Ecological Conceptual Site Model with Risk Management Measures
55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

Appendix A
Plan of Survey

SCHEDULE				
PART	LOT	PLAN	PIN	AREA m²
1	PART OF LOT 74, PART OF BURYING GROUND, PART OF LANE AT THE REAR OF LOTS 73 & 74 (KNOWN AS PARK LANE & CLOSED BY BY-LAW No. 1983 REGISTERED AS INSTRUMENT CS31228)	8, CANADA COMPANY SURVEY	ALL OF 71287-0044 (LT)	599.9
2	PART OF BURYING GROUND, PART OF LANE AT THE REAR OF LOTS 73 & 74 (KNOWN AS PARK LANE & CLOSED BY BY-LAW No. 1983 REGISTERED AS INSTRUMENT CS31228)			58.2
3	PART OF BURYING GROUND		ALL OF 71287-0045 (LT)	88.0
4	PART OF LOTS 73 & 74, PART OF BURYING GROUND, PART OF LANE AT THE REAR OF LOTS 73 & 74 (KNOWN AS PARK LANE & CLOSED BY BY-LAW No. 1983 REGISTERED AS INSTRUMENT CS31228)			949.0
5	PART OF BURYING GROUND AND PART OF TRAVELLED LANE THROUGH BURYING GROUND (CLOSED BY BY-LAW (1968)-6991 REGISTERED AS INSTRUMENT MS80255)		ALL OF 71287-0038 (LT)	8,361.7
6				520.1
7	PART OF BURYING GROUND		ALL OF 71287-0058 (LT)	119.1
8	PART OF UNNAMED LANE (KNOWN AS PARK LANE)		ALL OF 71287-0099 (LT)	848.8

PART 2 IS SUBJECT TO AN EASEMENT AS IN INSTRUMENT ROS557919.
PART 3 IS SUBJECT TO AN EASEMENT AS IN INSTRUMENT ROS573090.

PLAN 61R-21815

Received and deposited

June 22nd, 2020

Shaun Savard

Representative for the Land Registrar for the Land Titles Division of Wellington (No.61)

PLAN OF SURVEY OF
PART OF LOTS 73, 74, BURYING GROUND, UNNAMED LANE
(KNOWN AS PARK LANE),
PART OF THE LANE AT THE REAR OF LOTS 73 & 74
(KNOWN AS PARK LANE AND CLOSED BY INSTRUMENT CS31228)
TRAVELLED LANE THROUGH BURYING GROUND
(CLOSED BY INSTRUMENT MS80255)
REGISTERED PLAN 8
CITY OF GUELPH
COUNTY OF WELLINGTON

SCALE 1 : 250

0 2.5 5 10 15 meters

VAN HARTEN SURVEYING INC.

THE INTENDED PLOT SIZE OF THIS PLAN IS 1219mm IN WIDTH BY 610mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:250

LEGEND:

—□—	DENOTES SURVEY MONUMENT SET
—■—	DENOTES SURVEY MONUMENT FOUND
SIB	DENOTES .025 X .025 X 1.20 STANDARD IRON BAR
IB	DENOTES .015 X .015 X 0.60 IRON BAR
SSIB	DENOTES .025 X .025 X 0.60 SHORT STANDARD IRON BAR
RP	DENOTES .015 DIA. X 0.07 ROUND IRON BAR WITH STAMPED WASHER
PB	DENOTES .025 X .025 X 0.30 PLASTIC BAR
CC	DENOTES CUT CROSS
WIT	DENOTES WITNESS
OU	DENOTES ORIGIN UNKNOWN
375	DENOTES BLACK SHOEMAKER ROBINSON & DONALDSON LIMITED
VH	DENOTES VAN HARTEN SURVEYING INC., O.L.S.'S
P1	DENOTES SURVEY BY (375), PROJECT No. 99-2293, DATED SEPTEMBER 21, 1999
P2	DENOTES DEPOSITED PLAN 61R-11926 BY (VH)
P3	DENOTES DEPOSITED PLAN 61R-2545 BY (375)
P4	DENOTES SURVEY BY (375), PROJECT No. 159-9, DATED JANUARY 17, 1946
P5	DENOTES SURVEY BY (375), PROJECT No. 165-15, DATED APRIL 4, 1941
P6	DENOTES SURVEY BY (375), PROJECT No. 10-8579, DATED AUGUST 17, 2010
P7	DENOTES DEPOSITED PLAN 61R-10006 BY (375)
P8	DENOTES SURVEY NOTES 115-105 BY (375), PROJECT No. 316-61, DATED JULY 24, 26, 1964
P9	DENOTES SURVEY BY (375), PROJECT No. 00-3252, DATED JUNE 26, 2001
D1	DENOTES INSTRUMENT ROS579919
D2	DENOTES INSTRUMENT ROS573090

BEARING AND COORDINATE NOTE:

1. BEARINGS ARE GRID BEARINGS AND ARE DERIVED FROM GPS OBSERVATIONS AND ARE REFERRED TO THE UTM PROJECTION, ZONE 17, NAD 83 (CSRS-2010) ADJUSTMENT.
2. DISTANCES SHOWN ON THIS PLAN ARE ADJUSTED GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY AN AVERAGED COMBINED SCALE FACTOR OF 0.99959928.
3. COORDINATES ON THIS PLAN ARE UTM, ZONE 17, NAD83 (CSRS-2010) ADJUSTMENT AND ARE BASED ON GPS OBSERVATIONS FROM A NETWORK OF PERMANENT GPS REFERENCE STATIONS.

UTM COORDINATES (METRES)		
POINT ID	NORTHING	EASTING
A	4,821,911.42	560,423.74
B	4,821,801.14	560,530.90
C	4,821,725.21	560,467.20

THESE COORDINATE VALUES COMPLY WITH SECTION 14(2) O.REG 216/10. THESE COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH THE CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

BEARING COMPARISONS:

FOR THE PURPOSES OF BEARING COMPARISONS, PREVIOUS SURVEYS HAVE BEEN ROTATED TO UTM BEARINGS BY THE ANGLES SHOWN BELOW.

PLAN	ROTATION FOR NORTHEAST BEARINGS
P1 & P3	-1°57'25"
P6 & P7	-1°56'30"
P9	-0°32'00"

METRIC:

DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT, THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THIS SURVEY WAS COMPLETED ON THE 12th DAY OF MAY, 2020.

DATE: MAY 14, 2020

JEFFREY EDWARD BUISMAN
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER 2117665.

Van Harten SURVEYING INC.
LAND SURVEYORS and ENGINEERS

Waterloo	Guelph	Orangeville
Ph: 519-742-8371	Ph: 519-821-2763	Ph: 519-940-4110

www.vanharten.com info@vanharten.com

DRAWN BY: S.A.P. CHECKED BY: J.E.B. PROJECT No. 25189-17

May 14, 2020-11:38:58 AM
G:\GUELPH\008\Baker\acad\RPTLOT 73, 74 (CITY OF GUELPH) UTM 2010.dwg

Appendix B
Sampling and Analysis Plan

Table B-1. Sampling and Analysis Plan - July to August, 2019

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Boring ID	Type of Location	Media	Number of Locations	Approximate Depth (mbgs)	Phase Two Environmental Site Assessment								Purpose and Justification	Field Instructions
					Metals (O.Reg. 153/04)	Inorganics (Free Cyanide, pH, EC and SAR)	PHCs F1-F4 incl. BTEX	PHCs F2-F4	PAHs	VOCs	PCBs	ABNs		
BH200	new	soil	1	4.8	3	3	3		3	3	2		To characterize overburden soil for metals, inorganics, PHCs, PAHs and PCBs based on presence of former transformer station, former industrial property use, unknown poor quality fill material and use of road salts (APEC#1, 2, 3, 4).	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. PCB samples to be collected 0-0.3 and 0.3 to 0.6 mbgs, submit deeper sample on hold. HSA to top of bedrock, confirm bedrock with SS.
BH201	new	soil	1	7.2	4	4	4		4	4			To characterize overburden soil for metals, inorganics, PHCs, PAHs, and VOCs based on presence of former industrial property use, unknown poor quality fill material and use of road salts (APEC#1, 2, 4). To characterize geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts], silt [worst case or min. 0.5 m below impacts from unit above], and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS. Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
BH202	new	soil	1	5	3	3	3		3	3			To characterize overburden soil for metals, inorganics, PHCs, PAHs, and VOCs based on presence of former industrial property use, unknown poor quality fill material and use of road salts (APEC#1, 2, 4).	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS.
BH203	new	soil	1	5	3	3	3		3	3			To characterize overburden soil for metals, inorganics, PHCs, PAHs, and VOCs based on presence of unknown poor quality fill material and use of road salts (APEC#2, 4). To characterize geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS. Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
BH204	new	soil	1	5	3	3	3		3	3			To characterize overburden soil for metals, inorganics, PHCs, PAHs, and VOCs based on presence of unknown poor quality fill material and use of road salts (APEC#2, 4). To characterize geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold (submit FOC). HSA to top of bedrock, confirm bedrock with SS. Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
BH205	new	soil	1	5	3	3	3		3	3			To characterize soil for metals, inorganics, PHCs, PAHs, and VOCs based on former industrial property use, unknown poor quality fill material and use of road salts (APEC#2, 4).	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS.

Table B-1. Sampling and Analysis Plan - July to August, 2019

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Boring ID	Type of Location	Media	Number of Locations	Approximate Depth (mbgs)	Phase Two Environmental Site Assessment								Purpose and Justification	Field Instructions
					Metals (O.Reg. 153/04)	Inorganics (Free Cyanide, pH, EC and SAR)	PHCs F1-F4 incl. BTEX	PHCs F2-F4	PAHs	VOCs	PCBs	ABNs		
BH206	new	soil	1	6	4	4	4		4	4			To characterize overburden soil for metals, inorganics, PHCs, PAHs, and VOCs based on presence of former industrial property use, unknown poor quality fill material and use of road salts (APEC#2, 4). To characterize geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts], silt [worst case or min. 0.5 m below impacts from unit above], and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold (submit FOC). HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
MW100	new	soil	1	7.5 (soil) 13 (bedrock)	3	3	3		3	3			To characterize overburden soil and groundwater for metals, inorganics, PHCs, PAHs and VOCs based on presence of former AST and former industrial property use (APEC#1, 2, 4, 10, 11, 12). To characterize deep geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold (submit FOC). HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. MW100 install a 3.05 m screen to straddle the water table, bentonite chip seal. Backfill corehole with bentonite chips as required Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
		groundwater		9	1	1	1		1	1				
MW101	new	soil	1	5 (soil) 13 (bedrock)	3	3	3		3	3			To characterize overburden soil and groundwater (shallow and deep) for metals, inorganics, PHCs, PAHs, and VOCs based on presence of unknown poor quality fill material and use of road salts (APEC#2, 4). To characterize geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. MW101 install a 3.05 m screen to straddle the water table, bentonite chip seal. Backfill corehole with bentonite chips as required. Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
		groundwater		11	1	1	1		1	1				
MW102A & MW102B	new	soil	2	7 (soil) 13 (bedrock)	4	4	4		4	4			To characterize overburden soil for metals, inorganics, PHCs, PAHs, and VOCs based on presence of off-site former dry cleaning operations, former retail fuel outlet, automotive repair, and of on-site presence of former industrial property use, unknown poor quality fill material and use of road salts (APEC#1, 2, 4, 5, 6, 7, 17). To characterize geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts], silt [worst case or min. 0.5 m below impacts from unit above], and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold (submit FOC). HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. MW102A install a 3.05 m screen water bearing overburden (likely above silt, if present) to straddle pearched water table, bentonite chip seal. MW102B install minimum 1.52 m screen to straddle bedrock water table, screen wholly in the bedrock with minimum 0.6 m seal in the bedrock, bentonite grout seal above. Backfill corehole with bentonite chips as required. Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
		groundwater (MW102A)		5	1	1	1		1	1				
		groundwater (MW102B)		9	1	1	1		1	1				
MW103	new	soil	1	7 (soil) 9 (bedrock)	4	4	4		4	4			To characterize overburden soil and groundwater for metals, inorganics, PHCs, PAHs, and VOCs based on presence of off-site former fuel oil UST, offsite former automotive repair and of on-site presence of former industrial property use, unknown poor quality fill material and use of road salts (APEC#1, 2, 4, 9, 10).	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts], silt [worst case or min. 0.5 m below impacts from unit above], and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold (submit FOC). HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. Install 3.05 m screen to straddle water table, if water bearing overbuden unit present place screen in soil, if not, core to target depth to screen water table in bedrock, bentonite chip seal.
		groundwater		9	1	1	1		1	1				

Table B-1. Sampling and Analysis Plan - July to August, 2019

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Boring ID	Type of Location	Media	Number of Locations	Approximate Depth (mbgs)	Phase Two Environmental Site Assessment								Purpose and Justification	Field Instructions
					Metals (O.Reg. 153/04)	Inorganics (Free Cyanide, pH, EC and SAR)	PHCs F1-F4 incl. BTEX	PHCs F2-F4	PAHs	VOCs	PCBs	ABNs		
MW104	new	soil	1	7 (soil) 9 (bedrock)	4	4	4		4	4		4	To characterize overburden soil and groundwater for metals, inorganics, PHCs, PAHs, and VOCs based on presence of off-site former automotive repair and former industrical property use, and of on-site presence of former industrial property use, unknown poor quality fill material and use of road salts (APEC#1, 2, 4, 8, 10, 12).	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts], silt [worst case or min. 0.5 m below impacts from unit above], and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. Install 3.05 m screen to straddle water table, if water bearing overbuden unit present place screen in soil, if not, core to target depth to screen water table in bedrock, bentonite chip seal.
		groundwater		9	1	1	1		1	1		1		
MW105	new	soil	1	5 (soil) 9 (bedrock)	3	3	3		3	3			To characterize overburden soil for metals, inorganics, PHCs, PAHs, and VOCs based on presence of former industrial property use, unknown poor quality fill material and use of road salts (APEC#1, 2, 4, 11).	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. Install 3.05 m screen to straddle water table, if water bearing overbuden unit present place screen in soil, if not, core to target depth to screen water table in bedrock, bentonite chip seal.
		groundwater		9	1	1	1		1	1				
MW106	new	soil	1	5 (soil) 13 (bedrock)	3	3	3		3	3			To characterize soil, shallow and deep groundwater for metals, inorganics, PHCs, PAHs, and VOCs, based on presence of historical gasoline spill and UST, as well as former industrial property use, unknown poor quality fill material and use of road salts (APEC#2, 4, 14, 16). To characterize geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. MW106 install a 3.05 m screen to straddle the water table, bentonite chip seal. Backfill corehole with bentonite chips as required. Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
		groundwater		9	1	1	1		1	1				
MW107	new	soil	1	5	3	3	3		3	3			To characterize overburden soil and groundwater for metals, inorganics, PHCs, PAHs, and VOCs based on former oil house shed, presence of unknown poor quality fill material and use of road salts (APEC#2, 4, 18). To characterize geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts] and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. Install 3.05 m screen to straddle water table, bentonite chip seal. Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
		groundwater		9	1	1	1		1	1				
MW108	new	soil	1	7 (soil) 13 (bedrock)	4	4	4		4	4			To characterize overburden soil and ground water (shallow and deep) for metals, inorganics, PHCs, PAHs, VOCs and dioxans/furans (soil only) based on presence of off-site dry former dry cleaners and of on-site former industrial property use, historical fire event, unknown poor quality fill material and use of road salts (APEC#2, 4, 8). To characterize geotechnical conditions including soil characteristics, penetration tests, bearing capacity, and compression tests.	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts], silt [worst case or min. 0.5 m below impacts from unit above], and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold (submit FOC). HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. Install 3.05 m screen to straddle water table, if water bearing overbuden unit present place screen in soil, if not, core to target depth and screen water table in bedrock, bentonite chip seal. Backfill corehole with bentonite chips as required. Collect soil samples for geotechnical testing (including moisture, grain size, Attenberg limits and compression testing).
		groundwater		9.5	1	1	1		1	1				
MW109	new	soil	1	5.3 (soil) 9 (bedrock)	4	4	4		4	4			To characterize overburden soil for metals, inorganics, PHCs, PAHs, VOCs and dioxans/furans based on presence of off-site dry former automotive garage and of on-site former industrial property use, historical fire event, former oil house, unknown poor quality fill material and use of road salts (APEC#2, 4, 13, 19).	Collect 1 sample from each stratigraphic layer (worst case fill, suspected clean native [min. 0.5 m below impacts], silt [worst case or min. 0.5 m below impacts from unit above], and bottom of bohehole [top of rock]) for all parameters, submit fill and suspected clean sample for analysis, sample from bottom of borehole to be submitted on hold (submit FOC). HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. Install 3.05 m screen to straddle water table, if water bearing overbuden unit present place screen in soil, if not, core to target depth to screen water table in bedrock.
		groundwater		9	1	1	1		1	1				

Table B-2. Sampling and Analysis Plan - September to December 2019

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Boring ID	Type of Location	Media	Number of Locations	Approximate Depth (mbgs)	Phase Two Environmental Site Assessment								Purpose and Justification	Field Instructions
					Metals (O.Reg. 153/04)	Inorganics (Free Cyanide, pH, EC and SAR)	PHCs F1-F4 incl. BTEX	PHCs F1-F4	PAHs	VOCs	PCBs	ABNs		
BH207	new	soil	1	2.5				3					Historical exceedance (XCG 2008) of PHC F3 and F4 at BH-10 from 0.0 - 0.60 mbgs. Confirm soil quality in engineered fill material from 0.0 to max 0.6 mgbs, and vertical delineation.	Sample engineered fill beneath asphalt from same depth as exceedance 0-0.6 mbgs, ensure no asphalt pieces. Collect 2nd sample from bottom of fill/below exceedance (previous boring terminated at 0.76 mbgs) from unimpacted fill, if present. If no field evidence of PHC impact in the fill, collect samples 1 and 2 regardless. Collect third sample from suspected clean native (min. 0.5 m below impacts). Submit first 2 samples for analysis and place 3rd sample on hold pending analysis of samples above.
BH208	new	soil	1	4.5					3				Vertical delineation of historical exceedance (XCG 2008) of PAHs at BH-14 from 0.8 - 1.4 mbgs.	Collect 1st sample from historical exceedance at approx. 1.0 mbgs. Collect 2nd fill sample below exceedance (previous boring terminated at 1.83 mbgs, possible concrete floor) from unimpacted fill, if present. Collect third sample from suspected clean native (min. 0.5 m below impacts). Submit 1st and 2nd sample for analysis, and place 3rd sample on hold pending analysis of sample above.
BH209	new	soil	1	3	3						12		Vertical and lateral delineation of Metals and PCBs at SA9 from surficial soil sample.	Sample upper fill for metals just below asphalt, second sample from lower fill (goes to 2.19 in adjacent BH200) and third from suspected clean native (min. 0.5 m below impacts) and place 3rd sample on hold pending analysis of sample above. Collect 3 samples for PCBs analysis, 1st from aggregate 0 to 0.1 mbgs, 2nd from upper 15 cm immediately beneath the aggregate fill material, and 3rd from a 15 cm interval chosen based on field observations, either located 30 cm beneath the 2nd sample, the bottom of the fill layer, or the top of the underlying native soil. Submit the 1st and 2nd sample for PCB analysis, submit the 3rd sample on hold pending analysis of samples above. ***See figure for sample collection locations - For PCB samples collect 3 additional sets at locations as per figure (BH209N, W, S) with same depths as detailed above, place all these samples on hold.
BH210	new	soil	1	3	3								Vertical delineation of historical exceedance (Kewen 2001) of Zinc at BH2 from 0.8 - 1.4 mbgs.	Previous boring has fill to 1.8 mbgs. Collect 1st sample from fill at approx. 1.0 mbgs to confirm historical datapoint, collect 2nd sample from bottom of fill material. at approx. 1.8 mbgs. Collect third sample from suspected clean native (min. 15 cm into the native soil and 0.5 m below impacts). Submit 1st and 2nd sample for analysis for metals, place 3rd sample on hold pending analysis of sample above.
BH211	new	soil	1	4.5	3								Vertical delineation of historical exceedance (XCG 2008) of lead at BH-6 from 3.1 - 3.7 mbgs.	Collect 1st sample from approximately 2.5 mbgs which is meant to be at least 0.5 metre above the historical datapoint; target the bottom of fill material. Collect 2nd sample from depth of previous exceedance in sand to confirm result. Collect 3rd sample from above bedrock 4.27 mbgs (XCG 2008). Submit the 2nd sample for analysis for metals, place 1st and 3rd samples on hold pending analysis of 2nd sample.
MW100	existing	groundwater	1	9	1	1	1		1	1			Resample to confirm previous results, ABNs added at MW104 for characterizing for coke storage (phenol)	Sample with low flow methods
MW101	existing	groundwater	1	11	1	1	1		1	1				
MW102A	existing	groundwater	1	5	1	1	1		1	1				
MW102B	existing	groundwater	1	9	1	1	1		1	1				
MW103	existing	groundwater	1	9	1	1	1		1	1				
MW104	existing	groundwater	1	9	1	1	1		1	1		1		
MW105	existing	groundwater	1	9	1	1	1		1	1				
MW106	existing	groundwater	1	9	1	1	1		1	1				
MW107	existing	groundwater	1	9	1	1	1		1	1				
MW108	existing	groundwater	1	9.5	1	1	1		1	1				
MW109	existing	groundwater	1	9	1	1	1		1	1				
MW107B	new	groundwater	1	5 (soil) 15.5 (bedrock)	2								Vertical delineation of Cadmium at MW107	PQ core to approximately 12 mbgs, ream/temporary set HW casing, HQ core to 15.5 mbgs, install 1.52 m screen with 15 cm sand above, 0.6 m peltonite seal and grout to surface. Change core water between PQ an HQ coring. Collect second GW sample at least 2 weeks after first sample to confirm results
MW110A MW110B	new	groundwater	2	5.3 (soil) 8.5 (MW110A) 15.5(MW110B)	4								Vertical and lateral delineation of Cadmium at MW107	MW110B - PQ core to approximately 12 mbgs, ream/temporary set HW casing, HQ core to 15.5 mbgs, install 1.52 m screen with 15 cm sand above, 0.6 m peltonite seal and grout to surface. Change core water between PQ an HQ coring. Install MW110 at target depth, 3.05 m screen to intercept water table. Collect second GW sample at least 2 weeks after first sample to confirm results
MW111	new	groundwater	1	6.9 (soil) 15.5 (bedrock)	2								Vertical and lateral delineation of Cadmium at MW107 and historical exceedance at BH5 (JWEL) (sample from XCG 2008).	PQ core to approximately 12 mbgs, ream/temporary placement of HW casing, HQ core to 15.5 mbgs, install 1.52 m screen with 15 cm sand above, 0.6 m peltonite seal and grout to surface. Change core water between PQ an HQ coring. Collect second GW sample at least 2 weeks after first sample to confirm results

Note:

ABN - acid/base/neutral compounds

APEC = area of potential concern

Table B-2. Sampling and Analysis Plan - September to December 2019

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Boring ID	Type of Location	Media	Number of Locations	Approximate Depth (mbgs)	Phase Two Environmental Site Assessment								Purpose and Justification	Field Instructions
					Metals (O.Reg. 153/04)	Inorganics (Free Cyanide, pH, EC and SAR)	PHCs F1-F4 incl. BTEX	PHCs F1-F4	PAHs	VOCs	PCBs	ABNs		

BTEX = benzene toluene ethylbenzene xylene

EC = Electrical Conductivity

F = fraction

FOC = fraction of organic carbon

ID = Identification

PAHs = polycyclic aromatic hydtrocarbons

PHCs = petroleum hydrocarbons

Table B-3. Sampling and Analysis Plan - January 2020

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Boring ID	Type of Location	Media	Number of Locations	Approximate Depth (mbgs)	Phase Two Environmental Site Assessment								Purpose and Justification	Field Instructions
					Metals (O.Reg. 153/04)	Inorganics (Free Cyanide, pH, EC and SAR)	PHCs F1-F4 incl. BTEX	PHCs F1-F4	PAHs	VOCs	PCBs	ABNs		
MW112	new	soil	1	5.6 (soil) 8.5 (bedrock)			4		4	4			To characterize overburden soil and shallow groundwater for PHCs, PAHs, and VOCs based on presence of a former offsite fuel oil tank and a historical spill of gasoline in 2003 (APEC#14, 16).	**NEED Direction from ARA on ability to daylight. Location in area of numerous underground and overhead utilities. Location of well is to be installed with 5 ft clearance from all.** Two closest BH/MWs are MW106 and 107 show: asphalt, then fill to 0.91/2.21, coarse sand/sand&gravel (5.66/4.98), bedrock to depth, static water 7 and 6.5 mbgs (about 1.5m into bedrock both wells). Note, fine-grained silt overburden unit prevalent in north portion of site, not anticipated to occur. APEC sources are an offsite fuel oil AST in a basement, and gasoline spilll; with sand/gravel fill not expecting any shallow soil/fill impact. With ARA clearances and potential need for daylighting to depth of utilities/fill, field assessment/sampling of upper overburden likely challenging. Need field opinion/evidence and documentation that no shallow fuel oil/gasoline in fill material. Discuss with office when in field as needed. **If field evidence of fuel oil/gasoline in overburden, collect worst case sample where it occurs and discuss with PM before submitting for analysis.** Otherwise collect 1 sample from each stratigraphic layer with the exception of the top 1.5m of fill (as stated above) from lower portion of fill material (if fill extends to 2+mbgs), suspected clean native (min. 0.5 m below impacts), silt if present (worst case or min. 0.5 m below transition or impacts from unit above), and bottom of bohehole (top of rock) for all parameters. Submit shallow native soil sample for analysis, sample from fill and bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. Install 3.05 m screen to straddle water table, anticipate top of screen approximately coincident with top of bedrock, screen must be minimum of 1.25 metre above anticipated static water elevation, if water bearing overbuden unit present discuss with PM prior to placement of screen in overburden soil, if not, core to target depth to screen water table in bedrock, bentonite chip seal. _____ Closest boring MW106 shows: asphalt, fill to 0.91, coarse sand/sand & gravel to top of bedrock at 5.66, static water at ~7 mbgs. Within sand/gravel fill not expecting any shallow soil/fill impact. If field evidence of fuel oil/gasoline in overburden, collect worst case sample where it occurs and discuss with PM before submitting for analysis. Sample for PHCs, PAHs and VOCs at all sample intervals. If fill is less then 1.5 m and there is no evidence of fuleoil/gasoline impacts do not sample fill, if fill is greater then 1.5 m collect bottom of fill or depth of fuel oil/gasoline impacts if present. Collect second sample from suspected clean native (min. 0.5 m below impacts or fill above), if fuel oil/gasoline impacts present in native soil collect worst case, and third sample from suspected clean below (min. 0.5 m below impacts). Collect fouth sample from bottom of bohehole (top of rock) and submit on hold. Discuss with PM prior to lab submittal which samples to be placed on hold based off field evidence. HSA to top of bedrock, confirm bedrock with SS, HQ core thereafter to target depth. Place 3.05 m screen at bottom of corehole, if water bearing overbuden unit present discuss with PM prior to placement of screen in overburden soil, if not, core to target depth to screen water table, bentonite chip seal. Collect second GW sample at least 2 weeks after first sample to confirm results
		groundwater		8.5			2		2	2				

Note:

APEC = area of potential concern

BTEX = benzene toluene ethylbenzene xylene

ID = Identification

PAHs = polycyclic aromatic hydtrocarbons

PHCs = petroleum hydrocarbons

Table B-4. Sampling and Analysis Plan - March 2020

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Boring ID	Type of Location	Media	Number of Locations	Approximate Depth (mbgs)	Phase Two Environmental Site Assessment					Purpose and Justification	Field Instructions
					Metals (O.Reg. 153/04)	Inorganics (Free Cyanide, pH, EC and SAR)	PHCs F1-F4	PAHs	VOCs		
BH207i		soil		1.0			2			F1 PHCs were missing from the original BH207 to investigate the historical F2 and F3 PHC exceedances at BH-10 at 0-0.6 mbgs. Resample to collect full PHCs.	Collect a PHC sample from below the asphalt, at an interval that will ensure absolutely no asphalt within the sample. First sample should be collected to a depth of 0.6 mbgs (ie 0.3-0.6 mbgs, to avoid asphalt). Collect second sample at an interval below the 0.6 depth original exceedance (i.e. 0.7-0.9 mbgs).
MW113	new	soil	1	5.6 (soil) 8.5 (bedrock)	4	4	4	4	4	Change to RSC property line (south), additional well to replace MW106/MW112 for APEC characterization, delineation and groundwater flow at the new property boundary. Characterize overburden soil and shallow groundwater for PHCs, PAHs, and VOCs based on presence of a former offsite fuel oil tank and a historical spill of gasoline in 2003 (APEC#14, 16).	**Location in area overhead utilities. Adjust location in field with appropriate clearance from all during private locates. No archaeological clearance needed by ARA as in an area previously assessed (2006).** Two closest BH/MWs (now off-Site) are MW106 and MW112; expect asphalt, then fill to 0.6/0.91, coarse sand/sand&gravel (5.5/4.98), bedrock to depth, static water 7 and 6.1 mbgs (about 1.5m into bedrock both wells). Note, fine-grained silt overburden unit prevalent in north portion of site, not anticipated to occur. APEC sources are an offsite fuel oil AST in a basement, and gasoline spilll; with sand/gravel fill not expecting any shallow soil/fill impact. MW112 and MW106 did not see any related impacts. With previous ARA clearances (ie testpitting) stratigraphic units may mixed to the depth of the previous assessments (ranging from 1.0 to 1.6 m) . Need field opinion/evidence and documentation that no shallow fuel oil/gasoline in fill material. Sample for Metals/Inorganics, PHCs, PAHs and VOCs at all sample intervals. **If field evidence of fuel oil/gasoline in overburden, collect worst case sample where it occurs.** Up to four soil samples to be collected: first sample from the "mixed" stratigraphic layer previously disturbed by ARA, estimated to be the top 1.5m of fill (as stated above), second from lower portion (undisturbed) fill material (if present or if fill extends to 2+mbgs), third from suspected clean native (min. 0.5 m below transition), and fourth from bottom of bohehole (top of rock). Submit first two depths of soil samples for analysis, sample from native and bottom of borehole to be submitted on hold. HSA to top of bedrock, confirm bedrock with SS, Air rotary to target depth.
		groundwater		8.5	2	2	2	2	2		Install 3.05 m screen at bottom of corehole, at a depth to straddle water table (6.1 and 7 mbgs in MW106/MW112), anticipate top of screen approximately coincident with top of bedrock, **screen must be minimum of 1.25 metre above anticipated static water elevation**, if water bearing overbuden unit present discuss with PM prior to placement of screen in overburden soil, if not, core to target depth to screen water table in bedrock, bentonite chip seal. Collect GW sample for Metals, PHCs, PAHs and VOCs. Collect second GW sample at least 5 days after first sample to confirm results.

Appendix C
Borehole and Monitoring Well Logs

JACOBS

RECORD OF BOREHOLE: BH200

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: A. Vermeersch/A. Casey

DATE DRILLED: August 12, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 329.44 masl
NORTHING: 0560498.4
EASTING: 4821788.6
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE Recovery (%)	SAMPLE TYPE	SAMPLE N Value	SAMPLE Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS (masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
					ASPHALT:		329.36 / 0.08			
		G1			**FILL:** Sand with Gravel, brown, dry, medium to coarse grained.				Borehole backfilled with bentonite upon completion	3.1
					- Some cobbles, increased coarse sand below 0.58 mbgs.		328.75 / 0.69			
					Silty Sand, medium to dark brown, moist, fine grained, trace gravel.					
1		G2		Metals & Inorg. PAHs PHCs VOCs PCBs (11:00) (0.89-1.01)	- 30 cm seam pieces of asphalt and concrete at 1.02 mbgs, medium brown and some cobbles below 1.02 mbgs.					7.0
		G3			- Light brown below 1.40 mbgs.					2.0
					- 3 cm seam of mortar, some brick at 1.45 mbgs.					
	75	SS1	10							4.5
2							327.25 / 2.19			
				Metals & Inorg. PAHs PHCs VOCs (12:06) (2.29-2.90)	**SAND WITH SILT:** Brown, dense, dry, fine to medium, some fine gravel.					
	79	SS2	50+							73.5
3										
	63	SS3	39							2.4
							325.61 / 3.83			
					SAND: Black and white, dry to moist, trace small gravel.					
4					**SILTY SAND:** Brown, medium dense to dense, dry, fine to medium sand, trace gravel.		325.53 / 3.91			
	75	SS4	46							6.4
				SAR (12:33) (4.57-5.18)	- 28 cm cobble (Guelph formation dolostone) at 4.50 mbgs.					
	74	SS5	28							5.8
5					- Light brown, dry, fine below 5.13 mbgs.					
							324.11 / 5.33			
	14	SS6	50/ 2cm		**GUELPH FORMATION DOLOSTONE:** Buff.		323.93 / 5.51	323.93 / 5.51		
					Bottom of borehole at 5.51 mbgs					
					- 0 to 1.75 mbgs completed via test pit excavation on July 23, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.					
6					- Sampler refusal on bedrock at 5.51 mbgs.					
7										

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF BOREHOLE: BH201

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: J. Rybicki/V. Peters

DATE DRILLED: August 21, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 330.16 masl
NORTHING: 0560443.0
EASTING: 4821850.6
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE Recovery (%)	SAMPLE TYPE	SAMPLE N Value	SAMPLE Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
					ASPHALT:		330.04	Borehole backfilled with bentonite upon completion	20 40 60 80
		G1			**FILL:** Sand and Gravel, light brown, dry.		0.12		1.6
		G2		Metals & Inorg. PAHs PHCs VOCs Grain Size (10:15) (0.30-0.46)			329.70		4.8
					Silty Sand, brown, moist, some coarse gravel and cobbles (decreasing with depth), trace coarse sand and clay.		0.46		
1		G3							5.2
		G4		Metals & Inorg. PAHs PHCs VOCs (10:30) (1.22-1.37)					5.6
	67	SS1	7						7.8
2							327.97		
				Metals & Inorg. PAHs PHCs VOCs (15:31) (2.29-2.90)	**SILT AND SAND:** Brown, very dense, moist, trace clay, trace gravel.		2.19		
	75	SS2	31						14.9
3									
	83	SS3	51				326.78		13.8
					SAND: Brown, very dense, moist, some silt, trace gravel.		3.38		
	100	SS4	50/ 5cm	PHCs VOCs (15:49) (3.81-3.94) SAR EC (15:49) (3.94-4.01)			326.22		58.8
4					**SILT AND SAND:** Brown, very dense, moist, trace clay, trace gravel, trace cinders.		3.94		
	100	SS5	50/ 5cm						7.4
5									
	99	SS6	50/ 10cm						24.0
							324.37		
					CLAYEY SANDY SILT TILL: Grey, hard, moist, trace gravel, slight oxidation.		5.79		
6									
	100	SS7	50/ 13cm						1.7
7		SS8	50/ 13cm						9.9
		SS9	83	SAR EC (16:43) (7.62-8.23)					1.9

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF BOREHOLE: BH201

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: J. Rybicki/V. Peters

DATE DRILLED: August 21, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 330.16 masl
NORTHING: 0560443.0
EASTING: 4821850.6
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE: Recovery (%)	SAMPLE: TYPE	SAMPLE: N Value	SAMPLE: Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
9	98	SS10	50/ 5cm		- Some gravel below 8.38 mbgs.		321.73	321.70	20 40 60 80
10	0	SS11	50/ 3cm		**GUELPH FORMATION DOLOSTONE:** Buff.		8.43	8.46	
11					Bottom of borehole at 8.46 mbgs - 0 to 1.68 mbgs completed via test pit excavation on July 24, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.		321.70 8.46		
12									
13									
14									
15									

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF BOREHOLE: BH202

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: A. Vermeersch/V. Peters

DATE DRILLED: August 12, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 329.99 masl
NORTHING: 0560483.9
EASTING: 4821816.7
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE Recovery (%)	SAMPLE TYPE	SAMPLE N Value	SAMPLE Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS (masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
					ASPHALT:		329.87			
		G1			**FILL:** Sand and Gravel, brown, moist. - Increased coarse gravel below 0.30 mbgs.		0.12			7.2
							329.43			
		G2		Metals & Inorg. PAHs PHCs VOCs	Silty Sand, brown, moist, fine, some fine to coarse gravel and cobbles, trace medium to coarse sand, brick and cast iron pipe observed.		0.56			8.5
		G3					329.18			
1	54	SS1	28	Grain Size (15:50) (0.61-0.76)	**SILTY SAND:** Light brown, moist, fine, some fine to coarse gravel and cobbles, trace medium to coarse sand.		0.81			7.3 5.2
					- Cobble from 1.45 to 1.65 mbgs.					
2	67	SS2	45							7.6
							327.55			
	58	SS3	41		**SANDY SILT:** Light brown to brown, medium dense, dry, low plasticity, fine sand, trace fine gravel, increased moisture top 15 cm.		2.44			4.3
3				Metals & Inorg. PAHs PHCs VOCs						
	92	SS4	27	(14:20) (3.05-3.66)						4.9
4	88	SS5	28				325.72			4.3
					SAND: Black with some white, dry, coarse, poorly graded.		4.27			
					SILTY SAND: Light brown to brown, dry to moist, fine sand.		325.65 4.34			
	87	SS6	50/ 8cm	SAR EC (14:43) (4.57-5.03)						
5							324.96	324.94		
					GUELPH FORMATION DOLOSTONE: Buff to light brown.		5.03	5.05		
					Bottom of borehole at 5.05 mbgs - 0 to 1.02 mbgs completed via test pit excavation on July 22, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.		324.94 5.05			
6										
7										

Borehole backfilled with bentonite upon completion

ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB: 20 40 60 80

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF BOREHOLE: BH203

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: J. Rybicki/V. Peters

DATE DRILLED: August 20, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 328.66 masl
NORTHING: 0560516.2
EASTING: 4821749.3
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE: Recovery (%)	SAMPLE: TYPE	SAMPLE: N Value	SAMPLE: Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
							328.53 / 0.13			
		SS1	31	Metals & Inorg. PAHs PHCs VOCs MeHg (15:25) (0.15-0.61)	**FILL:** Sand and Gravel, brown with pink and red, dense, moist, trace silt, trace brick, trace asphalt.				Borehole backfilled with bentonite upon completion	0.0
1	33	SS2	50/ 8cm		- Some silt to silty, very dense below 0.69 mbgs.					0.2
							327.14 / 1.52			
2	54	SS3	40		**SILTY SAND AND GRAVEL:** Brown, dense, moist, trace clay, trace dolostone fragments (buff/dark grey), frequent cobbles.					6.4
	67	SS4	47	Metals & Inorg. PAHs PHCs VOCs (15:51) (2.29-2.90)	- Dolomite fragments (buff) below 2.29 mbgs.					14.0
3		SS5	44							0.3
							324.94 / 3.72			
4		SS6	50/ 13cm		**CLAYEY SILT TILL:** Brown, hard, moist, some sand, trace buff dolostone fragments. - 8 cm seam coarse sand, brown and black, moist at 4.06 mbgs.					0.0
5		SS7	52	SAR EC (16:19) (4.57-5.18)						0.0
		SS8	50/ 5cm		**GUELPH FORMATION DOLOSTONE:** Buff		323.35 / 5.31	323.30 / 5.36		1.5
					Bottom of borehole at 5.36 mbgs		323.30 / 5.36			
6										
7										

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF BOREHOLE: BH204

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: J. Rybicki/V. Peters

DATE DRILLED: August 22, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 329.19 masl
NORTHING: 0560526.2
EASTING: 4821791.5
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE: Recovery (%)	SAMPLE: TYPE	SAMPLE: N Value	SAMPLE: Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
					ASPHALT:		329.06		Borehole backfilled with bentonite upon completion	20 40 60 80
		G1			**FILL:** Sand and Gravel, brown, moist, trace silt.		0.13			3.8
							328.58			
		G2		Metals & Inorg. PAHs PHCs VOCs FOC (11:00) (0.76-1.07)	Sandy Clay, dark brown, moist, medium plasticity, Fe staining, some coarse sand and gravel, trace silt. Inconsistent 5 cm layer black with bricks and mortar at upper contact.		0.61			4.4
1							327.97			
		G3			Silty Sand, light brown, moist, fine, Fe staining at upper contact, trace clay.		1.22			6.7
	25	SS1	4							30.1
2							326.98			
					SANDY CLAYEY SILT: Brown, firm, moist to wet, trace gravel, trace buff dolostone fragments.		2.21			
	46	SS2	5							10.8
3										
	75	SS3	39	Metals & Inorg. PAHs PHCs VOCs FOC (15:31) (3.35-3.66)	**GRAVELLY SILTY SAND:** Brown, dense, moist, trace clay, few cobbles.		325.84 3.35			33.2
					- Occasional cobbles, very dense below 3.81 mbgs.					
4	92	SS4	60							36.0
					- Brown and grey below 4.50 mbgs.					
	72	SS5	50/ 13cm	SAR (15:52) (4.57-4.85)						14.2
5					- Brown, dense below 5.18 mbgs.					
	75	SS6	41	SAR (16:01) (5.33-5.72)						24.1
					GUELPH FORMATION DOLOSTONE: Buff		323.48 5.72			
6	100	SS7	50/ 3cm				323.07	323.07		
					Bottom of borehole at 6.12 mbgs - 0 to 1.98 mbgs completed via test pit excavation on July 30, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.		6.12	6.12		
7										

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF BOREHOLE: BH205

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: A. Vermeersch

DATE DRILLED: August 12, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 328.78 masl
NORTHING: 0560493.1
EASTING: 4821756.6
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE Recovery (%)	SAMPLE TYPE	SAMPLE N Value	SAMPLE Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
0	75	SS1	26	Metals & Inorg. (08:50) (0.00-0.61)	**ASPHALT:**		328.70 / 0.08		33.2
					FILL: Sand and Gravel with Silt, brown to dark brown, medium dense, moist, fine to coarse sand, trace fine gravel, trace brick and wood.				
1	42	SS2	22	PAHs (08:58) (0.76-1.37)					32.1
							327.20 / 1.58		
	38	SS3	20		Sand, light brown, medium dense, moist, fine to medium, some silt and fine gravel, brick at lower contact.				40.2
2									
	38	SS4	40	PHCs VOCs (09:13) (2.29-2.90)			326.32 / 2.46		50.5
					SAND AND GRAVEL: Brown, dense, moist, fine to medium sand, fine gravel, trace silt.				
3	67	SS5	19	Metals & Inorg. PAHs PHCs VOCs (09:22) (3.05-3.66)					64.5
							324.97 / 3.81		
				SAR (09:30) (3.81-4.57)	**SAND:** Brown, dense, moist to wet, fine to medium sand, some silt, trace fine gravel.				
4	46	SS6	44		- 15 cm dolostone fragment at 3.91 mbgs.				33.6
	100	SS7	50/ 15cm		- 10 cm dolostone fragment at 3.91 mbgs.				0.6
					- Some gravel below 4.67 mbgs.		324.06 / 4.72	324.06 / 4.72	
5					Bottom of borehole at 4.72 mbgs - Auger and split spoon refusal on bedrock at 4.72 mbgs.				
6									
7									

Borehole backfilled with bentonite upon completion

ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB: 20 40 60 80

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

MASTER_BH_FT2M_SS; BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF BOREHOLE: BH206

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: J. Rybicki/V. Peters

DATE DRILLED: August 19, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 329.08 masl
NORTHING: 0560516.4
EASTING: 4821874.0
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE: Recovery (%)	SAMPLE: TYPE	SAMPLE: N Value	SAMPLE: Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
					ASPHALT:		328.98			
					FILL: Sand and Gravel, reddish brown, moist, some coarse sand, trace silt and cobbles.		0.10			
		G1		Metals & Inorg. PAHs PHCs VOCs (11:30) (0.30-0.61)						5.6
1		G2								3.7
		G3								4.6
	50	SS1	15							0.0
2							326.89			
					SILT AND SAND: Brown, dense, dry to moist, trace clay, trace gravel, Fe oxidation.		2.19			
	67	SS2	32	Metals & Inorg. PAHs PHCs VOCs (08:30) (2.29-2.90)						0.0
3							326.11			
					SANDY CLAYEY SILT: Brown, hard, damp, some gravel.		2.97			
	100	SS3	34							0.0
				Metals & Inorg. PAHs PHCs VOCs (08:50) (3.81-4.42)						
4	100	SS4	35							0.0
					- Increased gravel below 4.50 mbgs.					
	88	SS5	50/ 10cm							0.0
5	100	SS6	50/ 3cm				324.03	324.00		0.0
					GUELPH FORMATION DOLOSTONE: Buff.		5.05	5.08		
					Bottom of borehole at 5.08 mbgs - 0 to 1.83 mbgs completed via test pit excavation on July 25, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.		324.00 5.08			
6										
7										

Borehole backfilled with bentonite upon completion

ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB: 20 40 60 80

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

MASTER_BH_FT2M_SS; BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF BOREHOLE: BH207

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: V. Peters/J. Gowing

DATE DRILLED: April 9, 2020
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 330.06 masl
NORTHING: 0560472.2
EASTING: 4821825.2
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE: Recovery (%)	SAMPLE: TYPE	SAMPLE: N Value	SAMPLE: Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
					ASPHALT:		329.93			
		G1		PHCs (14:10) (0.30-0.61)	**FILL:** Sand with Gravel, medium brown, moist, medium to coarse and gravel.		0.13			3.0
							329.45			
		G2			Sand with Silt, medium brown, moist, coarse, some fine sand, coarse gravel and cobbles.		0.61			2.9
1					- Increasing silt content and trace brick and concrete pipe below 0.91 mbgs.					
2							328.08			
					SILT WITH SAND: Brown, moist, hard, coarse, well sorted, some gravel and cobbles.		1.98			
	67	SS4	41	PHCs (14:30) (2.29-2.90)	- Fine sand, increasing silt below 2.59 mbgs.					0.7
3							327.01			
					SILT TILL: Hard, dry, low plasticity, some clay, some fine gravel.		3.05			
	58	SS5	67							0.5
							326.40	326.40	Borehole backfilled with bentonite upon completion	
					Bottom of borehole at 3.66 mbgs - 0 to 1.83 mbgs completed via test pit excavation on November 12, 2019 during archaeological investigation with Bobcat E55 excavator, test pit backfilled with excavated material upon completion.		3.66	3.66		
4										
5										
6										
7										

ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB: 20 40 60 80

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: JRG
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF BOREHOLE: BH208

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: V. Peters/M. Shiry

DATE DRILLED: November 21, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 330.02 masl
NORTHING: 0560457.1
EASTING: 4821811.7
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE: Recovery (%)	SAMPLE: TYPE	SAMPLE: N Value	SAMPLE: Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
					ASPHALT:		329.92			
					FILL: Sand with Gravel, brown, moist, medium to coarse.		0.10			
		G1					329.51			1.2
					Concrete and Brick Rubble, trace sand and gravel, trace coal. Brick content increasing and sand and gravel decreasing with depth.		0.51			
1		G2		PAHs (10:45) (0.91-1.07)						2.5
							328.19			
					CONCRETE: Floor slab.		1.83			
2							327.99			
					SILTY SAND: Light brown, moist, medium dense, fine, trace medium to coarse sand, some fine to coarse gravel.		2.03			
	58	SS1	18	PAHs (12:39) (2.29-2.44)						7.0
3										
	67	SS2	16							2.5
							326.36	326.36		
					Bottom of borehole at 3.66 mbgs - 0 to 1.83 mbgs completed via test pit excavation on November 12, 2019 during archaeological investigation with Bobcat E55 excavator, test pit backfilled with excavated material upon completion.		3.66	3.66		
4										
5										
6										
7										

Borehole backfilled with bentonite upon completion

ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB: 20 40 60 80

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

MASTER_BH_FT2M_SS; BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF TEST PIT: BH209

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: V. Peters

DATE EXCAVATED: November 13, 2019
CONTRACTOR: Lewis Straus Construction Ltd.
EXCAVATOR: Bobcat E55

GROUND ELEVATION: 329.49 masl
NORTHING: 0560494.6
EASTING: 4821789.6

DEPTH (mbgs)	SAMPLE: Recovery (%)	SAMPLE: TYPE	SAMPLE: Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	TEST PIT COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	TEST PIT COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
		G1	Metals PCBs (08:45) (0.12-0.23)	**ASPHALT:**		329.36 / 0.13		Test pit backfilled with excavated soil upon completion	4.7
				FILL: Sand with Gravel, brown, dry, medium to coarse.					
				- Some cobbles, increasing coarse sand below 0.30 mbgs.					
		G2	Metals PCBs (08:55) (0.61-0.73)	Silty Sand, medium brown, moist, fine, trace gravel, few cobbles.		328.88 / 0.61			4.7
1				- 15 cm seam some brick at 0.91 mbgs.					
		G3							3.8
				- Light brown below 1.52 mbgs.					
2						327.36			
				SILT AND SAND: Light brown, dry, fine to medium grained, some fine gravel and cobbles.		2.13			
		G4				326.90 / 2.59	326.90 / 2.59		5.4
				Bottom of borehole at 2.59 mbgs					
3									
4									
5									
6									
7									

ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB: 20 40 60 80

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

MASTER_TP_FT2M; BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF BOREHOLE: BH210

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: M. Shiry

DATE DRILLED: November 21, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 328.92 masl
NORTHING: 0560478.7
EASTING: 4821764.0
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE: Recovery (%)	SAMPLE: TYPE	SAMPLE: N Value	SAMPLE: Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
					ASPHALT:		328.77 / 0.15		Borehole backfilled with bentonite upon completion	
	58	SS1	15		**FILL:** Sand and Gravel, brown, moist, medium dense, fine to coarse, trace silt.		328.31 / 0.61			2.6
1	63	SS2	11	Metals (09:09) (1.07-1.07)	Sandy Silt with Gravel, dark brown, very moist, low plasticity, stiff, fine to coarse sand, fine gravel, trace clay, trace glass, trace asphalt.		327.70 / 1.22			2.6
	63	SS3	6		Silty Clay, medium brown, moist, medium to high plasticity, trace fine and medium sand, trace fine gravel.					2.3
2				Metals (09:17) (1.98-2.13)			326.81 / 2.11			
	71	SS4	14		**SAND:** Light brown, moist, medium dense, fine, trace fine to coarse gravel, trace silt.					1.7
3	42	SS5	28		- Increased gravel, trace medium to coarse sand below 3.05 mbgs.					1.9
					Bottom of borehole at 3.66 mbgs		325.26 / 3.66	325.26 / 3.66		
4										
5										
6										
7										

ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB: 20 40 60 80

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

MASTER_BH_FT2M_SS: BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF BOREHOLE: BH211

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: M. Shiry

DATE DRILLED: November 21, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA

GROUND ELEVATION: 328.65 masl
NORTHING: 0560498.5
EASTING: 4821750.1
BOREHOLE DIAMETER: 210 mm

DEPTH (mbgs)	SAMPLE: Recovery (%)	SAMPLE: TYPE	SAMPLE: N Value	SAMPLE: Parameters Analyzed (time) (sample interval mbgs)	SOIL DESCRIPTION	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB
					ASPHALT:		328.55			
					FILL: Silt, Sand and Gravel, dark brown, moist to very moist, loose, fine to coarse sand and gravel, trace slag and glass.		0.10			
	63	SS1	10		- Wood debris at 0.61 mbgs.					3.2
1	29	SS2	7							2.6
							327.00			
	71	SS3	38		**SILTY SAND AND GRAVEL:** Light brown, dense, moist, fine to coarse sand and gravel.		1.65			3.2
2					- 3 cm seam back and white granite gravel seam at 2.13 mbgs.					
							326.31			
	71	SS4	22		**SILTY SAND:** Light brown, moist, medium dense, fine, trace medium to coarse sand, trace fine gravel.		2.34			3.4
3				Metals (10:58) (3.05-3.66)	- Increased gravel content below 3.05 mbgs.					
	29	SS5	25							4.3
4	58	SS6	18							4.4
							324.08			
	100	SS7	50+/ 15cm		**GUELPH FORMATION DOLOSTONE:** Buff.		4.57	323.93		
					Bottom of borehole at 4.72 mbgs		323.93 4.72	4.72	Borehole backfilled with bentonite upon completion	
5										
6										
7										

ORGANIC VAPOUR READING (ppm) 10.6 eV PID BULB: 20 40 60 80

Notes:
1. Information to be used for intrepretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

MASTER_BH_FT2M_SS; BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF MONITORING WELL: MW100

CLIENT: City of Guelph | DATE DRILLED: August 22, 2019 | GROUND ELEVATION: 329.93 masl | NORTHING: 0560474.8

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.84 masl | EASTING: 4821807.2

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 322.46 masl | MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.83 / 0.10		
		G1					**FILL:** Sand and Gravel, brown, moist.			329.63 / 0.30	
		G2				Metals & Inorg. PAHs PHCs VOCs FOC (13:45) (0.41-0.46)	Clay, bark brown, moist medium plasticity, some fine gravel, trace silt and fine sand, trace coarse gravel, trace Fe staining.		329.52 / 0.41		
1		G3					Silty Sand, brown, dense, moist, fine, some coarse gravel and cobbles, trace clay and boulders <45 cm. - Clay lense with clay pottery fragments and coal at 0.61 mbgs.		329.47 / 0.46		
	71	SS1	37				**SILTY SAND:** Brown, dense, moist, fine, some coarse gravel and cobbles, trace clay and boulders <45 cm.		328.41 / 1.52		
2							- 10 cm gravel seal at 1.96 mbgs.				
	63	SS2	37			Metals & Inorg. PAHs PHCs VOCs FOC (08:53) (2.29-2.90)					
3									326.96 / 2.97		
	63	SS3	24				**SAND AND GRAVEL:** Brown and grey, compact, moist, some silt, trace clay, occasional cobbles.				
							- Dense below 3.73 mbgs.				
4	100	SS4	35								
	71	SS5	35			SAR EC FOC (09:18) (4.57-5.18)					
5							Sampler refusal on bedrock at 5.39 mbgs, ream HW casing to 5.66 mbgs, HQ coring begins at 5.66 mbgs.		324.67 / 5.26	324.75 / 5.18	
	100	SS6	50/ 5cm				**GUELPH FORMATION DOLOSTONE:** Buff, fine to medium-grained, fossiliferous, vuggy/pitted, calcite mineralization in vugs, fresh to slightly weathered, medium strong, close to moderately close joint spacing, thickly bedded, extremely to moderately fractured, massive, trace Fe staining in rock matrix.			324.60 / 5.33	
					10+		- Fracture Zone at 5.66 to 5.74 mbgs.				
6	100	RC1		66	10+		- Fe staining in fracture at 5.92 mbgs. - Fracture Zone at 6.15 to 6.22 mbgs. - Fe staining in fracture at 6.22 mbgs.				
					1		- Fresh, moderately fractured to sound below 6.38 mbgs.				
					0		- 1 mm thick black vein at 6.83 mbgs.				
7	100	RC2		83	10+		- Fracture Zone at 7.19 to 7.24 mbgs. - Fe staining in fracture at 7.34 mbgs.				
					0						
					0		- Slightly fractured to sound, no Fe staining below 7.90 mbgs.				

BOREHOLE/COREHOLE COMPLETION DETAILS: Flushmount casing secured in concrete; 210 mm borehole; Bentonite seal; #3 silica sand filter pack; 96 mm corehole; 50 mm diameter SCH 40 PVC pipe,#10-slot well screen

ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400 — 2.6, 6.4, 8.0, 0.8, 0.5, 0.2, 1.5, 0.1, 0.2

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

IMICO_MW_(FT); BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF MONITORING WELL: MW100

CLIENT: City of Guelph | DATE DRILLED: August 22, 2019 | GROUND ELEVATION: 329.93 masl | NORTHING: 0560474.8

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.84 masl | EASTING: 4821807.2

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 322.46 masl | MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
9	100	RC3		100	2		- Fe staining in fracture at 8.00 mbgs.				
					0		- 1 mm thick black vein at 8.21 and 9.32 mbgs. - 25 mm vug with calcite mineralization at 8.25 mbgs.			321.40 / 8.53	
					0					321.24 / 8.69	Bentonite seal
					1						
					0		- Fresh to slightly weathered, weak to medium strong, moderately fractured to sound below 9.42 mbgs.				
10					0						
	100	RC4		90	0						
					1						
					2		- Trace Fe staining in rock matrix below 10.57 mbgs. - 20 mm vug at 10.67 mbgs. - Fracture Zone at 10.69 to 10.77 mbgs.				
11					0		- Close to moderately close joint spacing below 10.97 mbgs. - 1 mm thick black vein at 11.05 and 11.07 mbgs. - Increased vug density at 11.07 to 11.28 mbgs. - 65 mm vug at 11.15 mbgs.				
					0						
	100	RC5		100	0						
12					1		- Fe staining in fracture at 12.09 mbgs.				
					0						
					0						
	100	RC6		100	1						
13							- 30 mm vug at 13.23 mbgs. - Fe staining in fracture at 13.21 mbgs.		316.67 / 13.26	316.67 / 13.26	
							Bottom of corehole at 13.26 mbgs - 0 to 1.52 mbgs completed via test pit excavation on July 24, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.				
14											
15											

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW101

CLIENT: City of Guelph
DATE DRILLED: August 21, 2019
GROUND ELEVATION: 328.68 masl
NORTHING: 0560553.9
LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 328.52 masl
EASTING: 4821749.6
PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 321.14 masl
MOE WELL TAG#: A268718
LOGGED BY: J. Rybicki/V. Peters
DRILL METHOD: 108 mm HSA, HQ water core
WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
									328.58 / 0.10		100 200 300 400
		G1					**FILL:** Sand and Gravel, black and brown, moist, some brick asphalt and glass.		328.35 / 0.33	328.38 / 0.30	
		G2					Clay, brown, moist, medium plasticity, some coarse gravel, trace fine sand and silt.		328.30 / 0.38		
		G3				Metals & Inorg. PAHs PHCs VOCs (12:30) (0.46-0.61)	Silty Clay and Sand and Gravel, moist, trace cobbles.		328.02 / 0.66		
1		G4					Ash, demolition debris, metal fragments, Fe staining.				
									327.08 / 1.60		
	21	SS1	5				**SILTY SAND:** Brown, compact, moist, coarse sand, trace clay, trace coarse gravel and cobbles.				
2											
	71	SS2	23			Metals & Inorg. PAHs PHCs VOCs (08:54) (2.29-2.90)					
3							- Frequent cobbles, dense, below 2.97 mbgs.				
	63	SS3	48								
							- Gravelly, occasional cobbles, very dense below 3.73 mbgs.				
4	100	SS4	90								
	72	SS5	50/ 13cm								
5							- Some gravel below 5.18 mbgs.				
	100	SS6	50/ 10cm							323.19 / 5.49	
6							- Sampler refusal on bedrock at 6.27 mbgs, ream HW casing to 6.40 mbgs, HQ coring begins at 6.40 mbgs.				
	100	SS7	50/ 3cm			SAR (09:37) (6.10-6.25)			322.41 / 6.27	322.41 / 6.27	
					10+		**GUELPH FORMATION DOLOSTONE:** Buff, fine to medium-grained, fossiliferous , vuggy/pitted, calcite mineralization in vugs, slightly weathered, medium strong, close to moderately close joint spacing, thickly bedded, extremely to slightly fractured, massive.				
					10+		- Fracture zone at 6.40 to 6.71 mbgs.				
7							- Black and yellow secondary mineralization at 6.78 mbgs.				
	93	RC1		63	0						
					4		- 10 cm vertical fracture with Fe staining at 7.39 mbgs.				
					0		- Trace Fe staining in rock matrix 7.47 to 8.66 mbgs.				
							- Fe staining in fracture at 7.52 mbgs.				

BOREHOLE/COREHOLE COMPLETION DETAILS:
- Flushmount casing secured in concrete
- 210 mm borehole Bentonite seal
- #3 silica sand filter pack
- 50 mm diameter SCH 40 PVC pipe,#10-slot well screen
- 96 mm corehole

ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 2.5, 3.9, 9.1, 8.4, 0.0, 0.3, 0.0, 0.0, 0.0, 0.0, 0.0

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW101

CLIENT: City of Guelph | DATE DRILLED: August 21, 2019 | GROUND ELEVATION: 328.68 masl | NORTHING: 0560553.9

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 328.52 masl | EASTING: 4821749.6

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 321.14 masl | MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
9	100	RC2		81	0		- Fresh to slightly weathered, moderately fractured to sound below 7.92 mbgs.				100 200 300 400
					2		- 1 mm thick black veins at 8.03, 8.92, and 9.12 mbgs.				
					6		- Fe staining in fracture at 8.56 mbgs. - Fe staining in fracture at 8.59 mbgs.			319.92 / 8.76	
					0		- Increased vug density from 8.58 to 8.67 mbgs.			319.76 / 8.92	
					1					Bentonite seal	
10					1		- Black and yellow secondary mineralization at 9.81 and 10.52 mbgs.				
	100	RC3		94	3						
					2						
					1						
11					1		- Fresh, sound below 11.05 mbgs.				
					0						
	100	RC4		100	0						
12					0						
					1						
					10+		- 1 mm thick black vein at 12.50 mbgs. - Fracture zone at 12.67 to 12.75 mbgs.				
13	100	RC5		90	0						
					0				315.35 / 13.34	315.35 / 13.34	
							Bottom of corehole at 13.34 mbgs - 0 to 1.60 mbgs completed via test pit excavation on July 26, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.				
14											
15											

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW102A

CLIENT: City of Guelph | DATE DRILLED: August 27, 2019 | GROUND ELEVATION: 329.49 masl | NORTHING: 0560437.7 | Page 1 of 1

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.35 masl | EASTING: 4821899.0

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 325.12 masl | MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.37 / 0.12		
							FILL: Sand and Gravel, brown, moist, trace silt.			329.19 / 0.30	
											Flushmount casing secured in concrete
											Bentonite seal
									329.03 / 0.46		
							Sandy Clay, brown, moist, medium plasticity, trace coarse gravel and cobbles.		328.80 / 0.69		
1							Sand, moist, coarse, trace fine sand and silt, trace organics and Fe staining.				
									328.40 / 1.09		
							Silty Clay, black, moist, medium plasticity, trace sand, trace nails and wood debris.		328.25 / 1.24		
							Clayey Silt, light brown, moist, some fine sand, trace coarse sand and fine gravel, trace Fe staining.		327.97 / 1.52		
							Silty sand, brown, loose, moist, trace gravel, trace clay, iron oxidation.				
2										327.51 / 1.98	
											#3 silica sand filter pack
									327.28 / 2.21		50 mm diameter SCH 40 PVC pipe,#10-slot well screen
							SAND: Brown, compact, moist, trace silt, trace gravel.				
3									326.52 / 2.97		
							SANDY CLAYEY SILT TILL: Brown, very stiff, moist to wet, trace gravel.				
4							- Stratified sand seams, wet below 3.81 mbgs.				
5							- Some sand, hard, moist below 5.03 mbgs.			324.31 / 5.18	
							Bottom of corehole at 5.33 mbgs - Lithology inferred from adjacent borehole MW102B.		324.16 / 5.33	324.16 / 5.33	
6											
7											

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

IMICO_MW_(FT); BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF MONITORING WELL: MW102B

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: J. Rybicki/V. Peters

DATE DRILLED: August 26, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA, HQ water core

GROUND ELEVATION: 329.52 masl
TOP OF PIPE: 329.42 masl
WATER ELEVATION: 321.43 masl
WATER LEVEL DATE: September 18, 2019

NORTHING: 0560436.3
EASTING: 4821899.7
MOE WELL TAG#: A268718

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.40 / 0.12		
		G1					**FILL:** Sand and Gravel, brown, moist, trace silt.		329.22 / 0.30	Flushmount casing secured in concrete	1.4
		G2				Metals & Inorg. PAHs PHCs VOCs (15:45) (0.51-0.63)	Sandy Clay, brown, moist, medium plasticity, trace coarse gravel and cobbles.		329.06 / 0.46	210 mm borehole Bentonite seal	2.9
1							Sand, moist, coarse, trace fine sand and silt, trace organics and Fe staining.		328.83 / 0.69		
		G3					Silty Clay, black, moist, medium plasticity, trace sand, trace nails and wood debris.		328.43 / 1.09		0.4
							Clayey Silt, light brown, moist, some fine sand, trace coarse sand and fine gravel, trace Fe staining.		328.28 / 1.24		
							Silty sand, brown, loose, moist, trace gravel, trace clay, iron oxidation.		328.00 / 1.52		
	75	SS1	7								0.0
2											
									327.31 / 2.21		
	58	SS2	13			Metals & Inorg. PAHs PHCs VOCs FOC (08:45) (2.29-2.90)	**SAND:** Brown, compact, moist, trace silt, trace gravel.				0.2
3									326.55 / 2.97		
	79	SS3	17				**SANDY CLAYEY SILT TILL:** Brown, very stiff, moist to wet, trace gravel.				0.1
						Metals & Inorg. PAHs PHCs VOCs FOC (08:57) (3.81-4.42)	- Stratified sand seams, wet below 3.81 mbgs.				
4	100	SS4	12								0.2
	58	SS5	24								0.2
5							- Some sand, hard, moist below 5.03 mbgs.				
							- Grey below 5.33 mbgs.				
	100	SS6	63								0.1
6											
	100	SS7	63								0.0
									322.51 / 7.01		
7	100	SS8	50/ 13cm				**SANDY SILT:** Brown, very dense, moist, trace clay, trace gravel.				0.2
	100	SS9	50/ 13cm			SAR EC FOC (09:44)	- Dolomite fragments below 7.62 mbgs.				
	100	~~SS10~~	50/	100			- Sampler refusal on bedrock at 7.90 mbgs, ream HW casing to 7.93 mbgs, HQ coring begins at 7.93 mbgs.		321.62 / 7.90	321.62 / 7.90	
										96 mm corehole	

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

IMICO_MW_(FT); BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF MONITORING WELL: MW102B

CLIENT: City of Guelph
DATE DRILLED: August 26, 2019
GROUND ELEVATION: 329.52 masl
NORTHING: 0560436.3

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 329.42 masl
EASTING: 4821899.7

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 321.43 masl
MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki/V. Peters
DRILL METHOD: 108 mm HSA, HQ water core
WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
		RC1	3cm		0	(7.62-7.92)	**GUELPH FORMATION DOLOSTONE:** Buff, fine to medium-grained, vuggy/pitted, fossiliferous, calcite mineralization in vugs, fresh to slightly weathered, medium strong, close to moderately close joint spacing, thickly bedded, slightly fractured to sound, massive.				
					1						
					0						
	100	RC2		94	2					320.83 / 8.69	
9					0						
					0						
					0						
10					1						
	100	RC3		100	0					319.16 / 10.36	
					2		- Increased vug density at 10.5 to 10.6 mbgs.			319.00 / 10.52	
					0					318.85 / 10.67	
11					2		- Fresh, moderately fractured to sound below 10.95 mbgs.				
					0		- Increased vug density and calcite mineralization at 11.23 to 11.28 mbgs.				
	100	RC4		95	2						
12					1						
					1						
					2		- Fe staining in fracture at 12.57 mbgs.				
13					2						
	100	RC5		89	2		- 28 cm vertical fracture at 13.13 mbgs.				
					2		- Fe staining in fracture at 13.54 mbgs. - 10 cm vertical fracture at 13.54 mbgs.		315.88 / 13.64	315.88 / 13.64	
14							Bottom of corehole at 13.64 mbgs - 0 to 1.32 mbgs completed via test pit excavation on July 23, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.				
15											

#3 silica sand filter pack
50 mm diameter SCH 40 PVC pipe,#10-slot well screen

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW103

CLIENT: City of Guelph | DATE DRILLED: August 14, 2019 | GROUND ELEVATION: 329.52 masl | NORTHING: 0560449.6

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.34 masl | EASTING: 4821888.4

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 325.38 masl | MOE WELL TAG#: A268718

LOGGED BY: A. Vermeersch/M. Shiry | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.40 / 0.12	329.22 / 0.30	100 200 300 400
		G1					**FILL:** Sand and Gravel, brown, moist, fine to coarse sand and gravel, trace silt.			Flushmount casing secured in concrete	9.5
							- Increased coarse gravel below 0.41 mbgs.			Bentonite seal	
		G2				Metals & Inorg. PAHs PHCs VOCs FOC (09:40) (0.56-0.71)			328.96 / 0.56		8.3
1	17	SS1	4				Silty Clay, brown, top 15 cm dark brown, moist high plasticity, trace sand, trace organics and Fe staining.				1.3
							SILTY SAND: Brown, loose, dry, fine to medium sand, some clay, trace fine gravel.		328.00 / 1.52		
	50	SS2	9							327.69 / 1.83	3.4
2										#3 silica sand filter pack	
									327.23	50 mm diameter SCH 40 PVC pipe,#10-slot well screen	
							SAND: Brown and white, moist, medium to coarse.		2.29		
	58	SS3	12				**CLAYEY SILT:** Brown, stiff, moist, medium to high plasticity, trace fine sand, trace fine gravel.		327.18 / 2.34		3.4
3									326.47		
							SANDY SILT: Brown, stiff to hard, moist to very moist, low to medium plasticity, fine, trace fine gravel.		3.05		
	63	SS4	12								3.7
						Metals & Inorg. PAHs PHCs VOCs FOC (14:50) (3.81-4.27)	- Wet below 3.81 mbgs.				
4	58	SS5	31								7.7
									325.25		
							SILT: Brown, very stiff to hard, dry, low plasticity, trace fine sand, trace clay.		4.27		
	100	SS6	50+								4.8
5							- Grey below 4.88 mbgs.				
										324.34 / 5.18	
						Metals & Inorg. PAHs PHCs VOCs FOC (15:11) (5.33-5.94)			324.19 / 5.33		
	100	SS7	50+				- 8 cm seam Silty Sand, brown, moist, fine at 5.41 mbgs. - Increased sand, brown mottling below 5.49 mbgs.				4.9
6											
	100	SS8	46								2.2
						SAR EC (15:36) (6.86-7.47)					
7	75	SS9	50+								2.1
		SS10	50/ 15cm								
							Bottom of corehole at 7.77 mbgs - 0 to 1.00 mbgs completed via test pit excavation on July 22,		321.75 / 7.77	321.75 / 7.77	

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

IMICO_MW_(FT); BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

RECORD OF MONITORING WELL: MW103

CLIENT: City of Guelph | DATE DRILLED: August 14, 2019 | GROUND ELEVATION: 329.52 masl | NORTHING: 0560449.6

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.34 masl | EASTING: 4821888.4

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 325.38 masl | MOE WELL TAG#: A268718

LOGGED BY: A. Vermeersch/M. Shiry | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
							2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion. - Auger and split spoon refusal at 7.77 mbgs on bedrock.					
9												
10												
11												
12												
13												
14												
15												

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW104

CLIENT: City of Guelph | DATE DRILLED: August 13, 2019 | GROUND ELEVATION: 329.79 masl | NORTHING: 0560460.4

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.64 masl | EASTING: 4821866.9

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 321.24 masl | MOE WELL TAG#: A268718

LOGGED BY: A. Vermeersch/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.67		
							FILL: Sand and Gravel, brown, moist, fine to coarse sand and gravel, trace silt. - Increased coarse gravel below 0.28 mbgs.		0.12	329.49 0.30	
		G1									6.7
		G2				Metals & Inorg. PAHs ABNs PHCs VOCs (11:40) (0.61-0.91)			329.18 0.61		9.5
1	46	SS1	11				Silty Sand, brown, moist, fine, some gravel and cobbles.				9.1
	67	SS2	23						327.96		9.1
							SAND: Brown, moist, fine to coarse, trace silt.		1.83		
2						Metals & Inorg. PAHs ABNs PHCs VOCs (15:12) (2.13-2.74)			327.66 2.13		
	100	SS3	39				**SANDY SILT:** Brown, dry, hard, high plasticity, fine sand, some clay, trace gravel.				12.4
3									326.59		
	81	SS4	50/ 10cm				**SILTY SAND:** Brown dense, dry, fine to medium, trace clay and fine gravel.		3.20		7.1
									326.13		
							SILT: Dark grey, hard, dry, low plasticity, some clay.		3.66		
4	96	SS5	50+								6.8
						Metals & Inorg. PAHs ABNs PHCs VOCs (15:44) (4.57-5.18)					
5	100	SS6	46								8.4
	23	SS7	50/ 13cm								6.7
										324.00 5.79	
6						SAR EC (16:16) (6.10-6.71)			323.54		
	92	SS8	14				**SANDY CLAYEY SILT TILL:** Brown, hard, moist, medium plasticity, trace fine gravel, some mottling.		6.25		2.1
							SAND: Brown with some black and white, moist, medium grained.		323.39 6.40		
									323.08		
							SANDY CLAYEY SILT TILL: Brown, moist, medium plasticity, trace fine gravel, some mottling. - Sampler refusal on bedrock at 7.01 mbgs, auger to 7.14 mbgs, ream HW casing to 7.62 mbgs, HQ coring begins at 7.16 mbgs.		6.71		
7	233	SS9	50/ 0cm						322.78 7.01		3.4
					1		**GUELPH FORMATION DOLOSTONE:** Buff to light brown/grey, fine to medium grained, fresh to slightly weathered, moderately close to close joint spacing, thinly bedded, extremely fractured to sound, frequent 1 to 4 mm vugs with calcite lining.			322.65 7.14	
	100	RC1		82	0						
					0						

Flushmount casing secured in concrete
210 mm borehole
Bentonite seal
#3 silica sand filter pack
50 mm diameter SCH 40 PVC pipe,#10-slot well screen
96 mm corehole

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW104

CLIENT: City of Guelph
DATE DRILLED: August 13, 2019
GROUND ELEVATION: 329.79 masl
NORTHING: 0560460.4

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 329.64 masl
EASTING: 4821866.9

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 321.24 masl
MOE WELL TAG#: A268718

LOGGED BY: A. Vermeersch/V. Peters
DRILL METHOD: 108 mm HSA, HQ water core
WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
9	98	RC2		98	0 1 1 1 0		- Fresh, sound below 8.00 mbgs. - Fe staining in fracture at 8.28 and 8.66 mbgs.			320.80 8.99 320.65 9.14 320.57 9.22 320.27 9.53	100 200 300 400
10							Bottom of corehole at 9.53 mbgs - 0 to 0.91 mbgs completed via test pit excavation on July 22, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.		320.27 9.53		
11											
12											
13											
14											
15											

Bentonite seal

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW105

CLIENT: City of Guelph | DATE DRILLED: August 13, 2019 | GROUND ELEVATION: 330.10 masl | NORTHING: 0560450.9

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.99 masl | EASTING: 4821820.9

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 321.72 masl | MOE WELL TAG#: A268718

LOGGED BY: A. Vermeersch | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
							ASPHALT:		330.05 / 0.05		
	63	SS1	33				**FILL:** Sand and Gravel, brown, medium dense, dry, fine and medium sand, fine gravel, trace silt.			329.80 / 0.30	4.9
1	42	SS2	15								7.7
						Metals & Inorg. PAHs ABNs PHCs VOCs (08:38) (1.52-2.13)	Gravel, dark brown, moist, fine, some coarse sand, brick fragments increasing with depth.		328.58 / 1.52		
	46	SS3	50/ 8cm				- 25 cm concrete at 1.88 mbgs.				9.6
2							Silty Sand, brown, dense, dry, fine to medium, trace fine gravel, trace clay.		327.97 / 2.13		
	93	SS4	28								9.6
3						Metals & Inorg. PAHs ABNs PHCs VOCs (09:02) (3.05-3.66)					
	88	SS5	38								5.2
							CLAYEY SILT TILL: Brownish grey, dry, medium to high plasticity, trace fine sand, trace fine gravel, dark brown mottling.		326.44 / 3.66		
4	100	SS6	50+								3.7
						Metals & Inorg. PAHs ABNs PHCs VOCs (09:22) (4.57-5.18)					
	100	SS7	41								6.5
5										324.77 / 5.33	
	94	SS8	50/ 10cm								4.5
							- 20 cm cobble at 5.74 mbgs.				
6							**SILTY SAND:** Brown, dense, dry, fine to medium sand, trace fine gravel, trace clay.		324.16 / 5.94		
	106	SS9	50/ 13cm				- 30 cm boulder at 6.25 mbgs.				3.6
						SAR EC (09:42) (6.55-6.71)	- Sampler refusal on bedrock at 6.86 mbgs, ream HW casing to 7.42 mbgs, HQ coring begins at 6.86 mbgs.				
	0	SS10	50/ 5cm		1				323.24 / 6.86	323.24 / 6.86	
7	94	RC1		50	1		**GUELPH FORMATION DOLOSTONE:** Buff, very weak, slightly weathered to fresh, moderately close to close joint spacing, thinly bedded, fine to medium grained, fossiliferous, frequent vugs 1 to 5 mm; larger vugs have calcite lining. - 23 cm vertical fracture at 7.03 mbgs				
					0		- Fe staining in fracture at 7.42 mbgs.				
					1		- Fresh, slightly fractured to sound, vug size and frequency increased to 1 to 10 mm.				

BOREHOLE/COREHOLE COMPLETION DETAILS:
- Flushmount casing secured in concrete
- 210 mm borehole Bentonite seal
- #3 silica sand filter pack
- 50 mm diameter SCH 40 PVC pipe,#10-slot well screen
- 96 mm corehole

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

RECORD OF MONITORING WELL: MW105

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: A. Vermeersch

DATE DRILLED: August 13, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA, HQ water core

GROUND ELEVATION: 330.10 masl
TOP OF PIPE: 329.99 masl
WATER ELEVATION: 321.72 masl
WATER LEVEL DATE: September 18, 2019

NORTHING: 0560450.9
EASTING: 4821820.9
MOE WELL TAG#: A268718

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
9	100	RC2		98	0 0 2 2		- Vugs <30 mm from 7.92 to 8.23 mbgs. - 30 mm vug at 9.04 mbgs.			321.41 8.69 321.26 8.84	100 200 300 400
							Bottom of corehole at 9.32 mbgs		320.78 9.32	320.78 9.32	

Bentonite seal

10
11
12
13
14
15

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW106

CLIENT: City of Guelph | DATE DRILLED: August 20, 2019 | GROUND ELEVATION: 328.23 masl | NORTHING: 0560496.2

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 328.12 masl | EASTING: 4821729.0

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 321.27 masl | MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		328.15 / 0.08		
		G1				Metals & Inorg. PAHs ABNs PHCs VOCs MeHg (15:30) (0.15-0.46)	**FILL:** Sand and Gravel, black, moist, trace silt, asphalt, brick, mortar, clay pipe.			327.93 / 0.30	Flushmount casing secured in concrete 210 mm borehole Bentonite seal
		G2					Sandy Gravel and Clay, brown, moist, low plasticity, trace cobbles.		327.67 / 0.56		3.3
1						Metals PAHs PHCs MeHg (15:45) (0.61-0.91)	**SAND:** Light brown, moist, coarse, some coarse gravel, some cobbles, trace silt.		327.32 / 0.91		4.8
	67	SS1	34								0.0
2									326.03 / 2.20		
	94	SS2	50/ 10cm			Metals & Inorg. PAHs ABNs PHCs VOCs (08:35) (2.29-2.59)	**GRAVELLY SILTY SAND:** Brown, very dense, moist, trace clay, dolostone fragments (buff and grey), some cobbles.				0.0
3	88	SS3	50/ 13cm								0.0
							- Dense below 3.66 mbgs.				
4	79	SS4	34								0.0
							- Compact below 4.57 mbgs.				
	63	SS5	27								0.0
5							- 17 cm seam buff dolostone at 4.93 mbgs.			323.05 / 5.18	
		SS6	50/ 3cm			SAR EC (09:22) (5.33-5.64)	- Sampler refusal on bedrock at 5.66 mbgs, ream HW casing to 5.69 mbgs, HQ coring begins at 5.69 mbgs.				#3 silica sand filter pack 0.0
					10+		**GUELPH FORMATION DOLOSTONE:** Buff, fine to medium grained, vuggy 1-40 mm, calcite mineralization in vugs, fresh to slightly weathered, medium strong to strong, close to moderately close joint spacing, thickly bedded, extremely fractured to sound, massive, iron oxide staining, fossiliferous.		322.57 / 5.66	322.57 / 5.66	
6	100	RC1		69	0		- Fracture zone at 5.69 to 5.84 mbgs.				50 mm diameter SCH 40 PVC pipe,#10-slot well screen 96 mm corehole
					0		- Large vug (10 mm wide by 20 mm long) at 6.12 mbgs.				
					2		- Slightly fractured to sound, vugs 1-30 mm below 6.50 mbgs.				
7					1						
	100	RC2		100	1		- Increased vug density and water loss at 7.29 to 7.34 mbgs.				
					1						
					0						

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

IMICO_MW_(FT); BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF MONITORING WELL: MW106

CLIENT: City of Guelph | DATE DRILLED: August 20, 2019 | GROUND ELEVATION: 328.23 masl | NORTHING: 0560496.2

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 328.12 masl | EASTING: 4821729.0

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 321.27 masl | MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
9	100	RC3		100	1		- Sound, vugs 1-10 mm below 8.00 mbgs.				100 200 300 400
					1		- 3 mm thick black/yellow vein at 8.36 mbgs.			319.70 / 8.53	
					0		- Increased vug density at 8.53 to 8.94 mbgs.			319.54 / 8.69	
					0						
					1						
					0		- Slightly fractured to sound, vugs 1-20 mm below 9.47 mbgs.				
10					1						
	100	RC4		100	1		- Fe staining in fracture at 10.31 mbgs.				
					1						
					1						
11					0		- Sound, vugs 1-15 mm below 11.05 mbgs.				
					1						
	100	RC5		100	0						
12					1						
					0		- Increased vug density at 12.19 to 12.57 mbgs.				
							Bottom of corehole at 12.57 mbgs - 0 to 1.52 mbgs completed via test pit excavation on July 30, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.		315.66 / 12.57	315.66 / 12.57	
13											
14											
15											

Bentonite seal

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW107

CLIENT: City of Guelph
DATE DRILLED: August 19, 2019
GROUND ELEVATION: 329.17 masl
NORTHING: 0560464.0

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 329.03 masl
EASTING: 4821768.8

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 322.69 masl
MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki
DRILL METHOD: 108 mm HSA, HQ water core
WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.06 / 0.11		100 200 300 400
	46	SS1	14				**FILL:** Sand and Gravel, brown, compact, moist, trace silt, trace cobbles, trace asphalt.			328.87 / 0.30	0.5
1	25	SS2	24			Metals & Inorg. PAHs PHCs VOCs (11:27) (0.76-1.37)					0.7
							Sand, brown, compact, moist, trace silt, trace gravel, few cobbles.		327.72 / 1.45		
	67	SS3	24								0.7
2									326.96 / 2.21		
	63	SS4	65			Metals & Inorg. PAHs PHCs VOCs (11:46) (2.29-2.90)	**SANDY GRAVEL:** Brown, very dense, moist, some silt, trace clay, occasional cobbles.				0.6
3							- Dense below 3.05 mbgs.				
	75	SS5	34								0.2
							- Silty below 3.81 mbgs.				
4	89	SS6	42								0.2
						SAR EC (12:10) (4.57-5.03)	- Very dense below 4.57 mbgs. - Sampler refusal in bedrock at 5.39 mbgs, ream HW casing to 5.41 mbgs, HQ coring begins at 5.41 mbgs.				
	79	SS7	50+						324.19 / 4.98		1.6
5							**GUELPH FORMATION DOLOSTONE:** Buff, fine to medium-grained, vuggy (1-20 mm), calcite mineralization in vugs, fresh to slightly weathered, weak to medium strong rock, close to moderately close joint spacing, thickly bedded, extremely to slightly fractured, massive. - Fracture Zone at 5.41 to 5.61 mbgs.			323.99 / 5.18	
	100	SS8	50/ 8cm		10+					323.78 / 5.39	0.6
	100	RC1		56	4						
6					1		- Fe staining in rock matrix 6.12 to 6.35 mbgs.				
					1		- Vugs 1-30 mm below 6.43 mbgs.				
					0		- More frequent vugs at 6.86 to 6.93 mbgs.				
7	100	RC2		82	2						
					10+		- Fracture Zone at 7.32 to 7.37 mbgs. - Fracture Zone at 7.47 to 7.57 mbgs.				
					2						

Flushmount casing secured in concrete
210 mm borehole Bentonite seal
#3 silica sand filter pack
50 mm diameter SCH 40 PVC pipe,#10-slot well screen
96 mm corehole

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

RECORD OF MONITORING WELL: MW107

CLIENT: City of Guelph
DATE DRILLED: August 19, 2019
GROUND ELEVATION: 329.17 masl
NORTHING: 0560464.0

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 329.03 masl
EASTING: 4821768.8

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 322.69 masl
MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki
DRILL METHOD: 108 mm HSA, HQ water core
WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
9	100	RC3		100	1 2 0 1		- Fresh, medium strong, slightly fractured to sound, vugs 1-35 mm below 7.98 mbgs.			320.79 8.38 320.64 8.53 320.33 8.84	Bentonite seal	
							Bottom of corehole at 9.35 mbgs		319.82 9.35	319.82 9.35		
10												
11												
12												
13												
14												
15												

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW107B

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: M. Shiry

DATE DRILLED: November 20, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 159 mm HSA, 127 mm Air Rotary

GROUND ELEVATION: 329.17 masl
TOP OF PIPE: 329.00 masl
WATER ELEVATION: 322.19 masl
WATER LEVEL DATE: December 18, 2019

NORTHING: 0560464.8
EASTING: 4821768.7
MOE WELL TAG#: A273298

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.06 / 0.11			100 200 300 400
							FILL: Sand and Gravel, brown, compact, moist, trace silt, trace cobbles, trace asphalt.			328.87 / 0.30	Flushmount casing secured in concrete 260 mm borehole Bentonite seal	
1												
									327.72 / 1.45			
							Sand, brown, compact, moist, trace silt, trace gravel, few cobbles.					
2									326.96 / 2.21			
							SANDY GRAVEL: Brown, very dense, moist, some silt, trace clay, occasional cobbles.					
3							- Dense below 3.05 mbgs.					
4							- Silty below 3.81 mbgs.					
							- Very dense below 4.57 mbgs.					
							- HSA to 5.03 mbgs, air rotary begins at 5.03 mbgs.		324.14 / 5.03	324.14 / 5.03		
5							**GUELPH FORMATION DOLOSTONE:** Buff.				127 mm corehole	
6												
7											▼	

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

RECORD OF MONITORING WELL: MW107B

CLIENT: City of Guelph
DATE DRILLED: November 20, 2019
GROUND ELEVATION: 329.17 masl
NORTHING: 0560464.8

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 329.00 masl
EASTING: 4821768.7

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 322.19 masl
MOE WELL TAG#: A273298

LOGGED BY: M. Shiry
DRILL METHOD: 159 mm HSA, 127 mm Air Rotary
WATER LEVEL DATE: December 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
9												
10												
11												
12												
13												
14										315.45 / 13.72	#2 silica sand filter pack 50 mm diameter SCH 40 PVC pipe,#10-slot well screen	
15												
										313.78 / 15.39		
										313.63 / 15.54		
							Bottom of corehole at 15.62 mbgs - Lithology inferred from adjacent boring MW107.		313.55 / 15.62	313.55 / 15.62		

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW108

CLIENT: City of Guelph | DATE DRILLED: August 16, 2019 | GROUND ELEVATION: 329.38 masl | NORTHING: 0560485.9

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.28 masl | EASTING: 4821875.5

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 321.25 masl | MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.26 / 0.12	329.08 / 0.30	
							FILL: Sand and Gravel, red to brown, moist, some cobbles, trace silt, some asphalt in upper 20 cm.				
1		G1									4.4
		G2				Metals & Inorg. PAHs PHCs VOCs Dioxins/Furans FOC (15:15) (1.52-1.83)					7.2
2									327.09 / 2.29		
	71	SS1	32				Sand, brown to grey, dense, moist, some silt, some gravel.				1.7
3	67	SS2	30				- Trace brick below 3.05 mbgs.				1.6
							- Black organic inclusions below 3.61 mbgs.				
4	83	SS3	43			Metals & Inorg. PAHs PHCs VOCs FOC (09:06) (3.81-4.42)			325.47 / 3.91		1.7
							SANDY CLAYEY SILT TILL: Grey, hard, dry, trace gravel.				
5	88	SS4	66								0.0
	100	SS5	90			Metals & Inorg. PAHs PHCs VOCs FOC (09:31) (5.33-5.79)	- Some sand, dry to moist below 5.33 mbgs.				0.0
6	93	SS6	50/ 3cm				- Sampler refusal on bedrock at 6.43 mbgs, ream HW casing to 6.71 mbgs, HQ coring begins at 6.43 mbgs.				0.0
									322.95 / 6.43	322.95 / 6.43	
	82	RC1		82	0		**GUELPH FORMATION DOLOSTONE:** Buff, fine to medium-grained, vuggy, calcite mineralization in vugs, fossiliferous, slightly weathered, medium strong rock, close to moderately close joint spacing, thinly bedded, sound, trace Fe staining in rock matrix.			322.83 / 6.55	
7					2						
					2		- Fresh to slightly weathered, moderately close to wide joint spacing, thinly bedded, slighty fractured to sound below 6.71 mbgs.				
	100	RC2		94	0						
					0						

BOREHOLE/COREHOLE COMPLETION DETAILS:
- Flushmount casing secured in concrete
- 210 mm borehole
- Bentonite seal
- 96 mm corehole
- #3 silica sand filter pack
- 50 mm diameter SCH 40 PVC pipe,#10-slot well screen

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW108

CLIENT: City of Guelph | DATE DRILLED: August 16, 2019 | GROUND ELEVATION: 329.38 masl | NORTHING: 0560485.9

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.28 masl | EASTING: 4821875.5

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 321.25 masl | MOE WELL TAG#: A268718

LOGGED BY: J. Rybicki/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
9	100	RC3		97	0		- Fresh, close joint spacing, medium to thinly bedded 8.03 mbgs.				100 200 300 400
					0						
					1						
					1						
					1						
					1					319.63 / 9.75	
10					0					319.47 / 9.91	
	100	RC4		95	2		- 70 mm vug with calcite lining and 8 cm vertical fracture at 10.29 mbgs.				
					1						
					0						
11					0						
					1						
	100	RC5		98	1		- Fe staining in fractures at 11.61, 11.76, 11.81 and 11.91 mbgs.				
12					2						
					0						
					0						
13					0						
	100	RC6		93	1		- Fe staining in fracture at 13.39 mbgs.				
					2						
					0				315.44 / 13.94	315.44 / 13.94	
14							Bottom of corehole at 13.94 mbgs - 0 to 2.13 mbgs completed via test pit excavation on July 25, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.				
15											

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW109

CLIENT: City of Guelph | DATE DRILLED: August 15, 2019 | GROUND ELEVATION: 329.99 masl | NORTHING: 0560485.3

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 329.91 masl | EASTING: 4821849.8

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 321.70 masl | MOE WELL TAG#: A268718

LOGGED BY: A. Vermeersch/V. Peters | DRILL METHOD: 108 mm HSA, HQ water core | WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.87 / 0.12		
		G1					**FILL:** Sand and Gravel, reddish brown, moist, fine, trace silt.		329.69 / 0.30	329.69 / 0.30	3.6
							Silty Sand, brown, moist, fine, some coarse sand and cobbles, trace boulders <45 cm.			Flushmount casing secured in concrete 210 mm borehole Bentonite seal	
1		G2				Metals & Inorg. PAHs PHCs VOCs Dioxins/Furans (09:30) (0.76-1.07)					4.2
		G3					**SANDY CLAY:** Brown, moist to wet, fine to medium sand, medium plasticity, some coarse sand and coarse gravel, some cobbles, some silt.		328.85 / 1.14		6.2
	71	SS1	11				- Dry to moist, trace cobbles below 1.52 mbgs.				0.0
2											
						Metals & Inorg. PAHs PHCs VOCs FOC (10:42) (2.29-2.90)			327.55		
	83	SS2	30				**SANDY SILT:** Brown, dry, medium plasticity, some clay, trace fine gravel.		2.44		0.0
3											
									326.77		
	88	SS3	50+				**SILTY SAND:** Brown, moist, fine to coarse, trace fine gravel.		3.22 / 326.71		0.2
							SILT: Greyish brown, dry, low to medium plasticity, trace fine sand, trace fine gravel, trace clay.		3.28		
						Metals & Inorg. PAHs PHCs VOCs FOC (11:11) (3.81-4.42)					
4	100	SS4	48				- Increased clay below 4.11 mbgs.				0.4
	92	SS5	50+			SAR (11:20) (4.88-5.18)					0.0
5											
	38	SS6	50/ 10cm				- Auger and split spoon refusal at 5.59 mbgs, ream HW casing to 5.87 mbgs, HQ coring begins at 5.59 mbgs.		324.40	324.40	
					10+		**GUELPH FORMATION DOLOSTONE:** Buff, fine to medium-grained, vuggy, calcite mineralization in vugs, fossiliferous, slightly weathered, medium strong rock, close to moderately close joint spacing, thinly bedded, sound.		5.59	5.59	
6	74	RC1		46	1						96 mm corehole
					0						
					1						
					2					322.98 / 7.01	
7	92	RC2		87	2						#3 silica sand filter pack
					1						50 mm diameter SCH 40 PVC pipe,#10-slot well screen
					0						

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW109

CLIENT: City of Guelph
DATE DRILLED: August 15, 2019
GROUND ELEVATION: 329.99 masl
NORTHING: 0560485.3

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 329.91 masl
EASTING: 4821849.8

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 321.70 masl
MOE WELL TAG#: A268718

LOGGED BY: A. Vermeersch/V. Peters
DRILL METHOD: 108 mm HSA, HQ water core
WATER LEVEL DATE: September 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
9	100	RC3		100	0						100 200 300 400
					0						
					0						
					0						
					1						
10	98	RC4		87	0						
					3						
										319.63 / 10.36	
							Bottom of corehole at 10.52 mbgs - 0 to 1.52 mbgs completed via test pit excavation on July 25, 2019 during archaeological investigation with CASE 580 backhoe, test pit backfilled with excavated material upon completion.		319.47 / 10.52	319.47 / 10.52	
11											
12											
13											
14											
15											

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

IMICO_MW_(FT); BAKER.GPJ; MASTER_LIBRARY_R03.GLB; 431079 - WALLACE.GDT; 5/31/20

JACOBS

RECORD OF MONITORING WELL: MW110A

CLIENT: City of Guelph
DATE DRILLED: November 20, 2019
GROUND ELEVATION: 329.13 masl
NORTHING: 0560499.0

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 328.96 masl
EASTING: 4821775.4

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 321.76 masl
MOE WELL TAG#: A273298

LOGGED BY: M. Shiry
DRILL METHOD: 159 mm HSA, 127 mm Air Rotary
WATER LEVEL DATE: December 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.03 / 0.10			100 200 300 400
							FILL: Silt Sand and Gravel, medium brown, medium dense, moist, fine to coarse sand and gravel, trace coal and cinders.			328.83 / 0.30	Flushmount casing secured in concrete 260 mm borehole Bentonite seal	
1							- Some buff dolostone cobbles below 1.22 mbgs.					
2									326.74 / 2.39			
3							**SAND AND GRAVEL:** Light brown, medium dense, dry to moist, fine to coarse sand and gravel, trace silt.					
4							- Increased silt and gravel below 4.67 mbgs. - HSA to 5.64 mbgs, air rotary begins at 5.64 mbgs.					
5							**GUELPH FORMATION DOLOSTONE:** Buff to greyish buff.		324.20 / 4.93	324.10 / 5.03 ~~323.95~~ / 5.18	127 mm corehole #2 silica sand filter pack 50 mm diameter SCH 40 PVC pipe,#10-slot well screen	
6												
7												

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW110A

CLIENT: City of Guelph
DATE DRILLED: November 20, 2019
GROUND ELEVATION: 329.13 masl
NORTHING: 0560499.0

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 328.96 masl
EASTING: 4821775.4

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 321.76 masl
MOE WELL TAG#: A273298

LOGGED BY: M. Shiry
DRILL METHOD: 159 mm HSA, 127 mm Air Rotary
WATER LEVEL DATE: December 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
										320.75 / 8.38	
							Bottom of corehole at 8.53 mbgs - Lithology inferred from adjacent boring MW110B.		320.60 / 8.53	~~320.60~~ / 8.53	
9											
10											
11											
12											
13											
14											
15											

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW110B

CLIENT: City of Guelph
DATE DRILLED: November 19, 2019
GROUND ELEVATION: 329.13 masl
NORTHING: 0560498.1

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 329.05 masl
EASTING: 4821775.4

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 321.44 masl
MOE WELL TAG#: A273298

LOGGED BY: M. Shiry
DRILL METHOD: 159 mm HSA, 127 mm Air Rotary
WATER LEVEL DATE: December 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		329.03 / 0.10		
	75	SS1	19				**FILL:** Silt Sand and Gravel, medium brown, medium dense, moist, fine to coarse sand and gravel, trace coal and cinders.			328.83 / 0.30	1.8
1	63	SS2	16				- Some buff dolostone cobbles below 1.22 mbgs.				2.0
	17	SS3									2.7
2									326.74 / 2.39		
	67	SS4	16				**SAND AND GRAVEL:** Light brown, medium dense, dry to moist, fine to coarse sand and gravel, trace silt.				2.4
3	58	SS5	50+								3.8
4	58	SS6	25								3.0
	54	SS7	50+				- Increased silt and gravel below 4.67 mbgs. - HSA to 5.64 mbgs, air rotary begins at 5.64 mbgs.		324.20 / 4.93	324.20 / 4.93	2.9
5							**GUELPH FORMATION DOLOSTONE:** Buff to greyish buff.				
	4	SS8	50/ 3cm								
6											
7											

Flushmount casing secured in concrete
260 mm borehole Bentonite seal
127 mm corehole

ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

RECORD OF MONITORING WELL: MW110B

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: M. Shiry

DATE DRILLED: November 19, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 159 mm HSA, 127 mm Air Rotary

GROUND ELEVATION: 329.13 masl
TOP OF PIPE: 329.05 masl
WATER ELEVATION: 321.44 masl
WATER LEVEL DATE: December 18, 2019

NORTHING: 0560498.1
EASTING: 4821775.4
MOE WELL TAG#: A273298

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
9												
10												
11												
12												
13							- Highly permeable rock at 12.80 mbgs.					
14										315.41 / 13.72	#2 silica sand filter pack 50 mm diameter SCH 40 PVC pipe,#10-slot well screen	
15										313.74 / 15.39		
							Bottom of corehole at 15.54 mbgs		313.59 / 15.54	313.59 / 15.54		

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW111

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: V. Peters/M. Shiry

DATE DRILLED: November 18, 2019
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 159 mm HSA, 127 mm Air Rotary

GROUND ELEVATION: 330.20 masl
TOP OF PIPE: 330.01 masl
WATER ELEVATION: 321.09 masl
WATER LEVEL DATE: December 18, 2019

NORTHING: 0560456.7
EASTING: 4821830.2
MOE WELL TAG#: A273298

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
0							**ASPHALT:**		330.07 / 0.13		
							FILL: Sand and Gravel, brown, dry, medium to coarse.			329.90 / 0.30	
									329.59 / 0.61		
1							Sand and Gravel, brown, dry, coarse, trace silt, some cobbles.				
	17	SS1	18						328.37 / 1.83		5.1
2							**SANDY SILT TILL:** Medium brown, moist, medium plasticity, fine sand, trace clay, trace fine gravel, trace medium to coarse sand.				
							- Some fine to coarse gravel, hard below 2.29 mbgs.		327.69 / 2.51		
	75	SS2	50+				**CLAYEY SILT TILL:** Medium brown, moist, hard, high plasticity, trace fine to coarse sand, trace fine to coarse gravel.				5.7
3	92	SS3	38								3.8
4	100	SS4	50+								3.0
	100	SS5	50+								3.0
5	100	SS6	50/ 8cm				- 23 cm dolostone cobble at 5.33 mbgs.				
6	100	SS7	50/ 5cm						324.10 / 6.10		2.4
							GUELPH FORMATION DOLOSTONE: Buff to greyish buff.				
							- HSA to 6.55 mbgs, air rotary begins at 6.55 mbgs.			323.65 / 6.55	
7											

BOREHOLE/COREHOLE COMPLETION DETAILS: Flushmount casing secured in concrete; 260 mm borehole; Bentonite seal; 127 mm corehole

ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

RECORD OF MONITORING WELL: MW111

CLIENT: City of Guelph | DATE DRILLED: November 18, 2019 | GROUND ELEVATION: 330.20 masl | NORTHING: 0560456.7

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 330.01 masl | EASTING: 4821830.2

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 321.09 masl | MOE WELL TAG#: A273298

LOGGED BY: V. Peters/M. Shiry | DRILL METHOD: 159 mm HSA, 127 mm Air Rotary | WATER LEVEL DATE: December 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
9											▼	
10												
11												
12												
13												
14										316.48 / 13.72	#2 silica sand filter pack 50 mm diameter SCH 40 PVC pipe,#10-slot well screen	
15										314.81 / 15.39		
							Bottom of corehole at 15.54 mbgs - 0 to 1.83 mbgs completed via test pit excavation on November 12, 2019 during archaeological investigation with Bobcat E55 excavator, test pit backfilled with excavated		314.66 / 15.54	314.66 / 15.54		

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS

Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW111

CLIENT: City of Guelph
DATE DRILLED: November 18, 2019
GROUND ELEVATION: 330.20 masl
NORTHING: 0560456.7

LOCATION: 55 Baker Street
DRILLER: Aardvark Drilling Inc.
TOP OF PIPE: 330.01 masl
EASTING: 4821830.2

PROJECT NUMBER: CE751900
DRILL RIG: CME 75 Rotary Power
WATER ELEVATION: 321.09 masl
MOE WELL TAG#: A273298

LOGGED BY: V. Peters/M. Shiry
DRILL METHOD: 159 mm HSA, 127 mm Air Rotary
WATER LEVEL DATE: December 18, 2019

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
							material upon completion.					
17												
18												
19												
20												
21												
22												
23												

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: MS
Reviewed by: ET

CH2M HILL Canada Limited

JACOBS

RECORD OF MONITORING WELL: MW113

CLIENT: City of Guelph | DATE DRILLED: April 9, 2020 | GROUND ELEVATION: 328.34 masl | NORTHING: 0560472.8

LOCATION: 55 Baker Street | DRILLER: Aardvark Drilling Inc. | TOP OF PIPE: 328.25 masl | EASTING: 4821735.4

PROJECT NUMBER: CE751900 | DRILL RIG: CME 75 Rotary Power | WATER ELEVATION: 322.78 masl | MOE WELL TAG#: A289787

LOGGED BY: J. Gowing | DRILL METHOD: 108 mm HSA, 102 mm Air Rotary | WATER LEVEL DATE: April 15, 2020

DEPTH (mbgs)	SAMPLES: Recovery (%)	TYPE	SPT (N-value)	RQD (%)	Fractures per 0.3 m	Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID
							ASPHALT:		328.19 / 0.15		
	71	SS1	12				**FILL:** Sand and Gravel, black and dark brown, moist, trace clay and silt, trace asphalt and brick.			328.04 / 0.30	0.4
1	50	SS2	13			Metals & Inorg. PAHs PHCs VOCs (10:50) (0.76-1.37)	- Less gravel and clay below 1.07 mbgs.				0.5
	79	SS3	49				Sandy Gravel, light brown, dry, low plasticity, coarse sand and gravel, some cobbles, trace clay.		326.66 / 1.68		0.6
2						Metals & Inorg. PAHs PHCs VOCs (11:00) (1.98-2.59)					
	79	SS4	23				- Less gravel below 2.44 mbgs. - 15 cm seam sandy silt at 2.59 mbgs.				0.8
3									325.29 / 3.05		
	42	SS5	50/ 10cm				**SAND AND GRAVEL:** Light Brown, dry, very dense, some silt, trace clay, some cobbles.				1.1
4	67	SS6	44				- Cobbles 3.81 to 4.42 mbgs.				1.1
									323.77 / 4.57		
	58	SS7	34				**SILTY SAND:** Brown, moist, dense, fine, trace clay.				0.9
5										323.31 / 5.03	
							GUELPH FORMATION DOLOSTONE: Buff, trace Fe staining.		323.16 / 5.18		
							- HSA to 5.49 mbgs, air rotary begins at 5.49 mbgs.			322.85 / 5.49	
6											
7											

BOREHOLE/COREHOLE COMPLETION DETAILS: Flushmount casing secured in concrete; 210 mm borehole; Bentonite seal; #3 silica sand filter pack; 50 mm diameter SCH 40 PVC pipe,#10-slot well screen; 102 mm corehole

ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: JRG

Reviewed by: ET

CH2M HILL Canada Limited

RECORD OF MONITORING WELL: MW113

CLIENT: City of Guelph
LOCATION: 55 Baker Street
PROJECT NUMBER: CE751900
LOGGED BY: J. Gowing

DATE DRILLED: April 9, 2020
DRILLER: Aardvark Drilling Inc.
DRILL RIG: CME 75 Rotary Power
DRILL METHOD: 108 mm HSA, 102 mm Air Rotary

GROUND ELEVATION: 328.34 masl
TOP OF PIPE: 328.25 masl
WATER ELEVATION: 322.78 masl
WATER LEVEL DATE: April 15, 2020

NORTHING: 0560472.8
EASTING: 4821735.4
MOE WELL TAG#: A289787

DEPTH (mbgs)	SAMPLES: Recovery (%)	SAMPLES: TYPE	SAMPLES: SPT (N-value)	SAMPLES: RQD (%)	SAMPLES: Fractures per 0.3 m	SAMPLES: Parameters Analyzed (time) (sample interval mbgs)	LITHOLOGY & REMARKS	STRATA PLOT	(masl) ELEV. / DEPTH (mbgs)	BOREHOLE/COREHOLE COMPLETION DETAILS: (masl) ELEV. / DEPTH (mbgs)	ORGANIC VAPOUR READING (ppm) 10.6 eV Bulb PID: 100 200 300 400
									320.11 / 8.23		
							Bottom of corehole at 8.38 mbgs		319.96 / 8.38	319.96 / 8.38	
9											
10											
11											
12											
13											
14											
15											

Notes:
1. Information to be used for interpretation of environmental conditions only

Prepared by: JRG
Reviewed by: ET

CH2M HILL Canada Limited

Appendix B

Borehole Logs

Borehole / Monitor Log Symbols

Soils and Rock


Topsoil


Sand


Till - sandy with gravel


Shale


Peat


Silty sand or sandy silt


Till - silty sand or sandy silt with gravel


Limestone or dolostone


Fill, rubble or waste


Silt


Till - clayey silt with gravel


Sandstone


Gravel


Clayey silt or silty clay


Till - silty clay with gravel


Other material or formation


Sand and gravel


Clay

Well Materials


PVC pipe (50 mm)


PVC pipe with grout or cement


PVC pipe with bentonite seal


PVC pipe with sand


PVC screen with # 10 slot


PVC screen with caved native material


PVC screen with filter or sand pack


Steel screen with filter or sand pack


Steel casing


150 mm steel casing with grout


PVC pipe grouted in steel casing


100 mm steel casing with grout

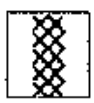

Open hole in bedrock


Backfill or caved native material below well


Sand pack below well


Bentonite seal below well

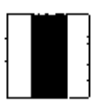
Sample Types


Surface or grab sample

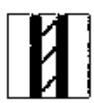

Auger or drill cuttings


Split spoon sample (SS)


Shelby tube sample (ST)


Continuous soil core (CS)


Bedrock core (NQ - 48 mm) (HQ - 64 mm)


Undisturbed


No Recovery

EFS Environmental Field Services

Borehole / Monitor Well Log BH - 1

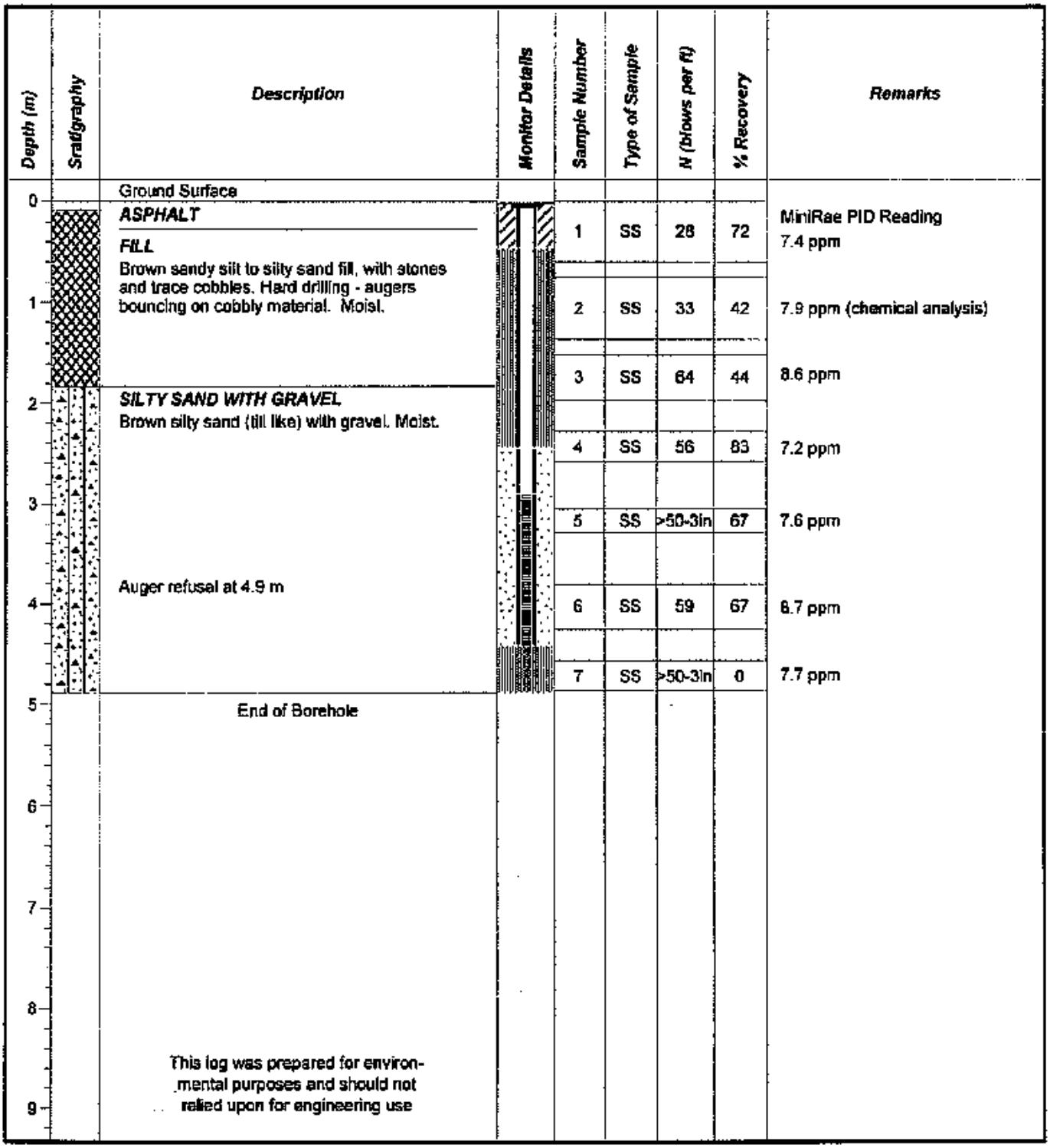
Client : City Of Guelph — *Project No. : 01-114*
Project : Baker Street Parking Lot — *Location : Guelph, ON*
Driller / Rig Type : Strata Drilling Inc, CME 75
Installation Date : June 25, 2001
Ground Elevation : 98.65 (relative) — *Geologist : EK*
Monitor Elevation : na — *Reviewed by : TK*

Depth (m)	Stratigraphy	Description	Monitor Details	Sample Number	Type of Sample	N (blows per ft)	% Recovery	Remarks
0		Ground Surface						
		ASPHALT		1	SS	42	70	MiniRae PID Reading 7.9 ppm
		FILL Brown sandy silt fill, with pieces of construction paper, stony with random pebbles. Moist.		2	SS	76	67	7.6 ppm (chemical analysis)
1				3	SS	52	78	7.3 ppm
2				4	SS	30	67	7.4 ppm (chemical analysis)
3		***SILTY SAND WITH GRAVEL*** Brown silty sand (till like) with gravel. Moist.		5	SS	25-2in		
4		Auger refusal at 5.2 m.		5A	SS	42	61	6.8 ppm (grain size analysis)
				6	SS	72	67	6.7 ppm
5		End of Borehole						Borehole sealed with bentonite
6								
7								
8								
9		This log was prepared for environmental purposes and should not be relied upon for engineering use						

EFS Environmental Field Services

Borehole / Monitor Well Log BH - 2

Client : City of Guelph *Project No. : 01-114*
Project : Baker Street Parking Lot *Location : Guelph, ON*
Driller / Rig Type : Strata Drilling Inc, CME 75
Installation Date : June 25, 2001
Ground Elevation : 98.583 (relative) *Geologist : EK*
Monitor Elevation : 98.463 (relative) *Reviewed by : TK*



This log was prepared for environmental purposes and should not relied upon for engineering use

EFS Environmental Field Services

Borehole / Monitor Well Log BH - 3

Client : City of Guelph *Project No. : 01-114*
Project : Baker Street Parking Lot *Location : Guelph, ON*
Driller / Rig Type : Strata Drilling Inc, CME 75
Installation Date : June 25, 2001
Ground Elevation : 99.435 (relative) *Geologist : EK*
Monitor Elevation : na *Reviewed by : TK*

Depth (m)	Stratigraphy	Description	Monitor Details	Sample Number	Type of Sample	N (blows per ft)	% Recovery	Remarks
0		Ground Surface						
		ASPHALT		1	SS	29	42	MiniRae PID Reading 6.9 ppm
		FILL Brown stony sandy silt to silty sand fill, pieces of red brick, reddish soils, shaly or brick-like material. Moist		2	SS	43	33	5.6 ppm (chemical analysis)
3				3	SS	43	25	6.3 ppm
		SILTY SAND WITH GRAVEL Brown silty sand (till-like) with gravel. Moist.		4	SS	30-2in	25	6.0 ppm (chemical analysis)
				5	SS	74	33	6.3 ppm (grain size analysis)
				6	SS	49	58	6.0 ppm
5		Auger refusal at 5.9 m						
6		End of Borehole						Borehole sealed with bentonite
7								
8								
9		This log was prepared for environmental purposes and should not be relied upon for engineering use						

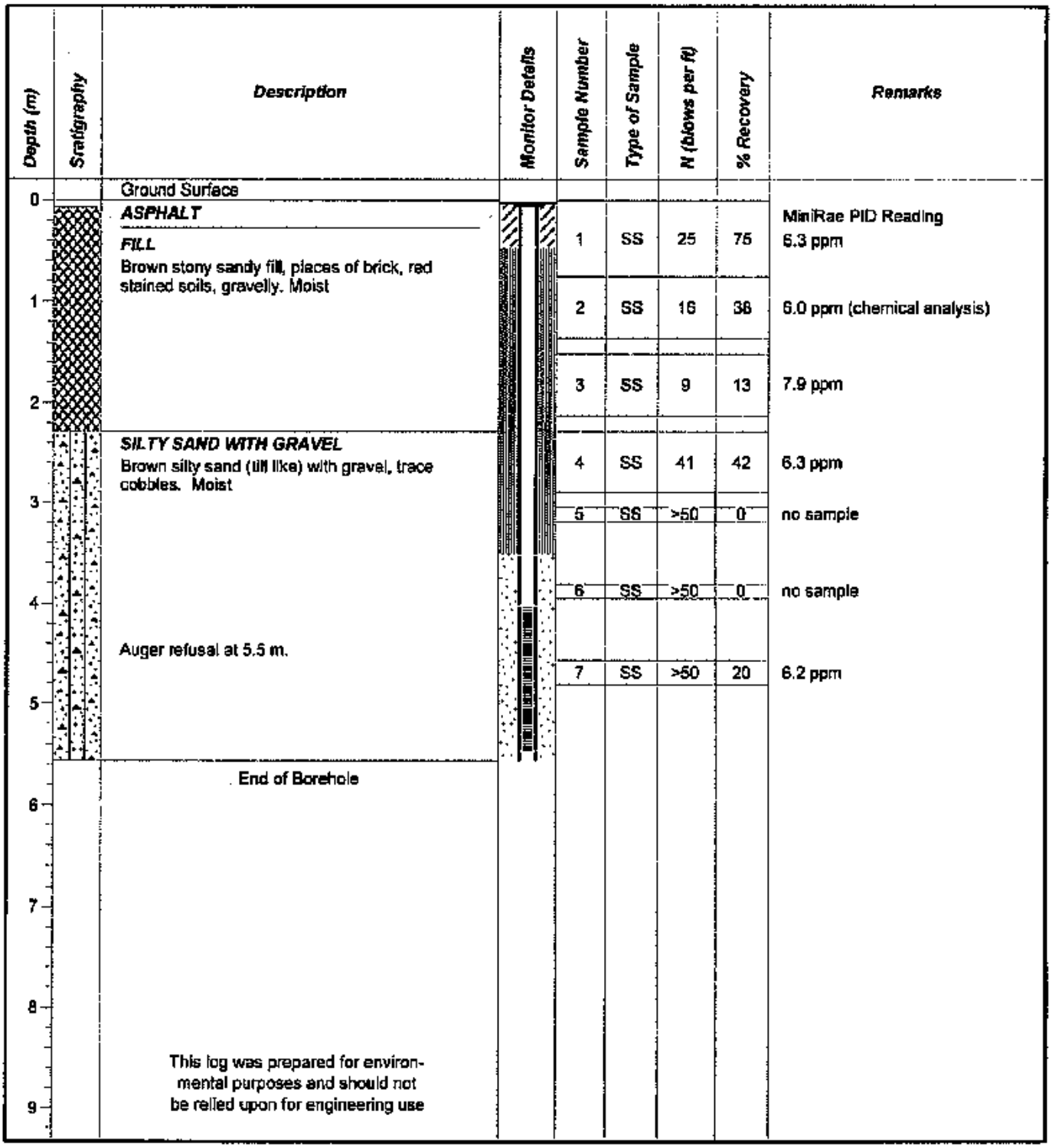
EFS Environmental Field Services

Borehole / Monitor Well Log BH - 4

Client : City of Guelph — *Project No. : 01-114*
Project : Baker Street Parking Lot — *Location : Guelph, ON*

Driller / Rig Type : Strata Drilling Inc, CME 75
Installation Date : June 26, 2001

Ground Elevation : 100.00 (Relative) *Geologist : EK*
Monitor Elevation : 99.91 (Relative) *Reviewed by : TK*



Depth (m)	Stratigraphy	Description	Monitor Details	Sample Number	Type of Sample	N (blows per ft)	% Recovery	Remarks
0		Ground Surface						
		ASPHALT		1	SS	25	75	MiniRae PID Reading 6.3 ppm
		FILL Brown stony sandy fill, places of brick, red stained soils, gravelly. Moist		2	SS	16	38	6.0 ppm (chemical analysis)
2				3	SS	9	13	7.9 ppm
		SILTY SAND WITH GRAVEL Brown silty sand (till like) with gravel, trace cobbles. Moist		4	SS	41	42	6.3 ppm
3				5	SS	>50	0	no sample
4				6	SS	>50	0	no sample
		Auger refusal at 5.5 m.		7	SS	>50	20	6.2 ppm
5		End of Borehole						
6								
7								
8								
9		This log was prepared for environmental purposes and should not be relied upon for engineering use						

EFS Environmental Field Services

Borehole / Monitor Well Log BH - 5

Client : City of Guelph — *Project No. : 01-114*

Project : Baker Street Parking Lot — *Location : Guelph, ON*

Driller / Rig Type : Strata Drilling Inc, CME 75

Installation Date : June 26, 2001

Ground Elevation : 99.77 (Relative) — *Geologist : EK*

Monitor Elevation : na — *Reviewed by : TK*

Depth (m)	Description	Monitor Details	Sample Number	Type of Sample	N (blows per ft)	% Recovery	Remarks
0	Ground Surface						
	ASPHALT						
	FILL Brown sandy silt fill, with stones. Moist.		1	SS	20	67	MiniRae PID Reading 6.2 ppm
1			2	SS	33	42	7.2 ppm (chemical analysis)
			3	SS	37	50	7.9 ppm
2	***SILTY SAND WITH GRAVEL*** Brown silty sand (till like) with gravel, some rust staining. Moist.		4	SS	67	72	9.1 ppm
3			5	SS	>50	44	9.1 ppm
4			6	SS	>50	19	8.1 ppm
	CLAYEY SILT Grey clayey silt (till like), trace rust staining along fractures. Moist.		7	SS	>50	50	9.3 ppm
5							
6	End of Borehole						Borehole sealed with bentonite
7							
8							
9	This log was prepared for environmental purposes and should not be relied upon for engineering use						

EFS Environmental Field Services

Borehole / Monitor Log BH - 6

Client : City of Guelph — *Project No. : 01-114*

Project : Baker Street Parking Lot — *Location : Guelph, ON*

Driller / Rig Type : Strata Drilling Inc, CME 75

Installation Date : June 26, 2001

Ground Elev : 99.40 (Relative) — *Geologist : EK*

Monitor Elev : 99.26 (Relative) — *Reviewed by : TK*

Depth (ft)	Soils or Rock	Description	Monitor Details	Sample Number	Type of Sample	N (blows per ft)	% Recovery	Remarks
0		Ground Surface						
0		***ASPHALT***						
1		***FILL*** Brown sandy silt fill, some clayey silt, trace pieces of asphalt near top. Moist.		1	SS	14	50	MiniRae PID Reading 5.9 ppm
3				2	SS	5	32	6.3 ppm (chemical analysis)
5		***SAND*** Brown silty fine sand. Moist.		3	SS	14	58	5.6 ppm
8		***SANDY SILT*** Brown sandy silt (till like) with occassional and random sand seam up to 4 cm thick (wet to saturated). Becoming grey below 4.9 m and wetter.		4	SS	24	89	6.5 ppm (chemical analysis)
10				5	SS	29	75	5.9 ppm (grain size analysis)
13		Measured depth to water in monitoring well on Jul 6-2001 was 3.72m from top of casing		6	SS	45	89	6.2 ppm
15				7	SS	43	67	5.6 ppm
19		End of Borehole						

This log was prepared for environmental purposes and should not be relied upon for engineering use

EFS Environmental Field Services

Borehole / Monitor Well Log BH - 7

Client : City of Guelph — *Project No. : 01-114*

Project : Baker Street Parking Lot — *Location : Guelph, ON*

Driller / Rig Type : Strata Drilling Inc, CME 75

Installation Date : June 26, 2001

Ground Elevation : 99.80 (Relative) — *Geologist : EK*

Monitor Elevation : na — *Reviewed by : TK*

Depth (m)	Stratigraphy	Description	Monitor Details	Sample Number	Type of Sample	N (blows per ft)	% Recovery	Remarks
0		Ground Surface						
		ASPHALT		1	SS	11	20	MiniRae PID Reading 8.0 ppm
		FILL Brown stony gravelly fill, moist						
1		***SANDY SILT*** Brown sandy silt (till like), minor rust staining throughout. Moist.		2	SS	19	50	8.3 ppm (chemical analysis)
				3	SS	42	42	8.4 ppm
2				4	SS	>50	60	6.6 ppm (chemical analysis)
				5	SS	>50	63	6.7 ppm (grain size analysis)
3								
		Auger refusal at 5.2 m.		6	SS	85	42	7.2 ppm
4				7	SS	>50	46	3.9 ppm
		End of Borehole						Borehole sealed with bentonite
5								
6								
7								
8								
9		This log was prepared for environmental purposes and should not be relied upon for engineering use						

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-1

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: December 3, 2008
Completed: December 3, 2008
Checked By: EF
Logged By: LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0	1	AS	AS	ND		***ASPHALT***	
1						***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	-0.46
2							
3 / 1	2	5	60	0.5		***SW - SAND (FILL)*** Brown, moist, no odour or staining.	
4							
5							
6 / 2	3	9	60	0.3			-2.13
7							
8	4	9	20	1.2		***SM - SILTY SAND*** Brown, damp, no odour or staining.	
9							
10 / 3							-3.20
11	5	29	20	ND		***GW - ANGULAR GRAVEL AND SAND*** Brown, dry, no odour or staining.	
12							-3.96
13 / 4	6	31	40	ND		***ML - SILT*** Brown, dry, no odour or staining.	
14							
15							
16 / 5	7	39	40	ND			
17							
18	8	40	60	ND			
19							
20 / 6							
21	9	50+	10	ND			
22						Auger refusal at 7.01m, gravel, no odour or staining.	-7.01
23 / 7	10	50+	10	ND		***BEDROCK (LIMESTONE)***	
24						End of Borehole	
25							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

For Environmental Purposes Only

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-10

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 27, 2008 **Checked By:** EF
Completed: November 27, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0						***ASPHALT***	-0.03
						SW - SAND AND GRAVEL (FILL) Brown, dry, some small gravel (1cm diameter), no odour or staining.	
1	1	AS	AS	ND			
2						Auger refusal at 0.76m, possible boulder or concrete.	-0.76
						End of Borehole	
3							
1							
4							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-11

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 27, 2008 **Checked By:** EF
Completed: November 27, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0						***ASPHALT***	
1	1	AS	AS	ND		***SW - SAND (FILL)*** Brown, dry, no odour or staining.	
2							
3 / 1	2	14	40	0.7			
4							
5							-1.52
6 / 2	3	38	40	0.4		***SW - SAND*** Light brown, moist, no odour or staining.	
7							
8	4	50+	70	ND			
9							
10 / 3						Some small gravel, dry, no odour or staining.	
11	5	50+	30	ND			
12							-3.66
13 / 4						***ML - SILT*** Light brown, dry, no odour or staining.	
14	6	50+	20	ND			
15							-4.57
	7	50+	5	ND		***BEDROCK (LIMESTONE)*** Dry, auger refusal.	-4.72
16 / 5						End of Borehole	
17							
18							
19							
20 / 6							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-12

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: December 3, 2008
Completed: December 3, 2008
Checked By: EF
Logged By: LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0	1	AS	AS	ND		***ASPHALT***	
1						***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour staining.	-0.61
2							
3 / 1	2	2	50	0.4		***SW - SAND (FILL)*** Brown, moist, no odour or staining.	
4							
5							
6 / 2	3	6	60	0.8			-2.13
7							
8	4	11	60	ND		***SM - SILTY SAND*** Brown, moist, no odour or staining.	-2.74
9							
10 / 3						***SW - SAND AND GRAVEL*** Brown, dry, trace silt, no odour or staining.	
11	5	16	20	ND		Grey at 3.35 m, no odour or staining.	-3.66
12							
13 / 4	6	30	40	ND		***ML - SILT*** Brown, dry, hard, no odour or staining.	
14							
15							
16 / 5	7	39	40	ND			
17							
18	8	37	60	ND			
19							
20 / 6							
21	9	45	10	ND			
22							
23 / 7	10	50+	10	ND		Auger refusal at 7.16m, possible bedrock (limestone).	-7.16
24						End of Borehole	

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

For Environmental Purposes Only

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-13

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 25, 2008 **Checked By:** EF
Completed: November 25, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0						***ASPHALT***	
1	1	AS	AS	ND		***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	
2							-0.61
3 / 1						***SW - SAND AND GRAVEL (FILL)*** Brown, very hard, dry, no odour or staining.	
	2	50+	30	ND			-1.07
4						***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	
5							
6	3	50+	20	0.6		Auger refusal at 2.0m, possible boulder or concrete, white powder on split spoon.	-1.98
7 / 2						End of Borehole	
8							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

For Environmental Purposes Only

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-14

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 25, 2008 **Checked By:** EF
Completed: November 25, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0						***ASPHALT***	
1	1	AS	AS	ND		***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	-0.61
2						***SW - SAND AND GRAVEL (FILL)*** Brown, very hard, red brick fragments, dry, no odour or staining.	
3 / 1	2	25	30	0.6			
4							-1.52
5	3	50+	5	ND		***GW - GRAVEL (FILL)*** Red brick fragements, dry, no odour or staining. Auger refusal at 1.83m, possible concrete or boulder.	-1.83
6 / 2						End of Borehole	
7							
8							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

For Environmental Purposes Only

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF WELL: BH-15-MW3

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Augers and Tri-Cone Coring
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm Auger /100 mm Coring
Start Date: November 28, 2008 **Checked By:** EF
Completed: December 1, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery (%)	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)	Well Completion	Well Details
						Ground Surface	0.0		
0 / 0	1	AS	AS	0.6		***ASPHALT***		Concrete	Flush Mount Steel Casing
2						***SW - SAND AND GRAVEL (FILL)*** Black brown, dry, no odour or staining.	-0.9		
4	2	4	50	ND		***SW - SAND (FILL)*** Brown, dry, no odour or staining.			
6 / 2	3	10	60	ND			-2.1	Bentonite	
8	4	35	70	ND		***SW - SAND AND GRAVEL*** Brown, dry, no odour or staining.			
10							-3.4		
12	5	33	20	0.2		***SW - SAND AND GRAVEL*** Grey brown, mixed angular gravel, dry, no odour or staining.			
14 / 4	6	21	30	ND			-4.6		
16	7	29	10	ND		***SW - SAND AND GRAVEL*** Brown, trace limestone at 4.6m.	-4.9		
18						***BEDROCK (LIMESTONE)*** White, dry, no odour or staining.			
20 / 6						***BEDROCK (LIMESTONE)*** Air tri-cone coring.		#3 Silca Sand	5cm Dia. Slot 10 Screen
22									
24									
26 / 8									
28									
30						End of Borehole	-9.3		

Groundwater Elevation: 89.945m
T.O.P Elevation: 98.135m

Screening Tool: Photovac 2020 PID

Monitoring Well Log

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF WELL: BH-16 - MW2

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger and Tri-Cone Coring
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm Auger/100 mm Coring
Start Date: November 26, 2008 **Checked By:** EF
Completed: November 28, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery (%)	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)	Well Completion	Well Details
						Ground Surface	0.0		
0 / 0	1	AS	AS	ND		***ASPHALT***		Concrete	Flush Mount Steel Casing
2						***SW - SAND AND GRAVEL (FILL)*** Black brown, dry, no odour or staining.	-0.6		
4	2	3	50	1.1		***SM - SILTY SAND (FILL)*** Brown, dry, trace gravel, no odour or staining.	-1.5		
6 / 2	3	38	25	ND		***SW - SAND AND GRAVEL*** Brown, small gravel 5mm, dry, no odour or staining.		Bentonite	
8	4	22	25	ND		Angular gravel layer from 2.4 to 2.5m.			
10	5	14	20	ND			-3.4		
12						***GM - SILTY SAND AND GRAVEL*** Brown, dry, no odour or staining.			
14 / 4	6	16	30	ND			-4.6		
16	7	50+	10	ND		***SW - SAND AND GRAVEL*** Brown, white limestone from 4.8 to 4.9m, dry, no odour or staining.	-4.9		
18						***BEDROCK (LIMESTONE)*** Air tri-cone coring.		#3 Silca Sand	
20 / 6									5cm Dia. Slot 10 Screen
22									
24									
26 / 8									
28							-8.9		
30						End of Borehole			

Groundwater Elevation: 90.840m
T.O.P Elevation: 98.450m

Screening Tool: Photovac 2020 PID

Monitoring Well Log

XCG Consultants Ltd.

Project #: 5-698-17-02

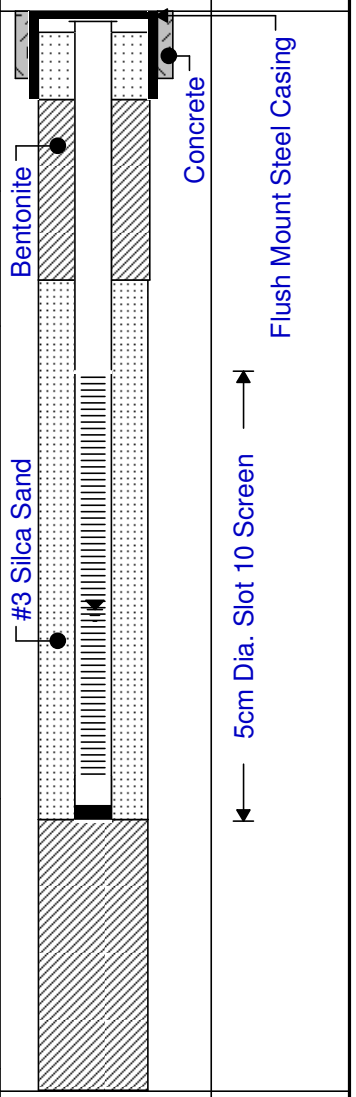
Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF WELL: BH-17-MW5S

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Augeres
Sample Method: Hollow Stem Auger

Borehole Diameter: 203 mm
Start Date: November 27, 2008
Completed: November 27, 2008
Checked By: EF
Logged By: LT

Depth (ft / m)	Sample No.	N-Value	Recovery (%)	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.0
0 / 0	1	AS	AS	ND		***ASPHALT***	
2						***SW - SAND AND GRAVEL (FILL)*** Black brown, dry, no odour or staining.	
4	2	3	50	0.2			-1.2
6 / 2	3	9	25	0.4		***SM - SILTY SAND (FILL)*** Brown, dry, trace gravel, no odour or staining.	-2.1
8	4	8	25	ND		***SM - SILTY SAND*** Brown, dry, no odour or staining.	
10	5	19	20	ND		Wet from 3.4 to 5.3m, no odour or staining.	
12 / 4	6	30	30	ND			
14							
16	7	13	10	ND			-5.3
18	8	29	20	ND		***ML - SILT*** Grey, dry, no odour or staining.	
20 / 6	9	28	50	ND			
22							
	10	28	30	ND		Auger refusal at 7.3m.	-7.2
24						***BEDROCK (LIMESTONE)***	
						End of Borehole	



Well Details

Groundwater Elevation: 94.560m
T.O.P Elevation: 98.610m

Screening Tool: Photovac 2020 PID

Monitoring Well Log

XCG Consultants Ltd.

Project #: 5-698-17-02

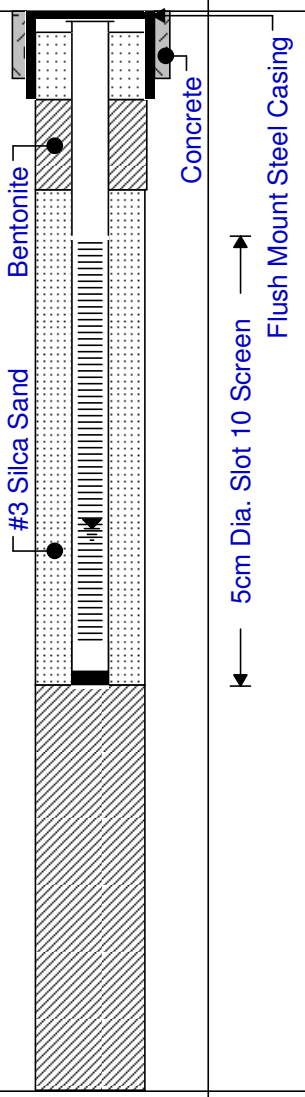
Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF WELL: BH-18-MW1

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split Spoon Method

Borehole Diameter: 203 mm
Start Date: December 2, 2008
Completed: December 2, 2008
Checked By: EF
Logged By: LT

Depth (ft / m)	Sample No.	N-Value	Recovery (%)	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.0
0 / 0	1	AS	AS	1.5		***ASPHALT***	
2						***SW - SAND AND GRAVEL (FILL)*** Black to grey, black sand and trace brick fragments, moist, no odour or staining.	
4	2	4	50	1.2			-1.2
6 / 2	3	4	25	0.6		***SW - SAND (FILL)*** Brown, moist to wet, no odour or staining. Wet at 1.7 metres.	-2.1
8	4	10	25	ND		***SM - SILTY SAND*** Brown, moist to wet, no odour or staining.	
10	5	50+	20	ND		Dry at 3.7m, no odour or staining.	-3.8
12 / 4	6	26	30	ND		***ML - SILT*** Brown to grey, dry, no odour or staining.	
14							
16	7	50+	10	ND			
18	8	50+	20	ND			
20 / 6	9	50+	50	ND			
22	10	50+	30	ND		Auger refusal at 7.3m, some gravel.	-7.3
24						End of Borehole	



Groundwater Elevation: 94.855m
T.O.P Elevation: 98.365m

Screening Tool: Phtotovac 2020 PID

Monitoring Well Log

XCG Consultants Ltd.

Project #: 5-698-17-02

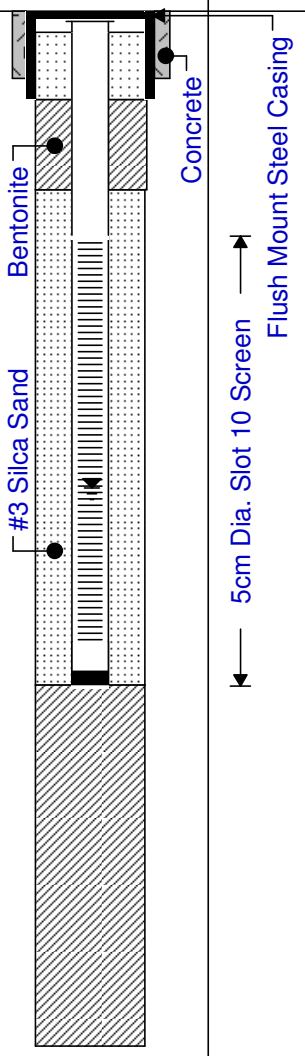
Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF WELL: BH-19-MW6

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Augers
Sample Method: Split Spoon Method

Borehole Diameter: 203 mm
Start Date: December 3, 2008
Completed: December 3, 2008
Checked By: EF
Logged By: LT

Depth (ft / m)	Sample No.	N-Value	Recovery (%)	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)	Well Completion	Well Details
						Ground Surface	0.0		
0 / 0	1	AAS	AS	ND		***ASPHALT***			
2						***SW - SAND AND GRAVEL (FILL)*** Brown grey, moist, trace brick fragments, no odour or staining	-0.6		
4	2	4	60	0.8		***SW - SAND AND GRAVEL (FILL)*** Black brown, moist, brick fragments, no odour or staining.			
6 / 2	3	5	60	0.3		White cake fill 1.8m to 2.1m.	-2.1		
8	4	25	20	ND		***SW - SAND*** Brown, wet, no odour or staining.			
10	5	32	20	ND		Grey at 3.4m, no odour or staining.	-3.7		
12 / 4	6	40	40	ND		***ML - SILT*** Brown, dry, hard, no odour or staining.			
14									
16	7	40	40	ND					
18	8	50+	60	ND					
20 / 6	9	50+	10	ND					
22						Auger refusal at 7.2m.	-7.0		
	10	50+	10	ND		***BEDROCK (LIMESTONE)*** Dry, no odour or staining.			
24						End of Borehole			



Groundwater Elevation: 94.990m
T.O.P Elevation: 98.230m

Screening Tool: Photovac 2020 PID

Monitoring Well Log

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-2

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: December 2, 2008
Completed: December 2, 2008
Checked By: EF
Logged By: LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0	1	AS	AS	ND		***ASPHALT***	
1						***SW - SAND AND GRAVEL (FILL)*** Brown, wet, no odour or staining.	-0.61
2							
3 / 1	2	4	60	0.8		***SW - SAND AND GRAVEL (FILL)*** Brown, moist, no odour or staining.	
4							
5							-1.52
6 / 2	3	4	60	0.3		***SW - SAND (FILL)*** Brown, wet, no odour or staining.	
7							-2.44
8	4	23	20	ND		***GW - ANGULAR GRAVEL AND SAND*** Grey, dry, no odour or staining.	-2.74
9 / 3						***SW - SAND AND GRAVEL*** Brown, dry, 2cm of gravel, no odour or staining.	
10	5	18	20	ND		Grey at 3.35m, no odour or staining.	-3.66
11						***ML - SILT*** Brown, dry, hard, no odour or staining.	
12 / 4	6	16	40	ND			
13							
14							
15 / 5	7	50+	40	ND			
16							
17							
18 / 6	8	50+	60	ND			
19							
20							
21	9	50+	10	ND			
22							
23 / 7	10	50+	-	ND		Auger refusal at 7.16m.	-7.01
						BEDROCK (LIMESTONE)	
24						End of Borehole	
25							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

For Environmental Purposes Only

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-3

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 27, 2008 **Checked By:** EF
Completed: November 27, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0						***ASPHALT***	
1	1	AS	AS	ND		***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	
2							
3 / 1	2	9	60	0.7			
4							
5							
6 / 2	3	6	60	0.2			
7							
8	4	25	20	ND			
9							
10 / 3							-3.05
11	5	50+	50	ND		***SM - SILTY SAND*** Brown, moist to dry, some small gravel, no odour or staining.	
12							
13 / 4							-3.96
14	6	50+	40	ND		***GM - SILTY GRAVEL*** Brown, very hard, dry, no odour or staining.	
15							-4.57
16	7	33	30	ND		***ML - SILT*** Dark grey, dry, no odour or staining.	
17 / 5							-5.33
18	8	38	20	ND		***ML - SILT*** Brown, moist to wet, no odour or staining.	
19							
20 / 6							
21	9	50+	10	ND		Auger refusal at 6.55m.	-6.55
22						End of Borehole	
23 / 7							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-4

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 26, 2008 **Checked By:** EF
Completed: November 26, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0						***ASPHALT***	
1	1	AS	AS	ND		***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	-0.46
2						***ML - SILT*** Brown, dry, no odour or staining.	
3 / 1	2	11	60	0.5			
4							
5							
6 / 2	3	17	60	0.2			
7							
8	4	50+	40	ND			
9							
10 / 3							
11	5	50+	50	ND		Grey brown at 3.35m, very dry, angular gravel, no odour or staining.	
12							
13 / 4	6	32	20	ND			
14							
15							
16 / 5	7	50+	40	ND			
17							-5.18
						SW - SAND AND GRAVEL Auger refusal at 5.33m.	-5.33
18						***BEDROCK (LIMESTONE)***	
19						End of Borehole	
20 / 6							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

For Environmental Purposes Only

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-5

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 25, 2008 **Checked By:** EF
Completed: November 25, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0						***ASPHALT***	
	1	AS	AS	0.2		***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	
1							
2							-0.61
						SW - SAND AND GRAVEL (FILL) Brown, grey, dry, trace red brick fragments, no odour or staining.	
3	2	6	40	0.8			
1							
4							
5	3	50+	2	ND		Auger refusal at 1.68m, possible concrete.	-1.62
						End of Borehole	
6							
2							
7							
8							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-6

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 25, 2008 **Checked By:** EF
Completed: November 25, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0	1	AS	AS	ND		***ASPHALT***	
1						***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	-0.61
2						***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	
3 / 1	2	5	70	ND			
5	3	8	60	0.7			-2.13
7 / 2	4	13	50	ND		***SW - SAND*** Brown, dry, no odour or staining.	
10 / 3	5	33	30	0.5		Same as above.	
13 / 4	6	45	20	ND			-4.27
14						***BEDROCK (LIMESTONE)*** Dry, no odour or staining.	-4.42
15 / 5						End of Borehole	

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

For Environmental Purposes Only

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-7

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 25, 2008 **Checked By:** EF
Completed: November 25, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0						***ASPHALT***	
						SW - SAND AND GRAVEL (FILL) Brown, dry, no odour or staining.	
1	1	AS	AS	ND			
							-0.61
2						***SW - SAND AND GRAVEL (FILL)*** Brown, angular gravel, very hard, some white powder at 0.91m, stone or bedrock, dry, no odour or staining.	
3 / 1	2	50+	20	ND			
						Auger refusal at 1.22m, possible boulder or concrete, white powder in split spoon.	-1.22
4						End of Borehole	
5							
6							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

For Environmental Purposes Only

XCG Consultants Ltd.

Project #: 5-698-17-02

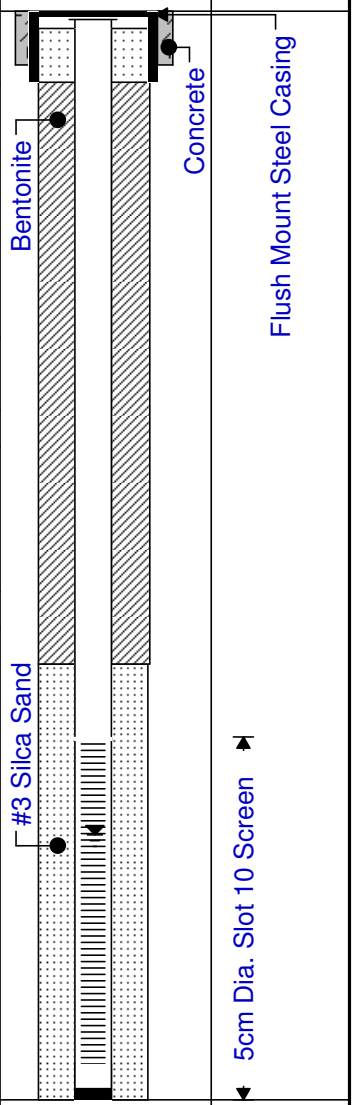
Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF WELL: BH-8-MW4

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger and Tri-Cone Coring
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm Auger / 100 mm Coring
Start Date: November 25, 2008 **Checked By:** EF
Completed: November 28, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery (%)	Vapour Conc (ppm)	Geology Description	Depth/Elev (m)
					Ground Surface	0.0
0 / 0	1	AS	AS	ND	***ASPHALT***	
2					***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	-0.6
4	2	9	70	ND	***SW - SAND*** Light brown, dry, no odour or staining.	
6 / 2	3	16	60	0.5		
8	4	29	50	11		-2.7
10	5	17	40	0.5	***SW - SAND AND GRAVEL*** Brown, angular gravel, white powdery limestone at 3.4m.	-3.4
12 / 4						-3.7
14	6	24	30	ND	***SW - SAND AND GRAVEL*** Grey brown, dry, no odour or staining.	
16	7	36	20	ND	***SW - SAND AND GRAVEL*** Brown, dry, hard, no odour or staining.	-4.9
18	8	50+	10	ND		-5.2
20 / 6					***SW - SAND AND GRAVEL*** Brown, dry, no odour or staining.	
22					***BEDROCK (LIMESTONE)*** Air tri-cone coring from 5.18m to 9.14m.	
24						
26 / 8						
28						
30						-9.1
					End of Borehole	



Groundwater Elevation: 90.935m
T.O.P Elevation: 97.845m

Screening Tool: Photovac 2020 PID

Monitoring Well Log

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF BOREHOLE: BH-9

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm
Start Date: November 26, 2008 **Checked By:** EF
Completed: November 26, 2008 **Logged By:** LT

Depth (ft / m)	Sample No.	N-Value	Recovery %	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)
						Ground Surface	0.00
0 / 0						***ASPHALT***	
1	1	AS	AS	ND		***SW - SAND AND GRAVEL (FILL)*** Brown, dry, no odour or staining.	-0.46
2						***SW - SAND AND GRAVEL*** Brown, dry, no odour or staining.	
3 / 1	2	6	30	ND			
4							
5						Angular gravel from 1.68 to 2.13m.	
6 / 2	3	12	60	0.7			
7							
8	4	30	20	0.2			
9							
10 / 3							
11	5	11	50	ND			-3.35
12						***SW - SAND AND GRAVEL*** Brown, dry, no odour or staining.	
13 / 4	6	15	20	ND			
14							
15							
16 / 5	7	19	40	ND		Limestone at 5.18m. Auger refusal.	-5.15
17						***BEDROCK (LIMESTONE)***	
18						End of Borehole	
19							
20 / 6							

Ground Surface Elevation: NA

Screening Tool: Photovac 2020 PID

For Environmental Purposes Only

XCG Consultants Ltd.

Project #: 5-698-17-02

Project: Phase II ESA
Client: City of Guelph
Location: Baker Street Redevelopment Site

Privileged and Confidential
LOG OF WELL: BH-17-MW5D

Driller: Geo-Environmental Drilling Inc.
Drill Method: Hollow Stem Auger and Tri-Cone Coring
Sample Method: Split-Spoon Method

Borehole Diameter: 203 mm Auger/100 mm Coring
Start Date: December 1, 2008
Completed: December 1, 2008
Checked By: EF
Logged By: LT

Depth (ft / m)	Sample No.	N-Value	Recovery (%)	Vapour Conc (ppm)	Graphic Log	Geology Description	Depth/Elev (m)	Well Completion	Well Details
						Ground Surface	0.0		
0 / 0	1	AS	AS	ND		***ASPHALT***		Concrete	Flush Mount Steel Casing
2						***SW - SAND AND GRAVEL (FILL)*** Black brown, dry, no odour or staining.	-1.2		
4	2	3	50	0.2					
6 / 2	3	9	25	0.4		***SM - SILTY SAND (FILL)*** Brown, dry, trace gravel, no odour or staining.	-2.1	Bentonite	
8	4	8	25	ND		***SM - SILTY SAND*** Brown, dry, no odour or staining.			
10	5	19	20	ND		Wet from 3.4 to 5.3m, no odour or staining.			
12 / 4									
14	6	30	30	ND					
16	7	13	10	ND			-5.3		
18	8	29	30	ND		***ML - SILT*** Grey, dry, no odour or staining.			
20 / 6									
22	9	28	30	ND		Auger refusal at 7.3m.	-7.0		
24	10	28	30	ND		***BEDROCK (LIMESTONE)*** Air tri-cone coring.		#3 Silca Sand	5cm Dia. Slot 10 Screen
26 / 8									
28									
30									
32 / 10									
34							-10.7		
36						End of Borehole			

Groundwater Elevation: 91.060m
T.O.P Elevation: 98.650m

Screening Tool: Photovac 2020 PID

Monitoring Well Log

Appendix D
Investigation Derived Waste Management

TESLA

Environmental Services Inc.
Division of Aevitas Inc.
1740 Brampton St.
Hamilton, ON L8H 3S1

Phone: (905) 679-2597
Fax: (905) 679-2013
Toll Free: (866) 663-6697
C of A 3206-6APJHL

SERVICE/SALES DOCUMENT

WORK ORDER NO. 57221

SERVICE DATE: SEPT 16/19 TIME: 12:30 AM/PM MANIFEST NO: ZL 35537-4 GENERATOR PROV. ID NO: ON3464055

WASTE DESCRIPTION	PRICE PER UNIT	QUANTITY	CHARGE	HST	TOTAL CHARGES

GENERATOR NAME: CITY OF GUELPH
ADDRESS: 55 BAKER STREET
CITY: GUELPH PROV.: ON POSTAL CODE: [illegible]

TRANSPORT	PRICE PER HOUR	TRAVEL TO SITE	TIME ON SITE	TRAVEL TO DISPOSAL SITE	TIME AT DISPOSAL SITE	TRAVEL HOME	TOTAL CHARGES
209		10:30	11:30	12:30			
		11:30	12:30				

BILLING COMPANY: CH2M HILL CANADA LTD
BILLING ADDRESS: 245 CONSUMERS RD. SUITE 400
CITY: TOR PROV.: ON POSTAL CODE: [illegible]
BILLING CONTACT:
PHONE: FAX:
CUSTOMER P.O. NO.: 145001886
SIGNATURE: [signature]

POWER WASH UNIT	PRICE PER HOUR	TRAVEL TO SITE	TIME ON SITE	TRAVEL TO YARD	TOTAL CHARGES
LABOUR					

CHEMICALS/CONSUMABLES / JOB DETAILS

PUMPED OUT 7 HOLES & 1 DRUM

VEHICLE LICENCE PLATE NUMBER: AV5 5346
TRAILER LICENCE PLATE NUMBER:

DRIVER NAME (PRINT): [illegible] DRIVER SIGNATURE: [signature] NEXT SERVICE (DATE): AM/PM

UN NUMBER	PROPER SHIPPING NAME	CLASS	PACKING GROUP	NUMBER OF PACKAGES	QUANTITY (METRIC UNIT)	WASTE CODE
n/a	CORING AND PURGE WATER	n/a	n/a	n/a	7100	146L

RECEIVER SITE: AEVITAS INC RECEIVER NO.: [illegible]
ADDRESS: 36 [illegible] BLVD CITY: BRANTFORD PROV.: ON POSTAL CODE: [illegible]
RECEIVER NAME (PRINT): RECEIVER SIGNATURE: DATE: TIME: AM/PM

BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

aevitas

75 WANLESS COURT, AYR, ONTARIO N0B 1E0
www.aevitas.ca
(519) 740-1333

CARRIER: *AEVITAS INC.*

Carrier's A 108886

Vehicle: 401

Manifest No.

Name: M.K

Date: 05-07-15

Signature:

24 Hour Emergency Response: (866) 856 - 5366

FROM: ☐ same as carrier

Shipper / Consignor: City of London

Street: 55 Baker St

City: London Prov.: On

Postal Code: Tel. No.:

Name: x M. Shields

Signature: x

TO: ☐ same as carrier

Receiver / Consignee: Aevitas

Street:

City: Prov:

Postal Code: Tel. No.:

Name:

Signature:

LAMPS

NO. OF UNITS	PACKAGING				LAMP TYPE										ESTIMATED COUNTS	NO. OF SKIDS	NOTES/WEIGHT
	Cartons/ Boxes	Blue Bins	Luggers	Other	4 Foot Fluores. T8	4 Foot Fluores. T12	4 Foot Fluores. MIX	8 Foot Fluores. T8	8 Foot Fluores. T12	8 Foot Fluores. MIX	HID/ HPS	NC	HAL	LUV	OTHER			

☐ **NON HAZARDOUS** ☐ **DANGEROUS GOODS**

32 Drums of non Haz Solid to Recycle

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the Transportation of Dangerous Goods Regulations.

Name: (Please PRINT) **Signature:**

USED OR LEFT ON SITE

Arrival Time 9:30 **Departure Time** 11:30 **Workers:** 2 **Total Time on Site** 2

☐ Drums ☐ Blue Boxes

☐ Cartons/Boxes Type ☐ Other Type

Notes:

P.O.:

Pursuant to applicable legislation, it is mutually agreed as to each carrier of all or any part of, said property over all or any said portion of said route to destination and as to each party, at any time interested in all or any said property, that every service performed hereunder shall be subject to all bill of lading terms and conditions in the governing classification on the date of shipment.

White Copy – Aevitas Yellow Copy – Receiver Pink Copy – Shipper

MOVEMENT DOCUMENT / MANIFEST
DOCUMENT DE MOUVEMENT / MANIFESTE

ZM35337-4

This Movement document/manifest conforms to all federal and provincial environmental legislation.
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement.

Movement Document / Manifest Reference No.
N° de référence du document de mouvement/manifeste

A Generator / consignor / Producteur / expéditeur — Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial: ON5464098

Company name / Nom de l'entreprise: CITY OF GUELPH

Mailing address / Adresse postale: 245 CONSUMERS RD TORONTO ON M2J1R3

City / Ville — Province — Postal code / Code postal

E-mail / Courrier électronique — Tel. No. / N° de tél.: 5195793500

Shipping site address / Adresse du lieu de l'expédition: 55 BAKER STREET

City / Ville: GUELPH — Province: ON — Postal code / Code postal: N1H4G1

Intended Receiver / consignee (Réceptionnaire / destinataire prévu): AECOM INC — Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial: A100212

Mailing address / Adresse postale: SAME AS BELOW — City / Ville — Province — Postal code / Code postal

E-mail / Courrier électronique — Tel. No. / N° de tél.: 5197527696

Receiving site address / Adresse du lieu de destination: 36 ADAMS BOULEVARD

City / Ville: BRANTFORD — Province: ON — Postal code / Code postal: N3S7V2

B Carrier / Transporteur — Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial: 3206-6APJHL

Company name / Nom de l'entreprise: TESLA ENVIRONMENTAL SERVICES CNC

Mailing address / Adresse postale: 1740 BRAMPTON ST HAMILTON ON L8H 3S1

City / Ville — Province — Postal code / Code postal

E-mail / Courrier électronique — Tel. No. / N° de tél.: 9056792547

Vehicle / Véhicule — Registration No. / N° d'immatriculation — Prov.

Trailer - Rail car No. 1 / 1re remorque - wagon: AV53346 — ON

Trailer - Rail car No. 2 / 2e remorque - wagon:

Port of entry / Point d'entrée (Internal / Usage interne only) — Port of exit / Point de sortie

Carrier Certification: I certify that I have received waste or recyclable material from the generator / consignor for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct. / Attestation du transporteur : J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tels qu'ils figurent à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.

Name of authorized person (print) / Nom de l'agent autorisé (caractères d'imprimerie): Jim Lomax — Tel. No. / N° de tél.: 9056792597

Year / Année: 19 — Month / Mois: 09 — Day / Jour: 16 — Signature

C Receiver / consignee (Réceptionnaire / destinataire) — Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial

Reference Nos. of other movement document(s) / manifest(s) used / N° de référence des autres documents de mouvement/manifeste utilisés

Receiver / consignee information same as in Part A / Les renseignements du réceptionnaire / destinataire sont les mêmes que la Partie A: ☐ Yes / Oui ☐ No, complete the box below / Non, remplir la case ci-dessous

Company name / Nom de l'entreprise

Mailing address / Adresse postale

City / Ville — Province — Postal code / Code postal

E-mail / Courrier électronique — Tel. No. / N° de tél.

Receiving site address / Adresse du lieu de destination

Date received / Date de réception — Year / Année — Month / Mois — Day / Jour — Time / Heure — ☐ A.M. ☐ P.M.

If waste or recyclable material is to be transferred, specify intended company name / Si les déchets ou matières recyclables doivent être transférés, préciser le nom du destinataire — Registration No. / Provincial ID No. / N° d'immatriculation/d'id provincial

(i) Prov. code / Code prov.	(ii) Shipping name / Appellation réglementaire	(iii) Class / Classe Sub. class(es) / Classe(s) subs.	(iv) UN No. / N° NU	(v) Packing / risk gr. / Gr. d'emballage / de risque	(vi) Quantity shipped / Quantité expédiée	(vii) Unit / Cor / Kg / Unités	(viii) Packaging/Container No. / N°	(viii) Codes Int'l — ext.	(ix) Phys. state / Etat phys.
(i)	146 L OTHER INORGANICS	N/R	N/R	N/R	7100	L	01	07	L
(ii)									
(iii)									
(iv)									

Quantity received / Quantité reçue	Units / Cor / Kg / Unités	Comments / Commentaires	Handling Code / Code de manutention	Shipment / Envoi Accepted / Accepté	Refused / Refusé	Decont. Pack. / Cont.	Veh. / Véh.

If handling code "Other" (specify) / Si code de manutention « autre » (spécifier)

(i) Notice No. / N° de notification	Notice Line No. / N° de ligne de la notification	Shipment Envoi	Dir / De	D or R code / Code D ou R	C code / Code C	Basel Annex VIII or OECD Code / Annexe VIII de Bâle ou Code OCDE	H code / Code H	Y code / Code Y	National code in country of / Code de pays: Export / Exportation	Import / Importation	Customs code(s) / Code(s) de douane
(i)											
(ii)											
(iii)											
(iv)											

International use only

Receiver / consignee certification: I certify that the information contained in Part C is correct and complete. / Attestation du réceptionnaire / destinataire : J'atteste que tous les renseignements à la partie C sont exacts et complets.

Name of authorized person (print) / Nom de l'agent autorisé (caractères d'imprimerie)

Signature — Tel. No. / N° de tél.

Special handling / Manutention spéciale: ☐ Attached / Ci-joint ☑ As follows / Ci-contre: 24 HR # 1-866-663-6697

Generator / consignor certification: I certify that the information contained in Part A is correct and complete. I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. / Attestation du producteur / expéditeur : J'atteste que tous les renseignements à la partie A sont exacts et complets. Je déclare que le contenu de ce chargement est décrit ci-dessus de façon complète et exacte par la désignation officielle de transport et qu'il est convenablement classé, emballé, marqué, étiqueté, muni de plaques-étiquettes et à tous égards bien conditionné pour être transporté conformément aux réglementations internationales et nationales applicables.

Name of authorized person (print) / Nom de l'agent autorisé (caractères d'imprimerie): Jacobs as agent for owner City of Guelph — Tel. No. / N° de tél.: +5198221260

Signature

Date shipped / Date d'expédition — Year / Année: 19 — Month / Mois: 09 — Day / Jour: 16 — Time / Heure: 12:30 ☐ A.M. ☑ P.M.

Scheduled arrival date / Date d'arrivée prévue — Year / Année: 19 — Month / Mois: 09 — Day / Jour: 16

Instructions on reverse
Instructions au verso

Copy / Copie 1 (white / blanche)

BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

aevitas

75 WANLESS COURT, AYR, ONTARIO N0B 1E0
www.aevitas.ca
(519) 740-1333

CARRIER: *AEVITAS INC.*

Carrier's A 114865

Vehicle: 401

Manifest No.

Name:

Date: 07-24-20

Signature:

24 Hour Emergency Response: (866) 856 - 5366

FROM: ☐ same as carrier

Shipper / Consignor: City of Guelph

Street: 55 Bristol Street

City: Guelph Prov.: ON

Postal Code: Tel. No.:

Name:

Signature:

TO: ☐ same as carrier

Receiver / Consignee: Aevitas

Street:

City: Prov:

Postal Code: Tel. No.:

Name:

Signature:

LAMPS

NO. OF UNITS	PACKAGING				LAMP TYPE											ESTIMATED COUNTS	NO. OF SKIDS	NOTES/WEIGHT
	Cartons/ Boxes	Blue Bins	Luggers	Other	4 Foot Fluores. T8	4 Foot Fluores. T12	4 Foot Fluores. MIX	8 Foot Fluores. T8	8 Foot Fluores. T12	8 Foot Fluores. MIX	HID/ HPS	INC	HAL	UV	OTHER			

☑ NON HAZARDOUS ☐ DANGEROUS GOODS

02 Non-Hazardous Soil

As per Manifest # CF059388

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the Transportation of Dangerous Goods Regulations.

Name: (Please PRINT) Signature:

USED OR LEFT ON SITE

Arrival Time 11:15 Departure Time Workers: 1 Total Time on Site

☐ Drums ☐ Blue Boxes Notes:

☐ Cartons/Boxes Type ☐ Other Type P.O.:

Pursuant to applicable legislation, it is mutually agreed as to each carrier of all or any part of, said property over all or any said portion of said route to destination and as to each party, at any time interested in all or any said property, that every service performed hereunder shall be subject to all bill of lading terms and conditions in the governing classification on the date of shipment.

White Copy – Aevitas Yellow Copy – Receiver Pink Copy – Shipper

MOVEMENT DOCUMENT / MANIFEST
DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement document/manifest conforms to all federal and provincial environmental legislation.
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement.

Equivalency Certificate SU7498 (Ren. 10)
Equivalency Certificate SU 12427 (Ren 1)

In case of EMERGENCY call 24-HOUR NUMBER 1-888-226-8537

Waybill Document / Manifest Reference No. / N° de référence du document de mouvement/manifeste

CF059389-1

A Generator / consignor / Producteur / expéditeur

Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial: ON5464098

Company name / Nom de l'entreprise: City of Guelph

Mailing address / Adresse postale: City of Guelph, Engineering & Transportation Services, 3A Carden St

City / Ville: Guelph | Province: ON | Postal code / Code postal: N1H 3A9

E-mail / Courrier électronique: N/A | Tel. No. / N° de tél.: ( )

Shipping site address / Adresse du lieu de l'expédition: 55 Baker Street

City / Ville: Guelph | Province: ON | Postal code / Code postal: N1H 4G1

Intended Receiver / consignee / Réceptionnaire / destinataire prévu: Aevitas Inc - Ayr

Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial: 1638-4YGL5B

Mailing address / Adresse postale: 75 Wanless Court | City / Ville: Ayr | Province: ON | Postal code / Code postal: N0B 1E0

E-mail / Courrier électronique: scheduling@aevitas.ca | Tel. No. / N° de tél.: (519) 740-1333

Receiving site address / Adresse du lieu de destination: 75 Wanless Court

City / Ville: Ayr | Province: ON | Postal code / Code postal: N0B 1E0

B Carrier / Transporteur

Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial: A821199

Company name / Nom de l'entreprise: Aevitas Inc

Mailing address / Adresse postale: 75 Wanless Court | City / Ville: Ayr | Province: ON | Postal code / Code postal: N0B 1E0

E-mail / Courrier électronique: | Tel. No. / N° de tél.: (519) 740-1333

Vehicle / Véhicule	Registration No. / N° d'immatriculation	Prov.
Trailer - Rail car No. 1 / 1re remorque - wagon	690 2XR	ON
Trailer - Rail car No. 2 / 2e remorque - wagon		

Port of entry / Point d'entrée (international use only) | Port of exit / Point de sortie (international use only)

Carrier Certification : *I certify that I have received waste or recyclable material from the generator / consignor for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct.*
Attestation du transporteur : *J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tels qu'ils figurent à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.*

Name of authorized person (print) / Nom de l'agent autorisé (caractères d'imprimerie): Mike Bell | Tel. No. / N° de tél.: (519) 740-1333

Year / Année: 2007 | Month / Mois: 24 | Day / Jour | Signature:

C Receiver / consignee / Réceptionnaire / destinataire

Reference Nos. of other movement document(s)/manifest(s) used / N° de référence des autres documents de mouvement/manifestes utilisés:

Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial:

Receiver / consignee information same as in Part A / Les renseignements du réceptionnaire / destinataire sont les mêmes qu'à la Partie A
☐ Yes / Oui ☐ No, complete the box below / Non, remplir la case ci-dessous

Company name / Nom de l'entreprise:
Mailing address / Adresse postale:
City / Ville | Province | Postal code / Code postal
E-mail / Courrier électronique | Tel. No. / N° de tél.: ( )
Receiving site address / Adresse du lieu de destination:

Date received / Date de réception: Year / Année | Month / Mois | Day / Jour
Time / Heure: ☐ A.M. ☐ P.M.

If waste or recyclable material is to be transferred, specify intended company name / Si les déchets ou matières recyclables doivent être transférés, préciser le nom du destinataire:
Registration No. / Provincial ID No. / N° d'immatriculation/d'id provincial:

(i)	Prov. code / Code prov.	Shipping name / Appellation réglementaire	Class / Classe Sub. class(es) / Classe(s) sub.	UN No. / N° NU	Packing / risk gr. / Gr. d'emballage / de risque	Quantity shipped / Quantité expédiée	Units / Unités	Packaging / Contenant No. / N°	Packaging / Contenant Codes Int. - ext.	Phys. state / État phys.
(i)	1460 L	Waste purged groundwater	NR	NR	NR	200	L	1	01	L
(ii)										
(iii)										
(iv)										

Quantity received / Quantité reçue	Units / Unités	Comments / Commentaires	Handling Code / Code de manutention	Shipment / Envoi Accepted / Accepté	Shipment / Envoi Refused / Refusé	Decant Pack. Cont.	Decant Veh.

Notice No / N° de notification	Notice Line No / N° de ligne de la notification	Shipment / Envoi	Of / De	D or R code / Code D ou R	C code / Code C	Basel Annex VIII or OECD Code Annexe VIII de Bâle ou Code OCDE	H code / Code H	Y code / Code Y	National code in country of / Code du pays: Export / Exportation	Import / Importation	Customs code(s) / Code(s) de douanes
(i)											
(ii)											
(iii)											
(iv)											

International use only

If handling code "Other" specify / Si code de manutention « autre » (spécifier):

Receiver / consignee certification : *I certify that the information contained in Part C is correct and complete. /* ***Attestation du réceptionnaire / destinataire :*** *J'atteste que tous les renseignements à la partie C sont exacts et complets.*

Name of authorized person (print) / Nom de l'agent autorisé (caractère d'imprimerie):

Signature | Tel. No. / N° de tél.: ( )

Special handling / Manutention spéciale: ☐ Attached / Ci-joint ☐ As follows / Ci-contre :

Generator / consignor certification: *I certify that the information contained in Part A is correct and complete. I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.*
Attestation du producteur / expéditeur: *J'atteste que tous les renseignements à la partie A sont exacts et complets. Je déclare que le contenu de ce chargement est décrit ci-dessus de façon complète et exacte par la désignation officielle de transport et qu'il est convenablement classé, emballé, marqué, étiqueté, muni de plaques-étiquettes et à tous égards en bonnes conditions pour être transporté conformément aux réglementations internationales et nationales applicables.*

Name of authorized person (print) / Nom de l'agent autorisé (caractère d'imprimerie): CHEN as agent for

Signature: Owner c/o City of Guelph

Tel. No. / N° de tél.: ( )

PRINT

Date shipped / Date d'expédition: Year / Année: 2007 | Month / Mois: 24 | Day / Jour | Time / Heure: ☑ A.M. ☐ P.M. 1115

Scheduled arrival date / Date d'arrivée prévue: Year / Année: 2007 | Month / Mois: 24 | Day / Jour

Instructions on reverse
Instructions au verso

Copy / Copie 1 (white / blanche)

Appendix E
Hydrogeological Investigation Measures

Table E-1a. Summary of Horizontal Hydraulic Gradient Calculations

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Groundwater Elevation Date	Calculation	Groundwater Elevation A (masl)	Groundwater Elevation B (masl)	Distance between Contours (m)	i (m/m)
September 18, 2019	Maximum	322.30	321.70	24	0.025
September 18, 2019	Minimum	321.90	321.30	37	0.016
September 18, 2019	Average	322.10	321.30	45	0.018
December 18, 2019	Maximum	322.60	321.90	30	0.024
December 18, 2019	Minimum	322.00	321.30	56	0.012
December 18, 2019	Average	321.80	321.20	36	0.017
April 15, 2020	Maximum	322.70	322.30	27	0.015
April 15, 2020	Minimum	322.40	321.90	55	0.009
April 15, 2020	Average	322.80	322.20	45	0.013

Notes:
Δ = delta (change in)
i = (ΔH/ΔD)
K = hydraulic conductivity
masl = metre(s) above sea level
m/m = metre(s) per metre

Table E-1b. Summary of Vertical Hydraulic Gradient Calculations

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Groundwater Elevation Date	Well ID (A)	Well ID (B)	Well A Screen mid-point (mbgs)	Well B Screen mid-point (mbgs)	ΔElevation (m)	Groundwater Elevation of Well A (HB) (masl)	Groundwater Elevation of Well B (HA) (masl)	Δ H (m)	i (m/m)	Direction
September 18, 2019	MW102A	MW102B	3.66	9.60	5.94	325.12	321.43	3.69	0.621	downwards
December 18, 2019	MW102A	MW102B	3.66	9.60	5.94	325.04	321.30	3.74	0.63	downwards
April 15, 2020	MW102A	MW102B	3.66	9.60	5.94	325.57	321.80	3.77	0.63	downwards
December 18, 2019	MW107	MW107B	6.86	15.39	8.53	322.72	322.19	0.52	0.06	downwards
April 15, 2020	MW107	MW107B	6.86	15.39	8.53	322.90	322.36	0.54	0.06	downwards
December 18, 2019	MW110A	MW110B	6.86	14.48	7.62	321.76	321.44	0.32	0.04	downwards
April 15, 2020	MW110A	MW110B	6.86	14.48	7.62	322.34	322.02	0.32	0.04	downwards

Notes:
Δ = delta (change in)
i = (ΔH/ΔD)
H = pressure head
ID = identification
masl = metre(s) above sea level
mbgs = metre(s) below ground surface
m/m = metre(s) per metre
mbgs = metre(s) below ground surface

Table E-2. Summary of Horizontal Groundwater Velocity Calculations

55 Baker Street, 152 and 160 Wyndham Street North, Chapel Lane, and Park Lane, Guelph, Ontario

Groundwater Elevation Date	Calculation	i (m/m)	K(m/s)	P	Velocity K*i/p (m/s)	Velocity (m/d)	Velocity (m/y)
September 18, 2019	Maximum	0.025	6.00E-06	0.1	1.50E-06	1.30E-01	47
September 18, 2019	Minimum	0.016	6.00E-06	0.1	9.73E-07	8.41E-02	31
September 18, 2019	Average	0.018	6.00E-06	0.1	1.07E-06	9.22E-02	34
December 18, 2019	Maximum	0.024	6.00E-06	0.1	1.42E-06	1.23E-01	45
December 18, 2019	Minimum	0.012	6.00E-06	0.1	7.49E-07	6.47E-02	24
December 18, 2019	Average	0.017	6.00E-06	0.1	1.00E-06	8.64E-02	32
April 15, 2020	Maximum	0.015	6.00E-06	0.1	8.89E-07	7.68E-02	28
April 15, 2020	Minimum	0.009	6.00E-06	0.1	5.49E-07	4.75E-02	17
April 15, 2020	Average	0.013	6.00E-06	0.1	8.07E-07	6.97E-02	25

K values from Table 6-3.

Notes:

Δ = delta (change in)

i = (ΔH/ΔD)

K = hydraulic conductivity

m/s = metre(s) per second

m/d = metre(s) per day

m/y = metre(s) per year

p = porosity

Appendix F
Laboratory Certificates of Analysis

Table F-1. Samples and Laboratory Certificates of Approval

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

SYS_LOC_CODE	SAMPLE_NAME	SAMPLE_TYPE_CODE	SAMPLE_DATE	START_DEPTH	END_DEPTH	DEPTH_UNIT	MATRIX_CODE	LAB_SDG
BH-03	BH-3 (SS2)	N	11/27/2008	0.8	1.4	m	SO	L713254
BH-04	BH-4 (SS2)	N	11/26/2008	0.8	1.4	m	SO	L712303
BH-05	BH-5 (SS2)	N	11/25/2008	0.8	1.4	m	SO	L712303
BH-06	BH-6 (SS5)	N	11/25/2008	3.1	3.7	m	SO	L712303
BH-07	BH-7 (SS2)	N	11/25/2008	0.8	1.2	m	SO	L712303
BH-08-MW4	BH-8 (SS4)	N	11/25/2008	2.3	2.9	m	SO	L712303
BH-08-MW4	BH-X-NOV25	N	11/25/2008	2.3	2.9	m	SO	L712303
BH-09	BH-9 (SS3)	N	11/26/2008	1.5	2.2	m	SO	L712303
BH-10	BH-10 (SS1)	N	11/27/2008	0	0.6	m	SO	L713254
BH-11	BH-11 (SS2)	N	11/27/2008	0.8	1.4	m	SO	L713254
BH-13	BH-13 (SS3)	N	11/25/2008	1.5	2	m	SO	L712303
BH-14	BH-14 (SS2)	N	11/25/2008	0.8	1.4	m	SO	L712303
BH-15-MW3	BH-15 (SS1)	N	11/26/2008	0	0.6	m	SO	L712303
BH-16-MW2	BH-16 (SS2)	N	11/26/2008	0.8	1.4	m	SO	L712303
BH-17-MW5S	BH-17 (SS3)	N	11/27/2008	1.5	2.1	m	SO	L713254
BH200	BH200-35-40	N	7/23/2019	0.89	1.01	m	SO	L2318180
BH200	DUP1	FD	7/23/2019	0.89	1.01	m	SO	L2318180
BH200	BH200-7.5-9.5	N	8/12/2019	2.29	2.9	m	SO	L2328062
BH200	BH200-15-17	N	8/12/2019	4.57	5.18	m	SO	L2328062
BH201	BH201-1-1.5'	N	7/24/2019	0.3	0.46	m	SO	L2318180
BH201	BH201-4-4.5'	N	7/24/2019	1.22	1.37	m	SO	L2318180
BH201	BH201-7.5-9.5	N	8/21/2019	2.29	2.9	m	SO	L2334358
BH201	BH201-12.5-12.11	N	8/21/2019	3.81	3.94	m	SO	L2334358
BH201	BH201-12.11"-13.2	N	8/21/2019	3.94	4.02	m	SO	L2334358
BH201	BH201-25-27	N	8/21/2019	7.62	8.23	m	SO	L2334358
BH202	BH202-2-2.5'	N	7/22/2019	0.61	0.76	m	SO	L2318180
BH202	BH202-10-12	N	8/12/2019	3.05	3.66	m	SO	L2328062
BH202	DUP11	FD	8/12/2019	3.05	3.66	m	SO	L2328062
BH202	BH202-15-16.5	N	8/12/2019	4.57	5.03	m	SO	L2328062
BH203	BH203-0.5-2	N	8/20/2019	0.15	0.61	m	SO	L2333129
BH203	BH203-7.5-9.5	N	8/20/2019	2.29	2.9	m	SO	L2333129
BH203	BH203-15-17	N	8/20/2019	4.57	5.18	m	SO	L2333129
BH204	BH204 - 2.5-3.5'	N	7/30/2019	0.76	1.07	m	SO	L2320007
BH204	BH204-11-12	N	8/22/2019	3.35	3.66	m	SO	L2334358
BH204	BH204-15-15.11	N	8/22/2019	4.57	4.85	m	SO	L2334358
BH204	BH204-17.5-18.9	N	8/22/2019	5.33	5.71	m	SO	L2334358
BH205	BH205-0.5-2	N	8/12/2019	0	0.61	m	SO	L2328062
BH205	BH205-2.5-4.5	N	8/12/2019	0.76	1.37	m	SO	L2328062
BH205	BH205-7.5-9.5	N	8/12/2019	2.29	2.9	m	SO	L2328062
BH205	DUP10	FD	8/12/2019	2.29	2.9	m	SO	L2328062
BH205	BH205-10-12	N	8/12/2019	3.05	3.66	m	SO	L2328062
BH205	BH205-12.5-15	N	8/12/2019	3.81	4.57	m	SO	L2328062
BH206	BH206-1-2'	N	7/25/2019	0.3	0.61	m	SO	L2318180
BH206	BH206-7.5-9.5	N	8/19/2019	2.29	2.9	m	SO	L2333129
BH206	BH206-12.5-14.5	N	8/19/2019	3.81	4.42	m	SO	L2333129
BH206	DUP15	FD	8/19/2019	3.81	4.42	m	SO	L2333129
BH207	BH207I-1-2	N	4/9/2020	0.3	0.61	m	SO	L2436005
BH207	BH207I-7.5-9.5	N	4/9/2020	2.29	2.9	m	SO	L2436005
BH208	BH208-3-3.5	N	11/12/2019	0.91	1.07	m	SO	L2381422
BH208	BH208-7.5-8	N	11/21/2019	2.29	2.44	m	SO	L2386575
BH208	DUP 4	FD	11/21/2019	2.29	2.44	m	SO	L2386575
BH209	BH209-0.4-0.75	N	11/13/2019	0.12	0.23	m	SO	L2381422
BH209	DUP 2	FD	11/13/2019	0.12	0.23	m	SO	L2381422
BH209	BH209-2-2.4	N	11/13/2019	0.61	0.73	m	SO	L2381422
BH209	DUP 3	FD	11/13/2019	0.61	0.73	m	SO	L2381422
BH210	BH210-3.5	N	11/21/2019	0.99	1.14	m	SO	L2386575
BH210	BH210-6.5-7	N	11/21/2019	1.98	2.13	m	SO	L2386575
BH211	BH211-10-12	N	11/21/2019	3.05	3.66	m	SO	L2386575
MW100	MW100-1.25-1.5'	N	7/24/2019	0.41	0.46	m	SO	L2318180
MW100	MW100-7.5-9.5	N	8/22/2019	2.29	2.9	m	SO	L2334358
MW100	MW100-15-17	N	8/22/2019	4.57	5.18	m	SO	L2334358
MW101	MW101-1.5-2'	N	7/26/2019	0.46	0.61	m	SO	L2318180
MW101	MW101-7.5-9.5	N	8/21/2019	2.29	2.9	m	SO	L2333129
MW101	MW101-20-20.5	N	8/21/2019	6.1	6.25	m	SO	L2333129
MW102B	MW102-20-25	N	7/23/2019	0.51	0.63	m	SO	L2318180

Table F-1. Samples and Laboratory Certificates of Approval

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

SYS_LOC_CODE	SAMPLE_NAME	SAMPLE_TYPE_CODE	SAMPLE_DATE	START_DEPTH	END_DEPTH	DEPTH_UNIT	MATRIX_CODE	LAB_SDG
MW102B	MW102-7.5-9.5	N	8/26/2019	2.29	2.9	m	SO	L2336718
MW102B	MW102-12.5-14.5	N	8/26/2019	3.81	4.42	m	SO	L2336718
MW102B	MW102-25-26	N	8/26/2019	7.62	7.92	m	SO	L2336718
MW103	MW103-2-2.5'	N	7/22/2019	0.56	0.71	m	SO	L2318180
MW103	MW103-12.5-14	N	8/14/2019	3.81	4.27	m	SO	L2330748
MW103	MW103-17.5-19.5	N	8/14/2019	5.33	5.94	m	SO	L2330748
MW103	MW103-22.5-24.5	N	8/14/2019	6.86	7.47	m	SO	L2330748
MW104	MW104-2.5-3'	N	7/22/2019	0.61	0.91	m	SO	L2318180
MW104	DUP13	FD	8/13/2019	2.13	2.74	m	SO	L2328062
MW104	MW104-7-9	N	8/13/2019	2.13	2.74	m	SO	L2328062
MW104	MW104-15-17	N	8/13/2019	4.57	5.18	m	SO	L2328062
MW104	MW104-22-23	N	8/13/2019	6.1	6.71	m	SO	L2328062
MW105	MW105-5-6	N	8/13/2019	1.52	1.83	m	SO	L2328062
MW105	MW105-10-12	N	8/13/2019	3.05	3.66	m	SO	L2328062
MW105	DUP12	FD	8/13/2019	4.57	5.18	m	SO	L2328062
MW105	MW105-15-17	N	8/13/2019	4.57	5.18	m	SO	L2328062
MW105	MW105-21.5-22	N	8/13/2019	6.55	6.71	m	SO	L2328062
MW106	MW106 -0.5-1.5'	N	7/30/2019	0.15	0.46	m	SO	L2320007
MW106	MW106 - 2-3'	N	7/30/2019	0.61	0.91	m	SO	L2320007
MW106	MW106-7.5-8.5	N	8/20/2019	2.29	2.59	m	SO	L2333129
MW106	MW106-17.5-18.5	N	8/20/2019	5.33	5.64	m	SO	L2333129
MW107	MW107-2.5-4.5	N	8/19/2019	0.76	1.37	m	SO	L2333129
MW107	MW107-7.5-9.5	N	8/19/2019	2.29	2.9	m	SO	L2333129
MW107	MW107-15-16.5	N	8/19/2019	4.57	5.03	m	SO	L2333129
MW108	MW108-5-6'	N	7/25/2019	1.52	1.83	m	SO	L2318180
MW108	MW108-12.5-14.5	N	8/16/2019	3.81	4.42	m	SO	L2330748
MW108	MW108-17.5-19	N	8/16/2019	5.33	5.79	m	SO	L2330748
MW109	MW109-2.5-3.5'	N	7/25/2019	0.76	1.07	m	SO	L2318180
MW109	MW109-8-9.5	N	8/15/2019	2.29	2.9	m	SO	L2330748
MW109	DUP14	FD	8/15/2019	3.81	4.42	m	SO	L2330748
MW109	MW109-12.5-14.5	N	8/15/2019	3.81	4.42	m	SO	L2330748
MW109	MW109-16-17	N	8/15/2019	4.88	5.18	m	SO	L2330748
MW112	MW112- 5.2-5.5	N	1/9/2020	1.58	1.68	m	SO	L2404428
MW112	MW112-7.25-7.5	N	1/9/2020	2.21	2.29	m	SO	L2404428
MW112	MW112-15.4-16'	N	1/18/2020	4.69	4.88	m	SO	L2407279
MW113	MW113-2.5-4.5	N	4/9/2020	0.76	1.37	m	SO	L2436005
MW113	MW113-6.5-8.5	N	4/9/2020	1.98	2.59	m	SO	L2436005
TCLP-Baker	TCLP- 20190827	N	8/27/2019				SO	L2336707
TCLP-Baker	TCLP COMP-0-6'	N	7/30/2019				SO	L2319997
MW100	MW100	N	9/6/2019	5.49	8.53	m	WG	L2343122
MW100	MW100	N	12/19/2019	5.49	8.53	m	WG	L2399298
MW101	MW101	N	9/5/2019	5.71	8.76	m	WG	L2343122
MW101	MW101	N	9/24/2019	5.71	8.76	m	WG	L2352720
MW101	MW101	N	12/20/2019	5.71	8.76	m	WG	L2399298
MW102A	MW102A	N	9/6/2019	2.13	5.18	m	WG	L2343122
MW102A	MW102A	N	12/19/2019	2.13	5.18	m	WG	L2399298
MW102B	MW102B	N	9/6/2019	8.84	10.36	m	WG	L2343122
MW102B	MW102B	N	12/19/2019	8.84	10.36	m	WG	L2399298
MW103	DUP1	FD	9/5/2019	2.13	5.18	m	WG	L2343122
MW103	MW103	N	9/5/2019	2.13	5.18	m	WG	L2343122
MW103	MW103	N	12/18/2019	2.13	5.18	m	WG	L2399298
MW104	DUP2	FD	9/5/2019	5.94	8.99	m	WG	L2343122
MW104	DUP3	FD	12/20/2019	5.94	8.99	m	WG	L2399298
MW104	MW104	N	9/5/2019	5.94	8.99	m	WG	L2343122
MW104	MW104	N	12/20/2019	5.94	8.99	m	WG	L2399298
MW105	MW105	N	9/6/2019	5.64	8.69	m	WG	L2343122
MW106	DUP2	FD	12/19/2019	5.49	8.53	m	WG	L2399298
MW106	MW106	N	9/6/2019	5.49	8.53	m	WG	L2343122
MW106	MW106	N	12/19/2019	5.49	8.53	m	WG	L2399298
MW107	DUP3	FD	9/6/2019	5.33	8.38	m	WG	L2343122
MW107	MW107	N	9/6/2019	5.33	8.38	m	WG	L2343122
MW107	MW107	N	9/24/2019	5.33	8.38	m	WG	L2352720
MW107	MW107	N	12/18/2019	5.33	8.38	m	WG	L2399298
MW107B	MW107B	N	11/26/2019	13.56	15.39	m	WG	L2387876
MW107B	MW107B	N	12/18/2019	13.56	15.39	m	WG	L2399298

Table F-1. Samples and Laboratory Certificates of Approval

55 Baker Street, 152 and 160 Wyndham Street North, and Park Lane, Guelph, Ontario

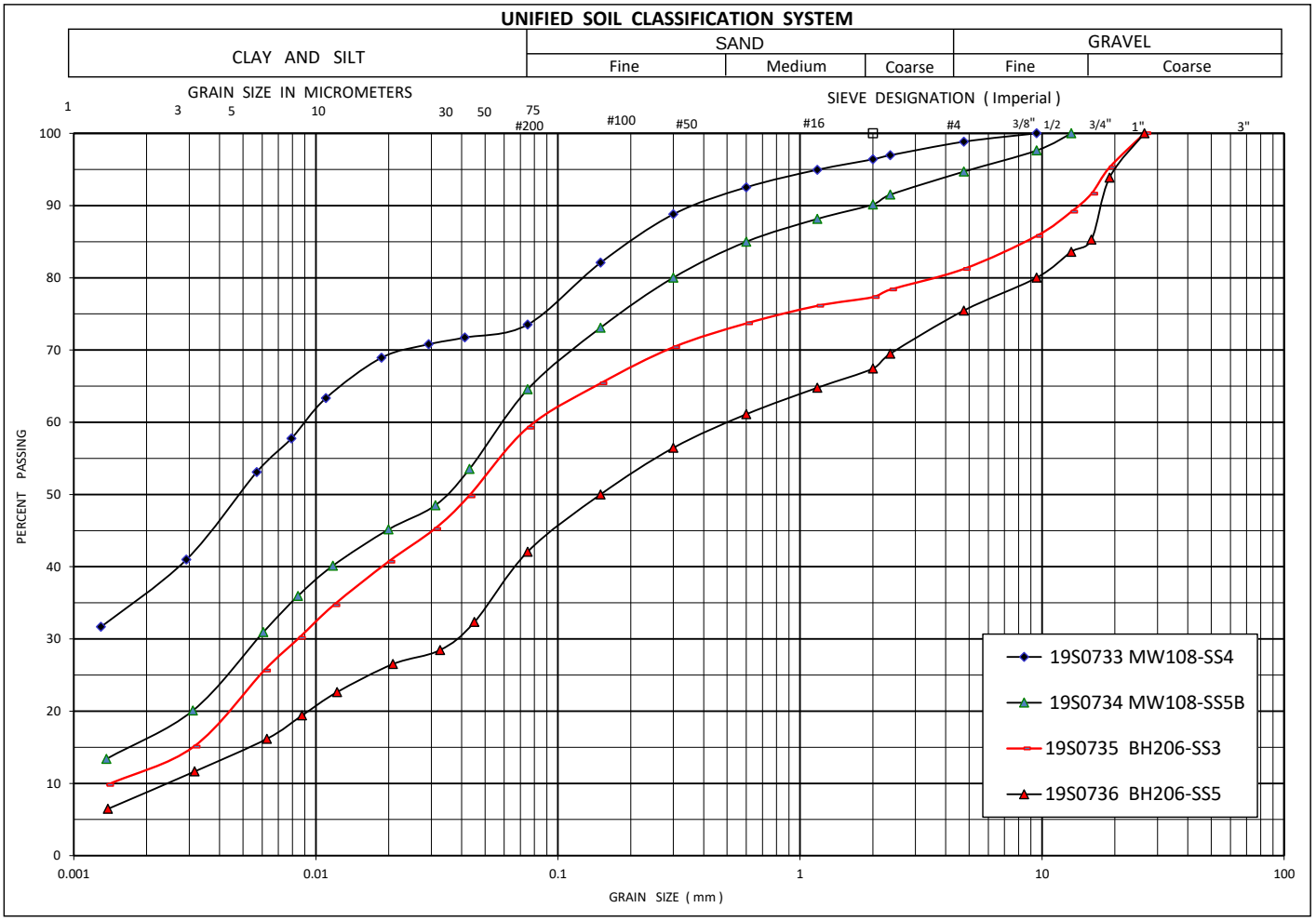
SYS_LOC_CODE	SAMPLE_NAME	SAMPLE_TYPE_CODE	SAMPLE_DATE	START_DEPTH	END_DEPTH	DEPTH_UNIT	MATRIX_CODE	LAB_SDG
MW108	MW108	N	9/5/2019	6.71	9.75	m	WG	L2343122
MW108	MW108	N	12/19/2019	6.71	9.75	m	WG	L2399298
MW109	DUP1	FD	12/19/2019	7.32	10.36	m	WG	L2399298
MW109	MW109	N	9/5/2019	7.32	10.36	m	WG	L2343122
MW109	MW109	N	12/19/2019	7.32	10.36	m	WG	L2399298
MW110A	MW110A	N	11/26/2019	5.33	8.38	m	WG	L2387876
MW110A	MW110A	N	12/20/2019	5.33	8.38	m	WG	L2399298
MW110B	DUP	FD	11/26/2019	13.56	15.39	m	WG	L2387876
MW110B	MW110B	N	11/26/2019	13.56	15.39	m	WG	L2387876
MW110B	MW110B	N	12/20/2019	13.56	15.39	m	WG	L2399298
MW111	MW111	N	11/26/2019	13.56	15.39	m	WG	L2387876
MW111	MW111	N	12/19/2019	13.56	15.39	m	WG	L2399298
MW112	DUP1	FD	1/23/2020	5.94	8.99	m	WG	L2408835
MW112	MW112	N	1/23/2020	5.94	8.99	m	WG	L2408835
MW112	MW112	N	1/28/2020	5.94	8.99	m	WG	L2410311
MW113	DUP1	N	4/15/2020	5.33	8.38	m	WG	L2437013
MW113	MW113	FD	4/15/2020	5.33	8.38	m	WG	L2437013
MW113	MW113	N	4/22/2020	5.33	8.38	m	WG	L2439186
MW113	MW113	N	4/29/2020	5.33	8.38	m	WG	L2441806

SIRATI & PARTNERS

Grain Size Distribution

ASTM D 422-63

Project No.	: CE751900	**Report No.**	: 19S0733 - 736
Project	: Baker Street Investigation	**Date**	: 19-Sep-19
Client	: Jacobs	**SPCL Job No.**	: SP19-551-40



Sample No.	BH-SS	Percentage of			
		Gravel	Sand	Silt	Clay
19S0733	MW108-SS4	1	25	38	36
19S0734	MW108-SS5B	5	30	49	16
19S0735	BH206-SS3	19	22	47	12
19S0736	BH206-SS5	24	34	33	9

****End of Report****

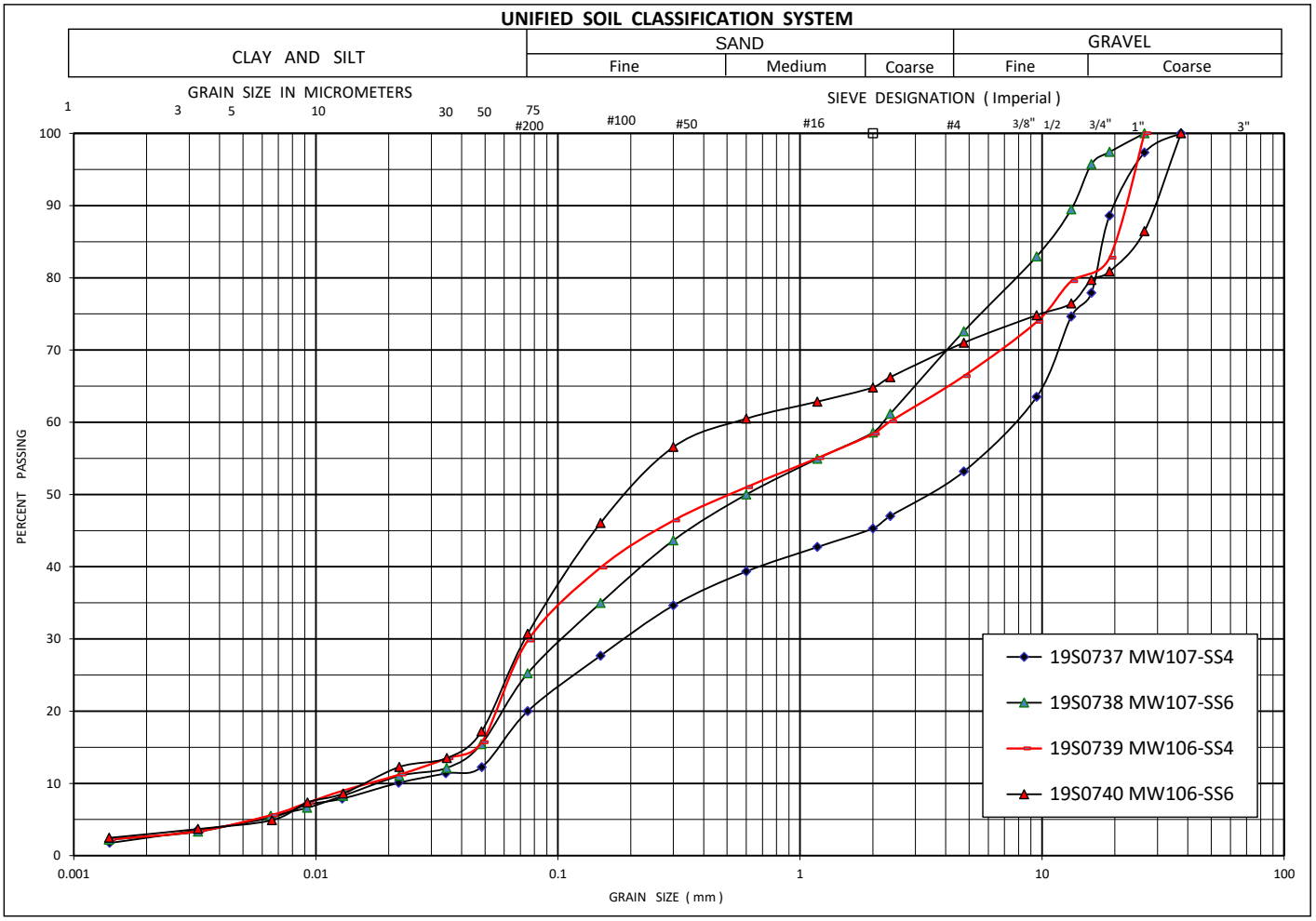
SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

Grain Size Distribution

ASTM D 422-63

Project No.	: CE751900	**Report No.**	: 19S0737 - 740
Project	: Baker Street Investigation	**Date**	: 19-Sep-19
Client	: Jacobs	**SPCL Job No.**	: SP19-551-40



Sample No.	BH-SS	Percentage of			
		Gravel	Sand	Silt	Clay
19S0737	MW107-SS4	47	33	17	3
19S0738	MW107-SS6	27	48	22	3
19S0739	MW106-SS4	34	36	26	4
19S0740	MW106-SS6	29	40	27	4

****End of Report****

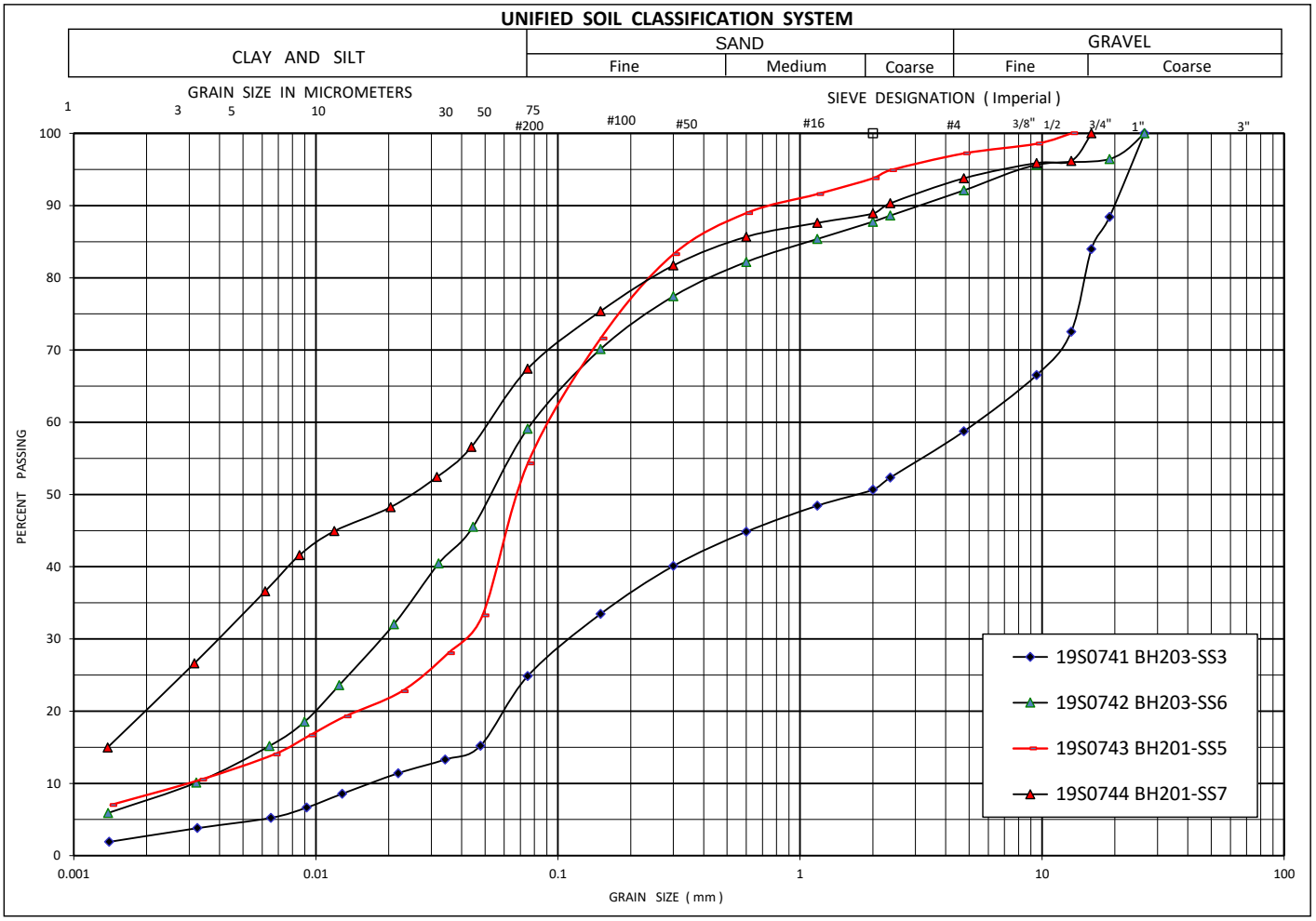
SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

Grain Size Distribution

ASTM D 422-63

Project No.	: CE751900	**Report No.**	: 19S0741 - 744
Project	: Baker Street Investigation	**Date**	: 19-Sep-19
Client	: Jacobs	**SPCL Job No.**	: SP19-551-40



Sample No.	BH-SS	Percentage of			
		Gravel	Sand	Silt	Clay
19S0741	BH203-SS3	41	34	22	3
19S0742	BH203-SS6	8	33	52	7
19S0743	BH201-SS5	3	43	46	8
19S0744	BH201-SS7	6	27	46	21

****End of Report****

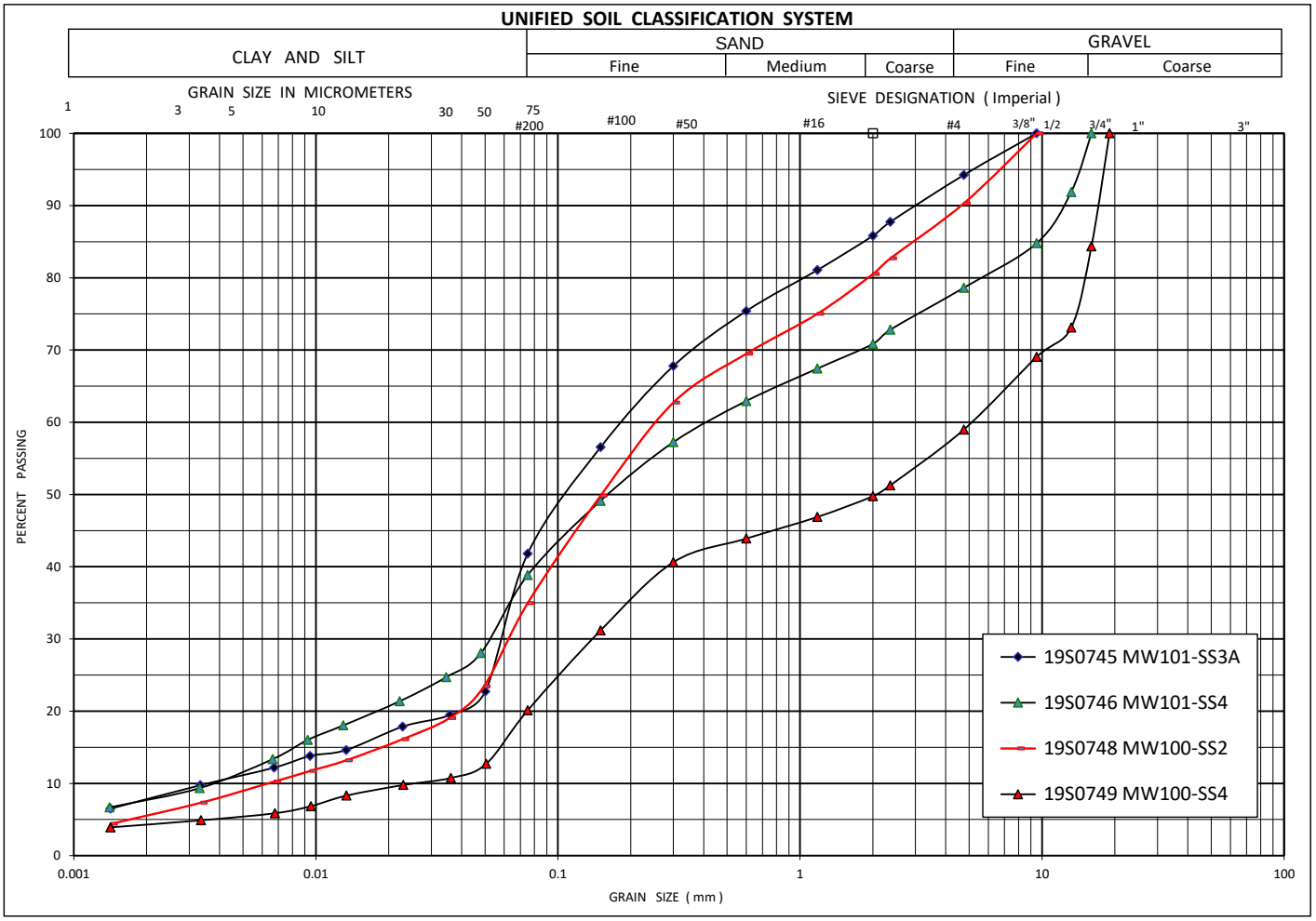
SIRATI & PARTNERS

Geotechnical Hydrogeological & Environmental Solutions

Grain Size Distribution

ASTM D 422-63

Project No.	: CE751900	**Report No.**	: 19S0745, 46, 48 & 49
Project	: Baker Street Investigation	**Date**	: 19-Sep-19
Client	: Jacobs	**SPCL Job No.**	: SP19-551-40



Sample No.	BH-SS	Percentage of			
		Gravel	Sand	Silt	Clay
19S0745	MW101-SS3A	6	52	34	8
19S0746	MW101-SS4	21	40	31	8
19S0748	MW100-SS2	10	55	29	6
19S0749	MW100-SS4	41	39	16	4

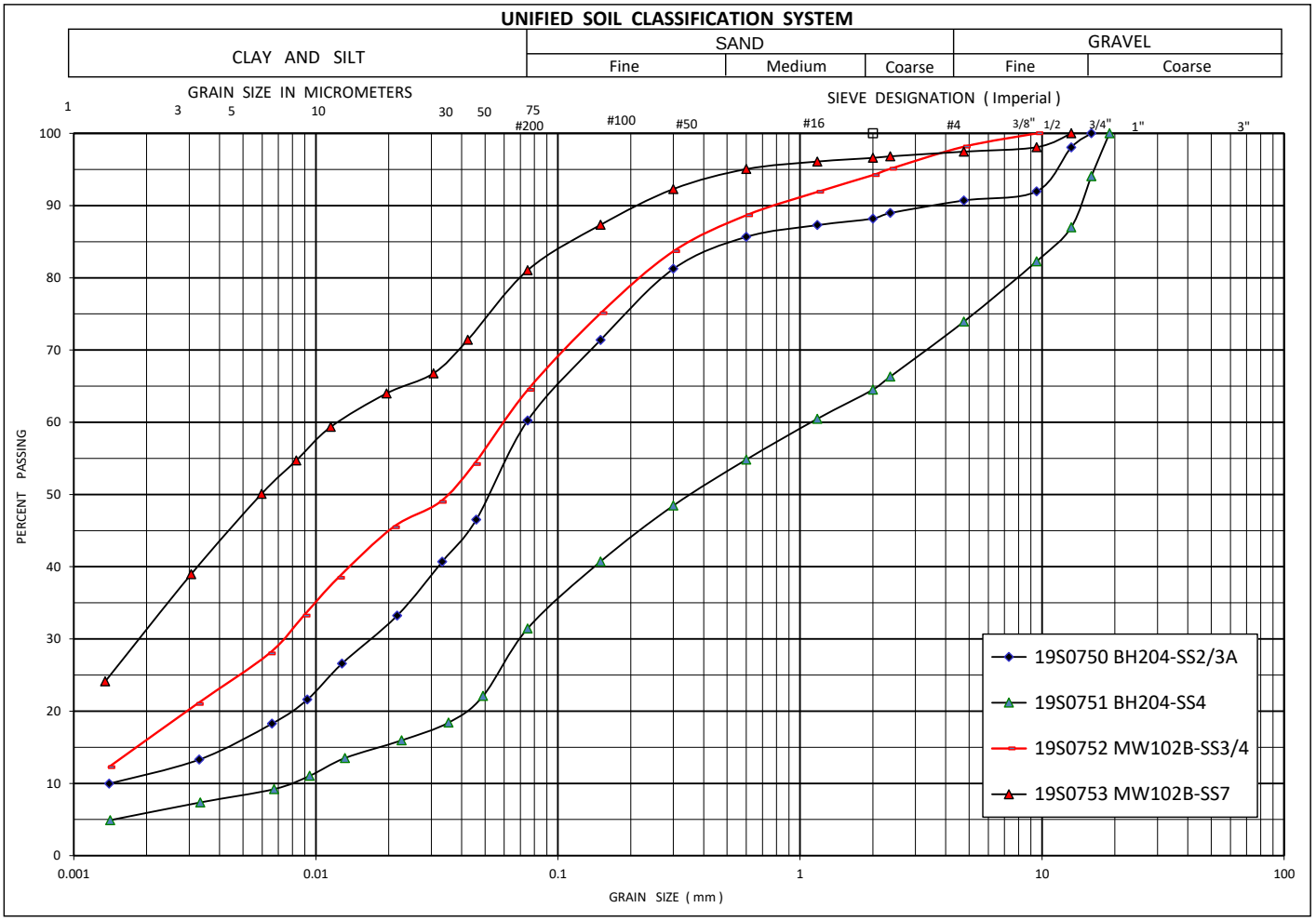
****End of Report****

SIRATI & PARTNERS

Grain Size Distribution

ASTM D 422-63

Project No.	: CE751900	**Report No.**	: 19S0750 - 53
Project	: Baker Street Investigation	**Date**	: 19-Sep-19
Client	: Jacobs	**SPCL Job No.**	: SP19-551-40



Sample No.	BH-SS	Percentage of			
		Gravel	Sand	Silt	Clay
19S0750	BH204-SS2/3A	9	31	49	11
19S0751	BH204-SS4	26	42	26	6
19S0752	MW102B-SS3/4	2	33	49	16
19S0753	MW102B-SS7	3	16	50	31

****End of Report****

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Certificate of Analysis

XCG CONSULTANTS LTD.

ATTN: THOMAS KOLODZIEJ

820 TRILLIUM DRIVE

KITCHENER ON N2R 1K4

Reported On: 01-DEC-08 03:23 PM
Revision: 3

Lab Work Order #: **L712303** **Date Received:** **26-NOV-08**

Project P.O. #:
Job Reference: 5-698-17-02
Legal Site Desc:
CofC Numbers: 69263

Other Information:

Comments: 01-DEC-08 NG/WT
REVISION 3: CORRECTED CALCULATION FOR F1-BTEX

MARY-LYNN PIKE
Account Manager

ALS Canada Ltd. (formerly ETL Chemspec Analytical Ltd.)
Part of the ALS Laboratory Group
60 Northland Road, Unit 1, Waterloo, ON N2V 2B8
Phone: +1 519 886 6910 Fax: +1 519 886 9047 www.alsglobal.com
A Campbell Brothers Limited Company

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-1 BH-14 (SS-2) Sampled By: LUKE T on 25-NOV-08 Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631
Arsenic (As)	2		1	mg/kg	14	17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4	1.9	01-DEC-08	R763631
Boron (B), Available	0.2		0.1	ug/g			28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	28-NOV-08	R762763
Mercury (Hg)	0.09		0.05	ug/g	0.16	0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)								
Barium (Ba)	28		1	mg/kg	190	210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	28-NOV-08	R763507
Chromium (Cr)	7		1	mg/kg	67	71	28-NOV-08	R763507
Cobalt (Co)	2		1	mg/kg	19	21	28-NOV-08	R763507
Copper (Cu)	16		1	mg/kg	56	85	28-NOV-08	R763507
Lead (Pb)	29		1	mg/kg	55	120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Nickel (Ni)	4		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	10		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	63		1	mg/kg	150	160	28-NOV-08	R763507
VOC, F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5	VC:RHS	5	mg/kg			01-DEC-08	
F1-BTEX	<5		5	mg/kg			01-DEC-08	
F2 (C10-C16)	<10		10	mg/kg			01-DEC-08	
F2-Naphth	<10		10	mg/kg			01-DEC-08	
F3 (C16-C34)	<50		50	mg/kg			01-DEC-08	
F3-PAH	<50		50	mg/kg			01-DEC-08	
F4 (C34-C50)	56		50	mg/kg			01-DEC-08	
Total Hydrocarbons (C6-C50)	56		50	mg/kg			01-DEC-08	
Chromatogram to baseline at nC50	YES			No Unit			01-DEC-08	
Prep/Analysis Dates				No Unit			28-NOV-08	R762621
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			28-NOV-08	R762542
Surr: Octacosane	75		60-120	%			28-NOV-08	R762542
Volatile Organics (153/04) Table 1								
1,1,1,2-Tetrachloroethane	<0.008	VC:RHS	0.008	mg/kg			28-NOV-08	R762774
1,1,2,2-Tetrachloroethane	<0.004	VC:RHS	0.004	mg/kg	0.004	0.004	28-NOV-08	R762774
1,1,1-Trichloroethane	<0.008	VC:RHS	0.008	mg/kg	0.009	0.009	28-NOV-08	R762774
1,1,2-Trichloroethane	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,1-Dichloroethane	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,1-Dichloroethylene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,2-Dichlorobenzene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,2-Dichloroethane	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,2-Dibromoethane	<0.004	VC:RHS	0.004	mg/kg	0.004	0.004	28-NOV-08	R762774

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-1 BH-14 (SS-2)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
VOC, F1-F4 (O.Reg.153/04)								
Volatile Organics (153/04) Table 1								
1,2-Dichloropropane	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,3-Dichlorobenzene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,4-Dichlorobenzene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
2-Hexanone	<0.2	VC:RHS	0.2	mg/kg			28-NOV-08	R762774
Acetone	<0.5	VC:RHS	0.5	mg/kg			28-NOV-08	R762774
Benzene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Bromodichloromethane	<0.005	VC:RHS	0.005	mg/kg			28-NOV-08	R762774
Bromoform	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Bromomethane	<0.003	VC:RHS	0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Carbon Disulfide	<0.02	VC:RHS	0.02	mg/kg			28-NOV-08	R762774
Carbon tetrachloride	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Chlorobenzene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Chloroethane	<0.03	VC:RHS	0.03	mg/kg			28-NOV-08	R762774
Chloroform	<0.006	VC:RHS	0.006	mg/kg	0.006	0.006	28-NOV-08	R762774
Chloromethane	<0.03	VC:RHS	0.03	mg/kg			28-NOV-08	R762774
cis-1,2-Dichloroethylene	<0.02	VC:RHS	0.02	mg/kg			28-NOV-08	R762774
cis-1,3-Dichloropropene	<0.003	VC:RHS	0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Dibromomethane	<0.01	VC:RHS	0.01	mg/kg			28-NOV-08	R762774
Dibromochloromethane	<0.003	VC:RHS	0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Dichlorodifluoromethane	<0.03	VC:RHS	0.03	mg/kg			28-NOV-08	R762774
Dichloromethane	<0.003	VC:RHS	0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Ethyl Benzene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
MTBE	<0.2	VC:RHS	0.2	mg/kg			28-NOV-08	R762774
m+p-Xylenes	<0.002	VC:RHS	0.002	mg/kg			28-NOV-08	R762774
Methyl Ethyl Ketone	<0.2	VC:RHS	0.2	mg/kg			28-NOV-08	R762774
Methyl Isobutyl Ketone	<0.2	VC:RHS	0.2	mg/kg			28-NOV-08	R762774
o-Xylene	<0.002	VC:RHS	0.002	mg/kg			28-NOV-08	R762774
Styrene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Tetrachloroethylene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Toluene	<0.002	VC:RHS	0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
trans-1,2-Dichloroethylene	<0.002	VC:RHS	0.002	mg/kg	0.003	0.003	28-NOV-08	R762774
trans-1,3-Dichloropropene	<0.003	VC:RHS	0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Trichloroethylene	<0.004	VC:RHS	0.004	mg/kg	0.004	0.004	28-NOV-08	R762774
Trichlorofluoromethane	<0.03	VC:RHS	0.03	mg/kg			28-NOV-08	R762774
Vinyl chloride	<0.003	VC:RHS	0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Xylenes (Total)	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Surr: 1,2-Dichloroethane d4	100		25-175	%			28-NOV-08	R762774
Surr: Toluene-d8	90		25-175	%			28-NOV-08	R762774
Surr: 4-Bromofluorobenzene	102		25-175	%			28-NOV-08	R762774
Individual Analytes								
% Moisture	10.7		0.5	%			27-NOV-08	R762204
CCME PAHs								
1-Methylnaphthalene	<0.05		0.05	mg/kg	0.05	0.26	01-DEC-08	R763496
2-Methylnaphthalene	<0.05		0.05	mg/kg			01-DEC-08	R763496
Acenaphthene	<0.05		0.05	mg/kg	0.05	0.07	01-DEC-08	R763496
Acenaphthylene	<0.05		0.05	mg/kg	0.08	0.08	01-DEC-08	R763496
Acridine	<0.8		0.8	mg/kg			01-DEC-08	R763496

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-1 BH-14 (SS-2)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Individual Analytes								
CCME PAHs								
Anthracene	<0.05		0.05	mg/kg	0.05	0.16	01-DEC-08	R763496
Benzo(a)anthracene	0.14		0.05	mg/kg	** 0.10	0.74	01-DEC-08	R763496
Benzo(a)pyrene	0.24		0.02	mg/kg	** 0.10	0.49	01-DEC-08	R763496
Benzo(b)fluoranthene	0.18		0.05	mg/kg	0.30	0.47	01-DEC-08	R763496
Benzo(g,h,i)perylene	0.22		0.05	mg/kg	** 0.20	0.68	01-DEC-08	R763496
Benzo(k)fluoranthene	0.11		0.05	mg/kg	** 0.05	0.48	01-DEC-08	R763496
Chrysene	0.18		0.05	mg/kg	** 0.18	0.69	01-DEC-08	R763496
Dibenzo(ah)anthracene	0.13		0.05	mg/kg	0.15	0.16	01-DEC-08	R763496
Fluoranthene	0.19		0.05	mg/kg	0.24	1.1	01-DEC-08	R763496
Fluorene	<0.05		0.05	mg/kg	0.05	0.12	01-DEC-08	R763496
Indeno(1,2,3-cd)pyrene	0.14		0.05	mg/kg	** 0.11	0.38	01-DEC-08	R763496
Naphthalene	<0.05		0.05	mg/kg	0.05	0.09	01-DEC-08	R763496
Phenanthrene	0.09		0.05	mg/kg	0.19	0.69	01-DEC-08	R763496
Pyrene	0.17		0.05	mg/kg	0.19	1.0	01-DEC-08	R763496
Quinoline	<0.05		0.05	mg/kg			01-DEC-08	R763496
Surr: 2-Fluorobiphenyl	107		50-150	%			01-DEC-08	R763496
Surr: p-Terphenyl d14	96		52-158	%			01-DEC-08	R763496
pH	9.63		0.01	pH units			27-NOV-08	R762512
L712303-2 BH-8 (SS-4)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631
Arsenic (As)	1		1	mg/kg	14	17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4	1.9	01-DEC-08	R763631
Boron (B), Available	<0.1		0.1	ug/g			28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	28-NOV-08	R762763
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)								
Barium (Ba)	12		1	mg/kg	190	210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	28-NOV-08	R763507
Chromium (Cr)	5		1	mg/kg	67	71	28-NOV-08	R763507
Cobalt (Co)	2		1	mg/kg	19	21	28-NOV-08	R763507
Copper (Cu)	6		1	mg/kg	56	85	28-NOV-08	R763507
Lead (Pb)	8		1	mg/kg	55	120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Nickel (Ni)	3		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	4		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	47		1	mg/kg	150	160	28-NOV-08	R763507
VOC, F1-F4 (O.Reg.153/04)								

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-2 BH-8 (SS-4)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
VOC, F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5	VC:RHS	5	mg/kg			01-DEC-08	
F1-BTEX	<5		5	mg/kg			01-DEC-08	
F2 (C10-C16)	<10		10	mg/kg			01-DEC-08	
F3 (C16-C34)	<50		50	mg/kg			01-DEC-08	
F4 (C34-C50)	<50		50	mg/kg			01-DEC-08	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg			01-DEC-08	
Chromatogram to baseline at nC50	YES			No Unit			01-DEC-08	
Prep/Analysis Dates				No Unit			28-NOV-08	R762621
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			28-NOV-08	R762542
Surr: Octacosane	82		60-120	%			28-NOV-08	R762542
Volatile Organics (153/04) Table 1								
1,1,1,2-Tetrachloroethane	<0.008		0.008	mg/kg			28-NOV-08	R762774
1,1,2,2-Tetrachloroethane	<0.004		0.004	mg/kg	0.004	0.004	28-NOV-08	R762774
1,1,1-Trichloroethane	<0.008		0.008	mg/kg	0.009	0.009	28-NOV-08	R762774
1,1,2-Trichloroethane	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,1-Dichloroethane	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,1-Dichloroethylene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,2-Dichlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,2-Dichloroethane	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,2-Dibromoethane	<0.004		0.004	mg/kg	0.004	0.004	28-NOV-08	R762774
1,2-Dichloropropane	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,3-Dichlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,4-Dichlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
2-Hexanone	<0.2		0.2	mg/kg			28-NOV-08	R762774
Acetone	<0.5		0.5	mg/kg			28-NOV-08	R762774
Benzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Bromodichloromethane	<0.005		0.005	mg/kg			28-NOV-08	R762774
Bromoform	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Bromomethane	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Carbon Disulfide	<0.02		0.02	mg/kg			28-NOV-08	R762774
Carbon tetrachloride	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Chlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Chloroethane	<0.03		0.03	mg/kg			28-NOV-08	R762774
Chloroform	<0.006		0.006	mg/kg	0.006	0.006	28-NOV-08	R762774
Chloromethane	<0.03		0.03	mg/kg			28-NOV-08	R762774
cis-1,2-Dichloroethylene	<0.02		0.02	mg/kg			28-NOV-08	R762774
cis-1,3-Dichloropropene	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Dibromomethane	<0.01		0.01	mg/kg			28-NOV-08	R762774
Dibromochloromethane	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Dichlorodifluoromethane	<0.03		0.03	mg/kg			28-NOV-08	R762774
Dichloromethane	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Ethyl Benzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
MTBE	<0.2		0.2	mg/kg			28-NOV-08	R762774
m+p-Xylenes	<0.002		0.002	mg/kg			28-NOV-08	R762774
Methyl Ethyl Ketone	<0.2		0.2	mg/kg			28-NOV-08	R762774

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-2 BH-8 (SS-4)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
VOC, F1-F4 (O.Reg.153/04)								
Volatile Organics (153/04) Table 1								
Methyl Isobutyl Ketone	<0.2		0.2	mg/kg			28-NOV-08	R762774
o-Xylene	<0.002		0.002	mg/kg			28-NOV-08	R762774
Styrene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Tetrachloroethylene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Toluene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
trans-1,2-Dichloroethylene	<0.002		0.002	mg/kg	0.003	0.003	28-NOV-08	R762774
trans-1,3-Dichloropropene	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Trichloroethylene	<0.004		0.004	mg/kg	0.004	0.004	28-NOV-08	R762774
Trichlorofluoromethane	<0.03		0.03	mg/kg			28-NOV-08	R762774
Vinyl chloride	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Xylenes (Total)	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Surr: 1,2-Dichloroethane d4	96		25-175	%			28-NOV-08	R762774
Surr: Toluene-d8	87		25-175	%			28-NOV-08	R762774
Surr: 4-Bromofluorobenzene	101		25-175	%			28-NOV-08	R762774
Individual Analytes								
% Moisture	8.0		0.5	%			27-NOV-08	R762204
PCBs								
Aroclor 1242	<0.05	DLA	0.05	mg/kg			29-NOV-08	R762567
Aroclor 1248	<0.05	DLA	0.05	mg/kg			29-NOV-08	R762567
Aroclor 1254	<0.05	DLA	0.05	mg/kg			29-NOV-08	R762567
Aroclor 1260	<0.05	DLA	0.05	mg/kg			29-NOV-08	R762567
Total PCBs	<0.05	DLA	0.05	mg/kg	0.3	0.3	29-NOV-08	R762567
Surr: d14-Terphenyl	86		63-153	%			29-NOV-08	R762567
pH	8.47		0.01	pH units			27-NOV-08	R762512
L712303-3 BH-13 (SS-3)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg			28-NOV-08	
F2 (C10-C16)	<10		10	mg/kg			28-NOV-08	
F3 (C16-C34)	56		50	mg/kg			28-NOV-08	
F4 (C34-C50)	144		50	mg/kg			28-NOV-08	
F4G-SG (GHH-Silica)	600		100	mg/kg			28-NOV-08	
Total Hydrocarbons (C6-C50)	200		50	mg/kg			28-NOV-08	
Chromatogram to baseline at nC50	NO			No Unit			28-NOV-08	
Prep/Analysis Dates				No Unit			28-NOV-08	R762621
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			28-NOV-08	R762542
Surr: Octacosane	88		60-120	%			28-NOV-08	R762542
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits	Analyzed	Batch
L712303-3 BH-13 (SS-3)							
Sampled By: LUKE T on 25-NOV-08							
Matrix: SOIL					AGRICULTURAL OR OTHER / ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B							
As, Sb and Se by ICP/MS							
Arsenic (As)	1		1	mg/kg	14 / 17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4 / 1.9	01-DEC-08	R763631
Boron (B), Available	<0.1		0.1	ug/g		28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5 / 2.5	28-NOV-08	R762763
Mercury (Hg)	0.23		0.05	ug/g	** 0.16 / 0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)							
Barium (Ba)	31		1	mg/kg	190 / 210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2 / 1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0 / 1.0	28-NOV-08	R763507
Chromium (Cr)	4		1	mg/kg	67 / 71	28-NOV-08	R763507
Cobalt (Co)	1		1	mg/kg	19 / 21	28-NOV-08	R763507
Copper (Cu)	7		1	mg/kg	56 / 85	28-NOV-08	R763507
Lead (Pb)	35		1	mg/kg	55 / 120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5 / 2.5	28-NOV-08	R763507
Nickel (Ni)	2		1	mg/kg	43 / 43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35 / 0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5 / 2.5	28-NOV-08	R763507
Vanadium (V)	3		1	mg/kg	91 / 91	28-NOV-08	R763507
Zinc (Zn)	79		1	mg/kg	150 / 160	28-NOV-08	R763507
Individual Analytes							
% Moisture	3.5		0.5	%		27-NOV-08	R762204
Prep/Analysis Dates				No Unit		28-NOV-08	R762690
pH	8.39		0.01	pH units		27-NOV-08	R762512
L712303-4 BH-6 (SS-5)							
Sampled By: LUKE T on 25-NOV-08							
Matrix: SOIL					AGRICULTURAL OR OTHER / ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B							
As, Sb and Se by ICP/MS							
Antimony (Sb)	<1		1	mg/kg	1 / 1	01-DEC-08	R763631
Arsenic (As)	1		1	mg/kg	14 / 17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4 / 1.9	01-DEC-08	R763631
Boron (B), Available	<0.1		0.1	ug/g		28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5 / 2.5	28-NOV-08	R762763
Mercury (Hg)	<0.05		0.05	ug/g	0.16 / 0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)							
Barium (Ba)	11		1	mg/kg	190 / 210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2 / 1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0 / 1.0	28-NOV-08	R763507
Chromium (Cr)	4		1	mg/kg	67 / 71	28-NOV-08	R763507
Cobalt (Co)	2		1	mg/kg	19 / 21	28-NOV-08	R763507
Copper (Cu)	4		1	mg/kg	56 / 85	28-NOV-08	R763507
Lead (Pb)	199		1	mg/kg	** 55 / ** 120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5 / 2.5	28-NOV-08	R763507

** analytical results for this parameter exceed criteria limits listed on this report

O.Reg.153, Table 1 MARCH 9, 2004

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-4 BH-6 (SS-5)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
Standard Metal Scan (ICP)								
Nickel (Ni)	3		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	4		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	71		1	mg/kg	150	160	28-NOV-08	R763507
Individual Analytes								
% Moisture	7.0		0.5	%			27-NOV-08	R762204
pH	8.15		0.01	pH units			27-NOV-08	R762512
L712303-5 BH-7 (SS-2)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631
Arsenic (As)	2		1	mg/kg	14	17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4	1.9	01-DEC-08	R763631
Boron (B), Available	0.1		0.1	ug/g			28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	28-NOV-08	R762763
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)								
Barium (Ba)	12		1	mg/kg	190	210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	28-NOV-08	R763507
Chromium (Cr)	6		1	mg/kg	67	71	28-NOV-08	R763507
Cobalt (Co)	2		1	mg/kg	19	21	28-NOV-08	R763507
Copper (Cu)	8		1	mg/kg	56	85	28-NOV-08	R763507
Lead (Pb)	18		1	mg/kg	55	120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Nickel (Ni)	4		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	5		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	66		1	mg/kg	150	160	28-NOV-08	R763507
Individual Analytes								
% Moisture	4.1		0.5	%			27-NOV-08	R762204
pH	8.31		0.01	pH units			27-NOV-08	R762512
L712303-6 BH-5 (SS-2)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-6 BH-5 (SS-2)								
Sampled By: LUKE T on 25-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631
Arsenic (As)	2		1	mg/kg	14	17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4	1.9	01-DEC-08	R763631
Boron (B), Available	<0.1		0.1	ug/g			28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	28-NOV-08	R762763
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)								
Barium (Ba)	12		1	mg/kg	190	210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	28-NOV-08	R763507
Chromium (Cr)	5		1	mg/kg	67	71	28-NOV-08	R763507
Cobalt (Co)	2		1	mg/kg	19	21	28-NOV-08	R763507
Copper (Cu)	5		1	mg/kg	56	85	28-NOV-08	R763507
Lead (Pb)	15		1	mg/kg	55	120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Nickel (Ni)	4		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	6		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	91		1	mg/kg	150	160	28-NOV-08	R763507
Individual Analytes								
% Moisture	6.2		0.5	%			27-NOV-08	R762204
pH	8.16		0.01	pH units			27-NOV-08	R762512
L712303-7 BH-15 (SS-1)								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg			28-NOV-08	
F2 (C10-C16)	<10		10	mg/kg			28-NOV-08	
F3 (C16-C34)	107		50	mg/kg			28-NOV-08	
F4 (C34-C50)	227		50	mg/kg			28-NOV-08	
F4G-SG (GHH-Silica)	900		100	mg/kg			28-NOV-08	
Total Hydrocarbons (C6-C50)	334		50	mg/kg			28-NOV-08	
Chromatogram to baseline at nC50	NO			No Unit			28-NOV-08	
Prep/Analysis Dates				No Unit			28-NOV-08	R762621
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			28-NOV-08	R762542
Surr: Octacosane	89		60-120	%			28-NOV-08	R762542
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-7 BH-15 (SS-1)								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Arsenic (As)	4		1	mg/kg	14	17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4	1.9	01-DEC-08	R763631
Boron (B), Available	0.2		0.1	ug/g			28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	28-NOV-08	R762763
Mercury (Hg)	0.09		0.05	ug/g	0.16	0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)								
Barium (Ba)	34		1	mg/kg	190	210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	28-NOV-08	R763507
Chromium (Cr)	9		1	mg/kg	67	71	28-NOV-08	R763507
Cobalt (Co)	3		1	mg/kg	19	21	28-NOV-08	R763507
Copper (Cu)	22		1	mg/kg	56	85	28-NOV-08	R763507
Lead (Pb)	52		1	mg/kg	55	120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Nickel (Ni)	7		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	13		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	124		1	mg/kg	150	160	28-NOV-08	R763507
Individual Analytes								
% Moisture	9.8		0.5	%			27-NOV-08	R762204
Prep/Analysis Dates				No Unit			28-NOV-08	R762690
pH	8.03		0.01	pH units			27-NOV-08	R762512
L712303-8 BH-9 (SS-3)								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631
Arsenic (As)	2		1	mg/kg	14	17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4	1.9	01-DEC-08	R763631
Boron (B), Available	<0.1		0.1	ug/g			28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	28-NOV-08	R762763
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)								
Barium (Ba)	17		1	mg/kg	190	210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	28-NOV-08	R763507
Chromium (Cr)	7		1	mg/kg	67	71	28-NOV-08	R763507
Cobalt (Co)	3		1	mg/kg	19	21	28-NOV-08	R763507
Copper (Cu)	8		1	mg/kg	56	85	28-NOV-08	R763507
Lead (Pb)	13		1	mg/kg	55	120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-8 BH-9 (SS-3)								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
Standard Metal Scan (ICP)								
Nickel (Ni)	5		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	7		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	172		1	mg/kg	** 150	** 160	28-NOV-08	R763507
Individual Analytes								
% Moisture	8.1		0.5	%			27-NOV-08	R762204
pH	8.02		0.01	pH units			27-NOV-08	R762512
L712303-9 BH-16 (SS-2)								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg			28-NOV-08	
F2 (C10-C16)	<10		10	mg/kg			28-NOV-08	
F3 (C16-C34)	<50		50	mg/kg			28-NOV-08	
F4 (C34-C50)	<50		50	mg/kg			28-NOV-08	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg			28-NOV-08	
Chromatogram to baseline at nC50	YES			No Unit			28-NOV-08	
Prep/Analysis Dates				No Unit			28-NOV-08	R762621
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			28-NOV-08	R762542
Surr: Octacosane	88		60-120	%			28-NOV-08	R762542
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631
Arsenic (As)	3		1	mg/kg	14	17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4	1.9	01-DEC-08	R763631
Boron (B), Available	0.7		0.1	ug/g			28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	28-NOV-08	R762763
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)								
Barium (Ba)	35		1	mg/kg	190	210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	28-NOV-08	R763507
Chromium (Cr)	12		1	mg/kg	67	71	28-NOV-08	R763507
Cobalt (Co)	5		1	mg/kg	19	21	28-NOV-08	R763507
Copper (Cu)	11		1	mg/kg	56	85	28-NOV-08	R763507
Lead (Pb)	16		1	mg/kg	55	120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Nickel (Ni)	9		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507

** analytical results for this parameter exceed criteria limits listed on this report

O.Reg.153, Table 1 MARCH 9, 2004

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-9 BH-16 (SS-2)								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
Standard Metal Scan (ICP)								
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	17		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	103		1	mg/kg	150	160	28-NOV-08	R763507
Individual Analytes								
% Moisture	15.3		0.5	%			27-NOV-08	R762204
PCBs								
Aroclor 1242	<0.01		0.01	mg/kg			29-NOV-08	R762567
Aroclor 1248	<0.01		0.01	mg/kg			29-NOV-08	R762567
Aroclor 1254	<0.01		0.01	mg/kg			29-NOV-08	R762567
Aroclor 1260	<0.01		0.01	mg/kg			29-NOV-08	R762567
Total PCBs	<0.01		0.01	mg/kg	0.3	0.3	29-NOV-08	R762567
Surr: d14-Terphenyl	119		63-153	%			29-NOV-08	R762567
pH	7.73		0.01	pH units			27-NOV-08	R762512
L712303-10 BH-4 (SS-2)								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg			28-NOV-08	
F2 (C10-C16)	<10		10	mg/kg			28-NOV-08	
F3 (C16-C34)	<50		50	mg/kg			28-NOV-08	
F4 (C34-C50)	<50		50	mg/kg			28-NOV-08	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg			28-NOV-08	
Chromatogram to baseline at nC50	YES			No Unit			28-NOV-08	
Prep/Analysis Dates				No Unit			28-NOV-08	R762621
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			28-NOV-08	R762542
Surr: Octacosane	86		60-120	%			28-NOV-08	R762542
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631
Arsenic (As)	2		1	mg/kg	14	17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4	1.9	01-DEC-08	R763631
Boron (B), Available	<0.1		0.1	ug/g			28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	28-NOV-08	R762763
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)								
Barium (Ba)	37		1	mg/kg	190	210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	28-NOV-08	R763507
Chromium (Cr)	12		1	mg/kg	67	71	28-NOV-08	R763507
Cobalt (Co)	6		1	mg/kg	19	21	28-NOV-08	R763507

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-10 BH-4 (SS-2)								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
Standard Metal Scan (ICP)								
Copper (Cu)	11		1	mg/kg	56	85	28-NOV-08	R763507
Lead (Pb)	12		1	mg/kg	55	120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Nickel (Ni)	11		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	14		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	57		1	mg/kg	150	160	28-NOV-08	R763507
Individual Analytes								
% Moisture	12.2		0.5	%			27-NOV-08	R762204
PCBs								
Aroclor 1242	<0.01		0.01	mg/kg			29-NOV-08	R762567
Aroclor 1248	<0.01		0.01	mg/kg			29-NOV-08	R762567
Aroclor 1254	<0.01		0.01	mg/kg			29-NOV-08	R762567
Aroclor 1260	<0.01		0.01	mg/kg			29-NOV-08	R762567
Total PCBs	<0.01		0.01	mg/kg	0.3	0.3	29-NOV-08	R762567
Surr: d14-Terphenyl	112		63-153	%			29-NOV-08	R762567
pH	8.19		0.01	pH units			27-NOV-08	R762512
L712303-11 BH-X-NOV25								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	01-DEC-08	R763631
Arsenic (As)	1		1	mg/kg	14	17	01-DEC-08	R763631
Selenium (Se)	<1		1	mg/kg	1.4	1.9	01-DEC-08	R763631
Boron (B), Available	<0.1		0.1	ug/g			28-NOV-08	R762751
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	28-NOV-08	R762763
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	27-NOV-08	R762794
Standard Metal Scan (ICP)								
Barium (Ba)	11		1	mg/kg	190	210	28-NOV-08	R763507
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	28-NOV-08	R763507
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	28-NOV-08	R763507
Chromium (Cr)	6		1	mg/kg	67	71	28-NOV-08	R763507
Cobalt (Co)	2		1	mg/kg	19	21	28-NOV-08	R763507
Copper (Cu)	6		1	mg/kg	56	85	28-NOV-08	R763507
Lead (Pb)	14		1	mg/kg	55	120	28-NOV-08	R763507
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Nickel (Ni)	3		1	mg/kg	43	43	28-NOV-08	R763507
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	28-NOV-08	R763507
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	28-NOV-08	R763507
Vanadium (V)	4		1	mg/kg	91	91	28-NOV-08	R763507
Zinc (Zn)	49		1	mg/kg	150	160	28-NOV-08	R763507

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-11 BH-X-NOV25								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
VOC, F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg			01-DEC-08	
F1-BTEX	<5		5	mg/kg			01-DEC-08	
F2 (C10-C16)	<10		10	mg/kg			01-DEC-08	
F3 (C16-C34)	<50		50	mg/kg			01-DEC-08	
F4 (C34-C50)	<50		50	mg/kg			01-DEC-08	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg			01-DEC-08	
Chromatogram to baseline at nC50	YES			No Unit			01-DEC-08	
Prep/Analysis Dates				No Unit			28-NOV-08	R762621
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			28-NOV-08	R762542
Surr: Octacosane	83		60-120	%			28-NOV-08	R762542
Volatile Organics (153/04) Table 1								
1,1,1,2-Tetrachloroethane	<0.008		0.008	mg/kg			28-NOV-08	R762774
1,1,2,2-Tetrachloroethane	<0.004		0.004	mg/kg	0.004	0.004	28-NOV-08	R762774
1,1,1-Trichloroethane	<0.008		0.008	mg/kg	0.009	0.009	28-NOV-08	R762774
1,1,2-Trichloroethane	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,1-Dichloroethane	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,1-Dichloroethylene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,2-Dichlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,2-Dichloroethane	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,2-Dibromoethane	<0.004		0.004	mg/kg	0.004	0.004	28-NOV-08	R762774
1,2-Dichloropropane	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,3-Dichlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
1,4-Dichlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
2-Hexanone	<0.2		0.2	mg/kg			28-NOV-08	R762774
Acetone	<0.5		0.5	mg/kg			28-NOV-08	R762774
Benzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Bromodichloromethane	<0.005		0.005	mg/kg			28-NOV-08	R762774
Bromoform	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Bromomethane	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Carbon Disulfide	<0.02		0.02	mg/kg			28-NOV-08	R762774
Carbon tetrachloride	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Chlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Chloroethane	<0.03		0.03	mg/kg			28-NOV-08	R762774
Chloroform	<0.006		0.006	mg/kg	0.006	0.006	28-NOV-08	R762774
Chloromethane	<0.03		0.03	mg/kg			28-NOV-08	R762774
cis-1,2-Dichloroethylene	<0.02		0.02	mg/kg			28-NOV-08	R762774
cis-1,3-Dichloropropene	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Dibromomethane	<0.01		0.01	mg/kg			28-NOV-08	R762774
Dibromochloromethane	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Dichlorodifluoromethane	<0.03		0.03	mg/kg			28-NOV-08	R762774
Dichloromethane	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Ethyl Benzene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
MTBE	<0.2		0.2	mg/kg			28-NOV-08	R762774
m+p-Xylenes	<0.002		0.002	mg/kg			28-NOV-08	R762774
Methyl Ethyl Ketone	<0.2		0.2	mg/kg			28-NOV-08	R762774

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L712303-11 BH-X-NOV25								
Sampled By: LUKE T on 26-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
VOC, F1-F4 (O.Reg.153/04)								
Volatile Organics (153/04) Table 1								
Methyl Isobutyl Ketone	<0.2		0.2	mg/kg			28-NOV-08	R762774
o-Xylene	<0.002		0.002	mg/kg			28-NOV-08	R762774
Styrene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Tetrachloroethylene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Toluene	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
trans-1,2-Dichloroethylene	<0.002		0.002	mg/kg	0.003	0.003	28-NOV-08	R762774
trans-1,3-Dichloropropene	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Trichloroethylene	<0.004		0.004	mg/kg	0.004	0.004	28-NOV-08	R762774
Trichlorofluoromethane	<0.03		0.03	mg/kg			28-NOV-08	R762774
Vinyl chloride	<0.003		0.003	mg/kg	0.003	0.003	28-NOV-08	R762774
Xylenes (Total)	<0.002		0.002	mg/kg	0.002	0.002	28-NOV-08	R762774
Surr: 1,2-Dichloroethane d4	102		25-175	%			28-NOV-08	R762774
Surr: Toluene-d8	90		25-175	%			28-NOV-08	R762774
Surr: 4-Bromofluorobenzene	110		25-175	%			28-NOV-08	R762774
Individual Analytes								
% Moisture	7.6		0.5	%			27-NOV-08	R762204
PCBs								
Aroclor 1242	<0.01		0.01	mg/kg			29-NOV-08	R762567
Aroclor 1248	<0.01		0.01	mg/kg			29-NOV-08	R762567
Aroclor 1254	<0.01		0.01	mg/kg			29-NOV-08	R762567
Aroclor 1260	<0.01		0.01	mg/kg			29-NOV-08	R762567
Total PCBs	<0.01		0.01	mg/kg	0.3	0.3	29-NOV-08	R762567
Surr: d14-Terphenyl	110		63-153	%			29-NOV-08	R762567
pH	8.27		0.01	pH units			27-NOV-08	R762512

** analytical results for this parameter exceed criteria limits listed on this report

Sample Parameter Qualifier key listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
VC:RHS	Volatile Analysis Compromised; Samples Received With Headspace

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
AS,SB,SE-3050-MS-WT	Soil	As, Sb and Se by ICP/MS		SW846 3050B/6020A
B-AVAIL-WT	Soil	Boron (B), Available		HW EXTR, EPA 6010B
CR-CR6-WT	Soil	Hexavalent Chromium in Soil		EPA 7196
ETL-TVH,TEH-CCME-WT	Soil	CCME Total Hydrocarbons		CCME CWS-PHC Dec-2000 - Pub# 1310

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.

F1-WT	Soil	F1 (O.Reg.153/04)	MOE DECPH-E3398/CCME Tier 1
F2-F4-WT	Soil	F2-F4 (O.Reg.153/04)	MOE DECPH-E3398/CCME Tier 1
F4G-ADD-WT	Soil	F4G-SG (O.Reg.153/04)	MOE DECPH-E3398/CCME Tier 1
HG-WT	Soil	Mercury by CVAA	SW846 7470A
MET-R153-WT	Soil	Standard Metal Scan (ICP)	EPA 3050
MOISTURE-WT	Soil	% Moisture	Gravimetric: Oven Dried
PAH-CCME-WT	Soil	CCME PAHs	SW846 8270
PCB-WT	Soil	PCBs	EPA 8082
PH-R153-WT	Soil	pH	MOEE E3137A
VOC-CCME-TABLE1-WT	Soil	Volatile Organics (153/04) Table 1	MOE-E3254

Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

69263

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	Laboratory Definition Code	Laboratory Location
WT	ALS LABORATORY GROUP - WATERLOO, ONTARIO, CAN		

Reference Information

5-698-17-02

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory control limits are determined under column heading D.L.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
< - Less than
D.L. - Detection 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.
UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS provides criteria information as a service to you, our customer. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. ALS recommends review of the most current version of the regulation, and assumes no responsibility for the accuracy of the criteria levels indicated.

ALS Laboratory Group Quality Control Report

Workorder: L712303 Report Date: 01-DEC-08

Client: XCG CONSULTANTS LTD.
820 TRILLIUM DRIVE
KITCHENER ON N2R 1K4
Contact: THOMAS KOLODZIEJ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
AS,SB,SE-3050-MS-WT	**Soil**							
Batch R763631								
WG879232-2 CVS								
Antimony (Sb)			112		%		63-138	01-DEC-08
Arsenic (As)			108		%		63-138	01-DEC-08
Selenium (Se)			103		%		63-138	01-DEC-08
WG878174-3 DUP		**L712303-8**						
Antimony (Sb)		<1	<1	RPD-NA	mg/kg	N/A	26	01-DEC-08
Arsenic (As)		2	<1	RPD-NA	mg/kg	N/A	26	01-DEC-08
Selenium (Se)		<1	<1	RPD-NA	mg/kg	N/A	26	01-DEC-08
WG878174-2 LCS								
Arsenic (As)			102		%		63-138	01-DEC-08
Selenium (Se)			94		%		63-138	01-DEC-08
WG878174-1 MB								
Antimony (Sb)			<1		mg/kg		1	01-DEC-08
Arsenic (As)			<1		mg/kg		1	01-DEC-08
Selenium (Se)			<1		mg/kg		1	01-DEC-08
B-AVAIL-WT	**Soil**							
Batch R762751								
WG878190-3 DUP		**L712274-1**						
Boron (B), Available		<0.1	<0.1	RPD-NA	ug/g	N/A	26	28-NOV-08
WG878190-2 LCS								
Boron (B), Available			100		%		60-140	28-NOV-08
WG878190-1 MB								
Boron (B), Available			<0.1		ug/g		0.1	28-NOV-08
CR-CR6-WT	**Soil**							
Batch R762763								
WG878449-1 CVS								
Chromium, Hexavalent			94		%		70-130	28-NOV-08
WG878449-3 DUP		**L712303-11**						
Chromium, Hexavalent		<2	<2	RPD-NA	mg/kg	N/A	20	28-NOV-08
WG878449-4 DUP		**L712531-3**						
Chromium, Hexavalent		<2	<2	RPD-NA	mg/kg	N/A	20	28-NOV-08
WG878449-2 MB								
Chromium, Hexavalent			<2		mg/kg		2	28-NOV-08
F1-WT	**Soil**							

ALS Laboratory Group Quality Control Report

Workorder: L712303 Report Date: 01-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-WT	**Soil**							
Batch R762621								
WG877488-1 CVS								
TVH: (C6-C10 / No BTEX Correction)			93		%		59-131	28-NOV-08
WG877524-3 DUP		**WG877524-2**						
TVH: (C6-C10 / No BTEX Correction)		<5	<5	RPD-NA	mg/kg	N/A	65	28-NOV-08
WG877524-1 MB								
TVH: (C6-C10 / No BTEX Correction)			<5		mg/kg		5	28-NOV-08
F2-F4-WT	**Soil**							
Batch R762542								
WG878143-1 CVS								
F2 (C10-C16)			102		%		80-120	28-NOV-08
F3 (C16-C34)			106		%		80-120	28-NOV-08
F4 (C34-C50)			108		%		70-130	28-NOV-08
WG878143-2 CVS								
F2 (C10-C16)			104		%		80-120	28-NOV-08
F3 (C16-C34)			105		%		80-120	28-NOV-08
F4 (C34-C50)			107		%		70-130	28-NOV-08
WG878143-3 CVS								
F2 (C10-C16)			102		%		80-120	28-NOV-08
F3 (C16-C34)			105		%		80-120	28-NOV-08
F4 (C34-C50)			108		%		70-130	28-NOV-08
WG877572-4 DUP		**L712303-3**						
F2 (C10-C16)		<10	<10	RPD-NA	mg/kg	N/A	65	28-NOV-08
F3 (C16-C34)		56	60	J	mg/kg	4	20	28-NOV-08
F4 (C34-C50)		144	144	J	mg/kg	1	20	28-NOV-08
WG877572-2 LCS								
F2 (C10-C16)			94		%		54-120	28-NOV-08
F3 (C16-C34)			97		%		60-106	28-NOV-08
F4 (C34-C50)			88		%		52-122	28-NOV-08
WG877572-3 LCSD		**WG877572-2**						
F2 (C10-C16)		94	101		%	7.9	45	28-NOV-08
F3 (C16-C34)		97	100		%	3.8	45	28-NOV-08
F4 (C34-C50)		88	91		%	3.2	45	28-NOV-08
WG877572-1 MB								
F2 (C10-C16)			<10		mg/kg		10	28-NOV-08
F3 (C16-C34)			<50		mg/kg		50	28-NOV-08
F4 (C34-C50)			<50		mg/kg		50	28-NOV-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-WT	**Soil**							
Batch R762794								
WG877665-3 DUP		**L712303-1**						
Mercury (Hg)		0.09	0.11	J	ug/g	0.02	0.2	27-NOV-08
WG877665-2 LCS								
Mercury (Hg)			101		%		70-130	27-NOV-08
WG877665-1 MB								
Mercury (Hg)			<0.05		ug/g		0.05	27-NOV-08
MET-R153-WT	**Soil**							
Batch R763507								
WG878335-2 CVS								
Barium (Ba)			99		%		80-120	28-NOV-08
Beryllium (Be)			87		%		80-120	28-NOV-08
Cadmium (Cd)			88		%		80-120	28-NOV-08
Chromium (Cr)			95		%		80-120	28-NOV-08
Cobalt (Co)			94		%		80-120	28-NOV-08
Copper (Cu)			96		%		80-120	28-NOV-08
Molybdenum (Mo)			81		%		80-120	28-NOV-08
Nickel (Ni)			97		%		80-120	28-NOV-08
Silver (Ag)			80		%		80-120	28-NOV-08
Thallium (Tl)			95		%		80-120	28-NOV-08
Vanadium (V)			88		%		80-120	28-NOV-08
Zinc (Zn)			88		%		80-120	28-NOV-08
Lead (Pb)			84		%		80-120	28-NOV-08
WG878174-3 DUP		**L712303-8**						
Barium (Ba)		17	15		mg/kg	13	20	28-NOV-08
Beryllium (Be)		<0.5	<0.5	RPD-NA	mg/kg	N/A	20	28-NOV-08
Cadmium (Cd)		<0.5	<0.5	RPD-NA	mg/kg	N/A	20	28-NOV-08
Chromium (Cr)		7	6	J	mg/kg	1	4	28-NOV-08
Cobalt (Co)		3	2	J	mg/kg	0	4	28-NOV-08
Copper (Cu)		8	7	J	mg/kg	1	4	28-NOV-08
Lead (Pb)		13	11		mg/kg	17	120	28-NOV-08
Molybdenum (Mo)		<1	<1	RPD-NA	mg/kg	N/A	20	28-NOV-08
Nickel (Ni)		5	4	J	mg/kg	1	4	28-NOV-08
Silver (Ag)		<0.2	<0.2	RPD-NA	mg/kg	N/A	20	28-NOV-08
Thallium (Tl)		<1	<1	RPD-NA	mg/kg	N/A	20	28-NOV-08
Vanadium (V)		7	6					

ALS Laboratory Group Quality Control Report

Workorder: L712303 Report Date: 01-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-R153-WT	**Soil**							
Batch R763507								
WG878174-3 DUP		**L712303-8**						
Vanadium (V)		7	6	J	mg/kg	1	4	28-NOV-08
Zinc (Zn)		172	155		mg/kg	11	20	28-NOV-08
WG878174-2 LCS								
Barium (Ba)			96		%		80-120	28-NOV-08
Beryllium (Be)			85		%		80-120	28-NOV-08
Cadmium (Cd)			89		%		80-120	28-NOV-08
Chromium (Cr)			95		%		80-120	28-NOV-08
Cobalt (Co)			94		%		80-120	28-NOV-08
Copper (Cu)			94		%		80-120	28-NOV-08
Lead (Pb)			90		%		80-120	28-NOV-08
Nickel (Ni)			93		%		80-120	28-NOV-08
Thallium (Tl)			87		%		80-120	28-NOV-08
Vanadium (V)			93		%		80-120	28-NOV-08
Zinc (Zn)			81		%		80-120	28-NOV-08
WG878174-1 MB								
Barium (Ba)			<1		mg/kg		1	28-NOV-08
Beryllium (Be)			<0.5		mg/kg		0.5	28-NOV-08
Cadmium (Cd)			<0.5		mg/kg		0.5	28-NOV-08
Chromium (Cr)			<1		mg/kg		1	28-NOV-08
Cobalt (Co)			<1		mg/kg		1	28-NOV-08
Copper (Cu)			<1		mg/kg		1	28-NOV-08
Lead (Pb)			<1		mg/kg		1	28-NOV-08
Molybdenum (Mo)			<1		mg/kg		1	28-NOV-08
Nickel (Ni)			<1		mg/kg		1	28-NOV-08
Silver (Ag)			<0.2		mg/kg		0.2	28-NOV-08
Thallium (Tl)			<1		mg/kg		1	28-NOV-08
Vanadium (V)			<1		mg/kg		1	28-NOV-08
Zinc (Zn)			<1		mg/kg		1	28-NOV-08
MOISTURE-WT	**Soil**							
Batch R762204								
WG877654-3 DUP		**L712303-10**						
% Moisture		12.2	11.3		%	7.0	26	27-NOV-08
WG877654-2 LCS								
% Moisture			100				79-120	

ALS Laboratory Group Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT	**Soil**							
Batch R762204								
WG877654-2 LCS								
% Moisture			100		%		79-120	27-NOV-08
WG877654-1 MB								
% Moisture			<0.5		%		0.5	27-NOV-08
PAH-CCME-WT	**Soil**							
Batch R763496								
WG878132-1 CVS								
1-Methylnaphthalene			94		%		71-127	01-DEC-08
2-Methylnaphthalene			83		%		68-115	01-DEC-08
Acenaphthene			96		%		66-128	01-DEC-08
Acenaphthylene			96		%		60-132	01-DEC-08
Acridine			111		%		69-145	01-DEC-08
Anthracene			93		%		64-123	01-DEC-08
Benzo(a)anthracene			91		%		75-134	01-DEC-08
Benzo(a)pyrene			90		%		60-135	01-DEC-08
Benzo(b)fluoranthene			80		%		67-131	01-DEC-08
Benzo(g,h,i)perylene			91		%		60-136	01-DEC-08
Benzo(k)fluoranthene			99		%		68-137	01-DEC-08
Chrysene			100		%		72-131	01-DEC-08
Dibenzo(ah)anthracene			94		%		64-133	01-DEC-08
Fluoranthene			89		%		75-124	01-DEC-08
Fluorene			100		%		75-127	01-DEC-08
Indeno(1,2,3-cd)pyrene			88		%		58-140	01-DEC-08
Naphthalene			94		%		69-122	01-DEC-08
Phenanthrene			87		%		77-126	01-DEC-08
Pyrene			90		%		76-127	01-DEC-08
Quinoline			109		%		70-120	01-DEC-08
WG877577-4 DUP		**L712303-1**						
1-Methylnaphthalene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	01-DEC-08
2-Methylnaphthalene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	01-DEC-08
Acenaphthene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	01-DEC-08
Acenaphthylene		<0.05	0.06	RPD-NA	mg/kg	N/A	65	01-DEC-08
Acridine		<0.8	<0.8	RPD-NA	mg/kg	N/A	39	01-DEC-08
Anthracene		<0.05	0.07	RPD-NA	mg/kg	N/A	65	01-DEC-08

COMMENTS: QC results are acceptable and within the method data quality objectives.

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-WT	**Soil**							
Batch R763496								
WG877577-4 DUP		**L712303-1**						
Benzo(a)anthracene		0.14	0.21	J	mg/kg	0.07	0.2	01-DEC-08
Benzo(a)pyrene		0.24	0.25		mg/kg	2.2	65	01-DEC-08
Benzo(b)fluoranthene		0.18	0.18	J	mg/kg	0.00	0.2	01-DEC-08
Benzo(g,h,i)perylene		0.22	0.95	J,G	mg/kg	0.72	0.2	01-DEC-08
Benzo(k)fluoranthene		0.11	0.15	J	mg/kg	0.04	0.2	01-DEC-08
Chrysene		0.18	0.22	J	mg/kg	0.03	0.2	01-DEC-08
Dibenzo(ah)anthracene		0.13	0.19	J	mg/kg	0.06	0.2	01-DEC-08
Fluoranthene		0.19	0.31	J	mg/kg	0.13	0.2	01-DEC-08
Fluorene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	01-DEC-08
Indeno(1,2,3-cd)pyrene		0.14	0.36	J,G	mg/kg	0.23	0.2	01-DEC-08
Naphthalene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	01-DEC-08
Phenanthrene		0.09	0.17	J	mg/kg	0.08	0.2	01-DEC-08
Pyrene		0.17	0.29	J	mg/kg	0.12	0.2	01-DEC-08
Quinoline		<0.05	<0.05	RPD-NA	mg/kg	N/A	39	01-DEC-08
COMMENTS: QC results are acceptable and within the method data quality objectives.								
WG877577-2 LCS								
1-Methylnaphthalene			100		%		74-131	01-DEC-08
2-Methylnaphthalene			90		%		70-127	01-DEC-08
Acenaphthene			108		%		54-134	01-DEC-08
Acenaphthylene			107		%		49-136	01-DEC-08
Acridine			123		%		43-131	01-DEC-08
Anthracene			103		%		49-134	01-DEC-08
Benzo(a)anthracene			100		%		49-141	01-DEC-08
Benzo(a)pyrene			97		%		42-131	01-DEC-08
Benzo(b)fluoranthene			82		%		46-131	01-DEC-08
Benzo(g,h,i)perylene			97		%		43-126	01-DEC-08
Benzo(k)fluoranthene			117		%		48-143	01-DEC-08
Chrysene			115		%		48-129	01-DEC-08
Dibenzo(ah)anthracene			100		%		49-142	01-DEC-08
Fluoranthene			101		%		50-133	01-DEC-08
Fluorene			109		%		51-137	01-DEC-08
Indeno(1,2,3-cd)pyrene			101		%		38-134	01-DEC-08
Naphthalene			103		%		51-134	01-DEC-08

ALS Laboratory Group Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-WT	**Soil**							
Batch R763496								
WG877577-2 LCS								
Phenanthrene			97		%		57-137	01-DEC-08
Pyrene			100		%		45-126	01-DEC-08
Quinoline			106		%		25-175	01-DEC-08
WG877577-3 LCSD		**WG877577-2**						
1-Methylnaphthalene		100	106		%	5.5	45	01-DEC-08
2-Methylnaphthalene		90	96		%	6.5	45	01-DEC-08
Acenaphthene		108	113		%	4.3	24	01-DEC-08
Acenaphthylene		107	112		%	5.2	45	01-DEC-08
Acridine		123	125		%	1.5	45	01-DEC-08
Anthracene		103	104		%	0.58	45	01-DEC-08
Benzo(a)anthracene		100	99		%	0.50	45	01-DEC-08
Benzo(a)pyrene		97	100		%	2.8	45	01-DEC-08
Benzo(b)fluoranthene		82	84		%	2.4	45	01-DEC-08
Benzo(g,h,i)perylene		97	101		%	3.9	45	01-DEC-08
Benzo(k)fluoranthene		117	121		%	3.4	45	01-DEC-08
Chrysene		115	115		%	0.32	45	01-DEC-08
Dibenzo(ah)anthracene		100	104		%	3.6	45	01-DEC-08
Fluoranthene		101	102		%	1.9	45	01-DEC-08
Fluorene		109	114		%	4.7	45	01-DEC-08
Indeno(1,2,3-cd)pyrene		101	98		%	2.8	45	01-DEC-08
Naphthalene		103	107		%	3.4	45	01-DEC-08
Phenanthrene		97	101		%	4.0	45	01-DEC-08
Pyrene		100	103		%	2.3	45	01-DEC-08
Quinoline		106	110		%	3.5	45	01-DEC-08
WG877577-1 MB								
1-Methylnaphthalene			<0.05		mg/kg		0.05	01-DEC-08
2-Methylnaphthalene			<0.05		mg/kg		0.05	01-DEC-08
Acenaphthene			<0.05		mg/kg		0.05	01-DEC-08
Acenaphthylene			<0.05		mg/kg		0.05	01-DEC-08
Acridine			<0.8		mg/kg		0.8	01-DEC-08
Anthracene			<0.05		mg/kg		0.05	01-DEC-08
Benzo(a)anthracene			<0.05		mg/kg		0.05	01-DEC-08
Benzo(a)pyrene			<0.02		mg/kg		0.02	01-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-WT	**Soil**							
Batch R763496								
WG877577-1 MB								
Benzo(b)fluoranthene			<0.05		mg/kg		0.05	01-DEC-08
Benzo(g,h,i)perylene			<0.05		mg/kg		0.05	01-DEC-08
Benzo(k)fluoranthene			<0.05		mg/kg		0.05	01-DEC-08
Chrysene			<0.05		mg/kg		0.05	01-DEC-08
Dibenzo(ah)anthracene			<0.05		mg/kg		0.05	01-DEC-08
Fluoranthene			<0.05		mg/kg		0.05	01-DEC-08
Fluorene			<0.05		mg/kg		0.05	01-DEC-08
Indeno(1,2,3-cd)pyrene			<0.05		mg/kg		0.05	01-DEC-08
Naphthalene			<0.05		mg/kg		0.05	01-DEC-08
Phenanthrene			<0.05		mg/kg		0.05	01-DEC-08
Pyrene			<0.05		mg/kg		0.05	01-DEC-08
Quinoline			<0.05		mg/kg		0.05	01-DEC-08
PCB-WT	**Soil**							
Batch R762567								
WG878144-1 CVS								
Aroclor 1242			97		%		40-140	28-NOV-08
Aroclor 1248			97		%		55-145	28-NOV-08
Aroclor 1254			101		%		40-140	28-NOV-08
Aroclor 1260			109		%		40-140	28-NOV-08
Total PCBs			101		%		33-138	28-NOV-08
WG878144-2 CVS								
Aroclor 1242			96		%		40-140	29-NOV-08
Aroclor 1248			97		%		55-145	29-NOV-08
Aroclor 1254			94		%		40-140	29-NOV-08
Aroclor 1260			98		%		40-140	29-NOV-08
Total PCBs			96		%		33-138	29-NOV-08
WG877577-5 DUP		**L712303-9**						
Aroclor 1242		<0.01	<0.01	RPD-NA	mg/kg	N/A	50	29-NOV-08
Aroclor 1248		<0.01	<0.01	RPD-NA	mg/kg	N/A	39	29-NOV-08
Aroclor 1254		<0.01	<0.01	RPD-NA	mg/kg	N/A	50	29-NOV-08
Aroclor 1260		<0.01	<0.01	RPD-NA	mg/kg	N/A	50	29-NOV-08
Total PCBs		<0.01	<0.01	RPD-NA	mg/kg	N/A	50	29-NOV-08
WG877577-2 LCS								
Aroclor 1242			93				62-133	

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-WT	**Soil**							
Batch R762567								
WG877577-2 LCS								
Aroclor 1242			93		%		62-133	28-NOV-08
Aroclor 1248			90		%		55-145	28-NOV-08
Aroclor 1254			91		%		58-130	28-NOV-08
Aroclor 1260			98		%		56-133	28-NOV-08
Total PCBs			93		%		25-175	28-NOV-08
WG877577-3 LCSD		**WG877577-2**						
Aroclor 1242		93	95		%	1.5	45	28-NOV-08
Aroclor 1248		90	90		%	0.0	45	28-NOV-08
Aroclor 1254		91	92		%	0.68	45	28-NOV-08
Aroclor 1260		98	103		%	4.9	45	28-NOV-08
Total PCBs		93	95		%	1.9	45	28-NOV-08
WG877577-1 MB								
Aroclor 1242			<0.01		mg/kg		0.01	28-NOV-08
Aroclor 1248			<0.01		mg/kg		0.01	28-NOV-08
Aroclor 1254			<0.01		mg/kg		0.01	28-NOV-08
Aroclor 1260			<0.01		mg/kg		0.01	28-NOV-08
Total PCBs			<0.01		mg/kg		0.01	28-NOV-08
PH-R153-WT	**Soil**							
Batch R762512								
WG878105-1 CVS								
pH			100		%		63-138	27-NOV-08
WG878105-2 DUP		**L712274-1**						
pH		7.20	7.13		pH units	0.98	26	27-NOV-08
WG878105-3 DUP		**L712303-1**						
pH		9.63	10.3		pH units	7.1	26	27-NOV-08
VOC-CCME-TABLE1-WT	**Soil**							
Batch R762774								
WG877833-1 CVS								
1,1,1,2-Tetrachloroethane			94		%		75-125	28-NOV-08
1,1,1-Trichloroethane			97		%		75-125	28-NOV-08
1,1,2,2-Tetrachloroethane			98		%		75-125	28-NOV-08
1,1,2-Trichloroethane			99		%		75-125	28-NOV-08
1,1-Dichloroethane			99		%		75-125	28-NOV-08
1,1-Dichloroethylene			97		%		75-125	28-NOV-08

ALS Laboratory Group Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-CCME-TABLE1-WT	**Soil**							
Batch R762774								
WG877833-1 CVS								
1,2-Dichlorobenzene			94		%		75-125	28-NOV-08
1,2-Dichloroethane			104		%		75-125	28-NOV-08
1,2-Dichloropropane			99		%		75-125	28-NOV-08
1,3-Dichlorobenzene			96		%		75-125	28-NOV-08
1,4-Dichlorobenzene			94		%		75-125	28-NOV-08
2-Hexanone			102		%		75-125	28-NOV-08
Acetone			106		%		75-125	28-NOV-08
Benzene			102		%		75-125	28-NOV-08
Bromodichloromethane			101		%		75-125	28-NOV-08
Bromoform			97		%		75-125	28-NOV-08
Bromomethane			104		%		55-145	28-NOV-08
Carbon Disulfide			102		%		75-125	28-NOV-08
Carbon tetrachloride			99		%		75-125	28-NOV-08
Chlorobenzene			97		%		75-125	28-NOV-08
Dibromochloromethane			92		%		75-125	28-NOV-08
Chloroethane			104		%		75-125	28-NOV-08
Chloroform			100		%		75-125	28-NOV-08
Chloromethane			97		%		75-125	28-NOV-08
cis-1,2-Dichloroethylene			93		%		75-125	28-NOV-08
cis-1,3-Dichloropropene			93		%		75-125	28-NOV-08
Dibromomethane			99		%		55-145	28-NOV-08
Dichlorodifluoromethane			75		%		75-125	28-NOV-08
Ethyl Benzene			97		%		75-125	28-NOV-08
1,2-Dibromoethane			95		%		55-145	28-NOV-08
m+p-Xylenes			98		%		75-125	28-NOV-08
Methyl Ethyl Ketone			114		%		75-125	28-NOV-08
Methyl Isobutyl Ketone			107		%		55-145	28-NOV-08
MTBE			99		%		75-125	28-NOV-08
Dichloromethane			98		%		55-145	28-NOV-08
o-Xylene			93		%		75-125	28-NOV-08
Styrene			88		%		75-125	28-NOV-08
Tetrachloroethylene			95		%		75-125	28-NOV-08
Toluene			102		%		75-125	28-NOV-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-CCME-TABLE1-WT	**Soil**							
Batch R762774								
WG877833-1 CVS								
trans-1,2-Dichloroethylene			102		%		75-125	28-NOV-08
trans-1,3-Dichloropropene			92		%		75-125	28-NOV-08
Trichloroethylene			91		%		75-125	28-NOV-08
Trichlorofluoromethane			112		%		66-137	28-NOV-08
Vinyl chloride			105		%		75-125	28-NOV-08
WG877517-3 DUP		**WG877517-2**						
1,1,1,2-Tetrachloroethane		<0.008	<0.008	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,1,1-Trichloroethane		<0.008	<0.008	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,1,2,2-Tetrachloroethane		<0.004	<0.004	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,1,2-Trichloroethane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,1-Dichloroethane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,1-Dichloroethylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,2-Dichlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,2-Dichloroethane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,2-Dichloropropane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,3-Dichlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,4-Dichlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
2-Hexanone		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	28-NOV-08
Acetone		<0.5	<0.5	RPD-NA	mg/kg	N/A	39	28-NOV-08
Benzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
Bromodichloromethane		<0.005	<0.005	RPD-NA	mg/kg	N/A	39	28-NOV-08
Bromoform		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
Bromomethane		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	28-NOV-08
Carbon Disulfide		<0.02	<0.02	RPD-NA	mg/kg	N/A	39	28-NOV-08
Carbon tetrachloride		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
Chlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
Dibromochloromethane		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	28-NOV-08
Chloroethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	28-NOV-08
Chloroform		<0.006	<0.006	RPD-NA	mg/kg	N/A	39	28-NOV-08
Chloromethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	28-NOV-08
cis-1,2-Dichloroethylene		<0.02	<0.02	RPD-NA	mg/kg	N/A	39	28-NOV-08
cis-1,3-Dichloropropene		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	28-NOV-08
Dibromomethane		<0.01	<0.01	RPD-NA	mg/kg	N/A	39	28-NOV-08

ALS Laboratory Group Quality Control Report

Workorder: L712303 Report Date: 01-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-CCME-TABLE1-WT	**Soil**							
Batch R762774								
WG877517-3 DUP		**WG877517-2**						
Dichlorodifluoromethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	28-NOV-08
Ethyl Benzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
1,2-Dibromoethane		<0.004	<0.004	RPD-NA	mg/kg	N/A	39	28-NOV-08
m+p-Xylenes		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
Methyl Ethyl Ketone		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	28-NOV-08
Methyl Isobutyl Ketone		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	28-NOV-08
MTBE		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	28-NOV-08
Dichloromethane		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	28-NOV-08
o-Xylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
Styrene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
Tetrachloroethylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
Toluene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
trans-1,2-Dichloroethylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	28-NOV-08
trans-1,3-Dichloropropene		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	28-NOV-08
Trichloroethylene		<0.004	<0.004	RPD-NA	mg/kg	N/A	39	28-NOV-08
Trichlorofluoromethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	28-NOV-08
Vinyl chloride		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	28-NOV-08
WG877517-1 MB								
1,1,1,2-Tetrachloroethane			<0.008		mg/kg		0.008	28-NOV-08
1,1,1-Trichloroethane			<0.008		mg/kg		0.008	28-NOV-08
1,1,2,2-Tetrachloroethane			<0.004		mg/kg		0.004	28-NOV-08
1,1,2-Trichloroethane			<0.002		mg/kg		0.002	28-NOV-08
1,1-Dichloroethane			<0.002		mg/kg		0.002	28-NOV-08
1,1-Dichloroethylene			<0.002		mg/kg		0.002	28-NOV-08
1,2-Dichlorobenzene			<0.002		mg/kg		0.002	28-NOV-08
1,2-Dichloroethane			<0.002		mg/kg		0.002	28-NOV-08
1,2-Dichloropropane			<0.002		mg/kg		0.002	28-NOV-08
1,3-Dichlorobenzene			<0.002		mg/kg		0.002	28-NOV-08
1,4-Dichlorobenzene			<0.002		mg/kg		0.002	28-NOV-08
2-Hexanone			<0.2		mg/kg		0.2	28-NOV-08
Acetone			<0.5		mg/kg		0.5	28-NOV-08
Benzene			<0.002		mg/kg		0.002	28-NOV-08
Bromodichloromethane			<0.005		mg/kg		0.005	28-NOV-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-CCME-TABLE1-WT	**Soil**							
Batch R762774								
WG877517-1 MB								
Bromoform			<0.002		mg/kg		0.002	28-NOV-08
Bromomethane			<0.003		mg/kg		0.003	28-NOV-08
Carbon Disulfide			<0.02		mg/kg		0.02	28-NOV-08
Carbon tetrachloride			<0.002		mg/kg		0.002	28-NOV-08
Chlorobenzene			<0.002		mg/kg		0.002	28-NOV-08
Dibromochloromethane			<0.003		mg/kg		0.003	28-NOV-08
Chloroethane			<0.03		mg/kg		0.03	28-NOV-08
Chloroform			<0.006		mg/kg		0.006	28-NOV-08
Chloromethane			<0.03		mg/kg		0.03	28-NOV-08
cis-1,2-Dichloroethylene			<0.02		mg/kg		0.02	28-NOV-08
cis-1,3-Dichloropropene			<0.003		mg/kg		0.003	28-NOV-08
Dibromomethane			<0.01		mg/kg		0.01	28-NOV-08
Dichlorodifluoromethane			<0.03		mg/kg		0.03	28-NOV-08
Ethyl Benzene			<0.002		mg/kg		0.002	28-NOV-08
1,2-Dibromoethane			<0.004		mg/kg		0.004	28-NOV-08
m+p-Xylenes			<0.002		mg/kg		0.002	28-NOV-08
Methyl Ethyl Ketone			<0.2		mg/kg		0.2	28-NOV-08
Methyl Isobutyl Ketone			<0.2		mg/kg		0.2	28-NOV-08
MTBE			<0.2		mg/kg		0.2	28-NOV-08
Dichloromethane			<0.003		mg/kg		0.003	28-NOV-08
o-Xylene			<0.002		mg/kg		0.002	28-NOV-08
Styrene			<0.002		mg/kg		0.002	28-NOV-08
Tetrachloroethylene			<0.002		mg/kg		0.002	28-NOV-08
Toluene			<0.002		mg/kg		0.002	28-NOV-08
trans-1,2-Dichloroethylene			<0.002		mg/kg		0.002	28-NOV-08
trans-1,3-Dichloropropene			<0.003		mg/kg		0.003	28-NOV-08
Trichloroethylene			<0.004		mg/kg		0.004	28-NOV-08
Trichlorofluoromethane			<0.03		mg/kg		0.03	28-NOV-08
Vinyl chloride			<0.003		mg/kg		0.003	28-NOV-08

ALS Laboratory Group Quality Control Report

Legend:

Limit	99% Confidence Interval (Laboratory Control Limits)
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
G	QC result did not meet ALS DQO. Refer to narrative comments for further information.
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.

Certificate of Analysis

XCG CONSULTANTS LTD.

ATTN: THOMAS KOLODZIEJ

820 TRILLIUM DRIVE

KITCHENER ON N2R 1K4

Reported On: 05-DEC-08 01:29 PM

Lab Work Order #: **L713254** **Date Received:** **01-DEC-08**

Project P.O. #:
Job Reference: 5-698-17-02
Legal Site Desc:
CofC Numbers: 69264

Other Information:

Comments:

NANCY GRAHAM
Account Manager

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L713254-1 BH3 (SS-2) Sampled By: CLIENT on 27-NOV-08 Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	02-DEC-08	R764211
Arsenic (As)	1		1	mg/kg	14	17	02-DEC-08	R764211
Selenium (Se)	<1		1	mg/kg	1.4	1.9	02-DEC-08	R764211
Boron (B), Available	<0.1		0.1	ug/g			02-DEC-08	R764169
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	04-DEC-08	R765163
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	02-DEC-08	R764296
Standard Metal Scan (ICP)								
Barium (Ba)	18		1	mg/kg	190	210	02-DEC-08	R764231
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	02-DEC-08	R764231
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	02-DEC-08	R764231
Chromium (Cr)	7		1	mg/kg	67	71	02-DEC-08	R764231
Cobalt (Co)	3		1	mg/kg	19	21	02-DEC-08	R764231
Copper (Cu)	8		1	mg/kg	56	85	02-DEC-08	R764231
Lead (Pb)	14		1	mg/kg	55	120	02-DEC-08	R764231
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	02-DEC-08	R764231
Nickel (Ni)	5		1	mg/kg	43	43	02-DEC-08	R764231
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	02-DEC-08	R764231
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	02-DEC-08	R764231
Vanadium (V)	8		1	mg/kg	91	91	02-DEC-08	R764231
Zinc (Zn)	102		1	mg/kg	150	160	02-DEC-08	R764231
VOC, F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg			04-DEC-08	
F1-BTEX	<5		5	mg/kg			04-DEC-08	
F2 (C10-C16)	<10		10	mg/kg			04-DEC-08	
F2-Naphth	<10		10	mg/kg			04-DEC-08	
F3 (C16-C34)	<50		50	mg/kg			04-DEC-08	
F3-PAH	<50		50	mg/kg			04-DEC-08	
F4 (C34-C50)	<50		50	mg/kg			04-DEC-08	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg			04-DEC-08	
Chromatogram to baseline at nC50	YES			No Unit			04-DEC-08	
Prep/Analysis Dates				No Unit			02-DEC-08	R764516
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			04-DEC-08	R765314
Surr: Octacosane	84		60-120	%			04-DEC-08	R765314
Volatile Organics (153/04) Table 1								
1,1,1,2-Tetrachloroethane	<0.008		0.008	mg/kg			02-DEC-08	R763892
1,1,2,2-Tetrachloroethane	<0.004		0.004	mg/kg	0.004	0.004	02-DEC-08	R763892
1,1,1-Trichloroethane	<0.008		0.008	mg/kg	0.009	0.009	02-DEC-08	R763892
1,1,2-Trichloroethane	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
1,1-Dichloroethane	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
1,1-Dichloroethylene	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
1,2-Dichlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
1,2-Dichloroethane	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
1,2-Dibromoethane	<0.004		0.004	mg/kg	0.004	0.004	02-DEC-08	R763892

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L713254-1 BH3 (SS-2)								
Sampled By: CLIENT on 27-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
VOC, F1-F4 (O.Reg.153/04)								
Volatile Organics (153/04) Table 1								
1,2-Dichloropropane	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
1,3-Dichlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
1,4-Dichlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
2-Hexanone	<0.2		0.2	mg/kg			02-DEC-08	R763892
Acetone	<0.5		0.5	mg/kg			02-DEC-08	R763892
Benzene	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
Bromodichloromethane	<0.005		0.005	mg/kg			02-DEC-08	R763892
Bromoform	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
Bromomethane	<0.003		0.003	mg/kg	0.003	0.003	02-DEC-08	R763892
Carbon Disulfide	<0.02		0.02	mg/kg			02-DEC-08	R763892
Carbon tetrachloride	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
Chlorobenzene	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
Chloroethane	<0.03		0.03	mg/kg			02-DEC-08	R763892
Chloroform	<0.006		0.006	mg/kg	0.006	0.006	02-DEC-08	R763892
Chloromethane	<0.03		0.03	mg/kg			02-DEC-08	R763892
cis-1,2-Dichloroethylene	<0.02		0.02	mg/kg			02-DEC-08	R763892
cis-1,3-Dichloropropene	<0.003		0.003	mg/kg	0.003	0.003	02-DEC-08	R763892
Dibromomethane	<0.01		0.01	mg/kg			02-DEC-08	R763892
Dibromochloromethane	<0.003		0.003	mg/kg	0.003	0.003	02-DEC-08	R763892
Dichlorodifluoromethane	<0.03		0.03	mg/kg			02-DEC-08	R763892
Dichloromethane	<0.003		0.003	mg/kg	0.003	0.003	02-DEC-08	R763892
Ethyl Benzene	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
MTBE	<0.2		0.2	mg/kg			02-DEC-08	R763892
m+p-Xylenes	<0.002		0.002	mg/kg			02-DEC-08	R763892
Methyl Ethyl Ketone	<0.2		0.2	mg/kg			02-DEC-08	R763892
Methyl Isobutyl Ketone	<0.2		0.2	mg/kg			02-DEC-08	R763892
o-Xylene	<0.002		0.002	mg/kg			02-DEC-08	R763892
Styrene	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
Tetrachloroethylene	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
Toluene	0.003		0.002	mg/kg	** 0.002	** 0.002	02-DEC-08	R763892
trans-1,2-Dichloroethylene	<0.002		0.002	mg/kg	0.003	0.003	02-DEC-08	R763892
trans-1,3-Dichloropropene	<0.003		0.003	mg/kg	0.003	0.003	02-DEC-08	R763892
Trichloroethylene	<0.004		0.004	mg/kg	0.004	0.004	02-DEC-08	R763892
Trichlorofluoromethane	<0.03		0.03	mg/kg			02-DEC-08	R763892
Vinyl chloride	<0.003		0.003	mg/kg	0.003	0.003	02-DEC-08	R763892
Xylenes (Total)	<0.002		0.002	mg/kg	0.002	0.002	02-DEC-08	R763892
Surr: 1,2-Dichloroethane d4	95		25-175	%			02-DEC-08	R763892
Surr: Toluene-d8	91		25-175	%			02-DEC-08	R763892
Surr: 4-Bromofluorobenzene	114		25-175	%			02-DEC-08	R763892
Individual Analytes								
% Moisture	8.0		0.5	%			01-DEC-08	R763998
CCME PAHs								
1-Methylnaphthalene	<0.05		0.05	mg/kg	0.05	0.26	03-DEC-08	R764751
2-Methylnaphthalene	<0.05		0.05	mg/kg			03-DEC-08	R764751
Acenaphthene	<0.05		0.05	mg/kg	0.05	0.07	03-DEC-08	R764751
Acenaphthylene	<0.05		0.05	mg/kg	0.08	0.08	03-DEC-08	R764751
Acridine	<0.8		0.8	mg/kg			03-DEC-08	R764751

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L713254-1 BH3 (SS-2)								
Sampled By: CLIENT on 27-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Individual Analytes								
CCME PAHs								
Anthracene	<0.05		0.05	mg/kg	0.05	0.16	03-DEC-08	R764751
Benzo(a)anthracene	<0.05		0.05	mg/kg	0.10	0.74	03-DEC-08	R764751
Benzo(a)pyrene	<0.02		0.02	mg/kg	0.10	0.49	03-DEC-08	R764751
Benzo(b)fluoranthene	<0.05		0.05	mg/kg	0.30	0.47	03-DEC-08	R764751
Benzo(g,h,i)perylene	<0.05		0.05	mg/kg	0.20	0.68	03-DEC-08	R764751
Benzo(k)fluoranthene	<0.05		0.05	mg/kg	0.05	0.48	03-DEC-08	R764751
Chrysene	<0.05		0.05	mg/kg	0.18	0.69	03-DEC-08	R764751
Dibenzo(ah)anthracene	<0.05		0.05	mg/kg	0.15	0.16	03-DEC-08	R764751
Fluoranthene	<0.05		0.05	mg/kg	0.24	1.1	03-DEC-08	R764751
Fluorene	<0.05		0.05	mg/kg	0.05	0.12	03-DEC-08	R764751
Indeno(1,2,3-cd)pyrene	<0.05		0.05	mg/kg	0.11	0.38	03-DEC-08	R764751
Naphthalene	<0.05		0.05	mg/kg	0.05	0.09	03-DEC-08	R764751
Phenanthrene	<0.05		0.05	mg/kg	0.19	0.69	03-DEC-08	R764751
Pyrene	<0.05		0.05	mg/kg	0.19	1.0	03-DEC-08	R764751
Quinoline	<0.05		0.05	mg/kg			03-DEC-08	R764751
Surr: 2-Fluorobiphenyl	87		50-150	%			03-DEC-08	R764751
Surr: p-Terphenyl d14	84		52-158	%			03-DEC-08	R764751
pH	7.97		0.01	pH units			01-DEC-08	R764008
L713254-2 BH10 (SS-1)								
Sampled By: CLIENT on 27-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg			05-DEC-08	
F2 (C10-C16)	<100	DLA	100	mg/kg			05-DEC-08	
F2-Naphth	<100		100	mg/kg			05-DEC-08	
F3 (C16-C34)	1300	DLA	500	mg/kg			05-DEC-08	
F3-PAH	1300		500	mg/kg			05-DEC-08	
F4 (C34-C50)	2600	DLA	500	mg/kg			05-DEC-08	
F4G-SG (GHH-Silica)	7900		100	mg/kg			05-DEC-08	
Total Hydrocarbons (C6-C50)	3900		500	mg/kg			05-DEC-08	
Chromatogram to baseline at nC50	NO			No Unit			05-DEC-08	
Prep/Analysis Dates				No Unit			02-DEC-08	R764516
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			04-DEC-08	R765314
Surr: Octacosane	0	SOL:MI	60-120	%			04-DEC-08	R765314
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	02-DEC-08	R764211
Arsenic (As)	2		1	mg/kg	14	17	02-DEC-08	R764211
Selenium (Se)	<1		1	mg/kg	1.4	1.9	02-DEC-08	R764211
Boron (B), Available	0.1		0.1	ug/g			02-DEC-08	R764169
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	04-DEC-08	R765163

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L713254-2 BH10 (SS-1)								
Sampled By: CLIENT on 27-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	02-DEC-08	R764296
Standard Metal Scan (ICP)								
Barium (Ba)	17		1	mg/kg	190	210	02-DEC-08	R764231
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	02-DEC-08	R764231
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	02-DEC-08	R764231
Chromium (Cr)	6		1	mg/kg	67	71	02-DEC-08	R764231
Cobalt (Co)	3		1	mg/kg	19	21	02-DEC-08	R764231
Copper (Cu)	11		1	mg/kg	56	85	02-DEC-08	R764231
Lead (Pb)	17		1	mg/kg	55	120	02-DEC-08	R764231
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	02-DEC-08	R764231
Nickel (Ni)	5		1	mg/kg	43	43	02-DEC-08	R764231
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	02-DEC-08	R764231
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	02-DEC-08	R764231
Vanadium (V)	8		1	mg/kg	91	91	02-DEC-08	R764231
Zinc (Zn)	99		1	mg/kg	150	160	02-DEC-08	R764231
Individual Analytes								
% Moisture	4.5		0.5	%			01-DEC-08	R763998
CCME PAHs								
1-Methylnaphthalene	<0.05		0.05	mg/kg	0.05	0.26	03-DEC-08	R764751
2-Methylnaphthalene	<0.05		0.05	mg/kg			03-DEC-08	R764751
Acenaphthene	<0.05		0.05	mg/kg	0.05	0.07	03-DEC-08	R764751
Acenaphthylene	<0.05		0.05	mg/kg	0.08	0.08	03-DEC-08	R764751
Acridine	<0.8		0.8	mg/kg			03-DEC-08	R764751
Anthracene	<0.05		0.05	mg/kg	0.05	0.16	03-DEC-08	R764751
Benzo(a)anthracene	<0.05		0.05	mg/kg	0.10	0.74	03-DEC-08	R764751
Benzo(a)pyrene	<0.02		0.02	mg/kg	0.10	0.49	03-DEC-08	R764751
Benzo(b)fluoranthene	<0.05		0.05	mg/kg	0.30	0.47	03-DEC-08	R764751
Benzo(g,h,i)perylene	0.06		0.05	mg/kg	0.20	0.68	03-DEC-08	R764751
Benzo(k)fluoranthene	<0.05		0.05	mg/kg	0.05	0.48	03-DEC-08	R764751
Chrysene	0.09		0.05	mg/kg	0.18	0.69	03-DEC-08	R764751
Dibenzo(ah)anthracene	<0.05		0.05	mg/kg	0.15	0.16	03-DEC-08	R764751
Fluoranthene	<0.05		0.05	mg/kg	0.24	1.1	03-DEC-08	R764751
Fluorene	<0.05		0.05	mg/kg	0.05	0.12	03-DEC-08	R764751
Indeno(1,2,3-cd)pyrene	<0.05		0.05	mg/kg	0.11	0.38	03-DEC-08	R764751
Naphthalene	<0.05		0.05	mg/kg	0.05	0.09	03-DEC-08	R764751
Phenanthrene	<0.05		0.05	mg/kg	0.19	0.69	03-DEC-08	R764751
Pyrene	<0.05		0.05	mg/kg	0.19	1.0	03-DEC-08	R764751
Quinoline	<0.05		0.05	mg/kg			03-DEC-08	R764751
Surr: 2-Fluorobiphenyl	88		50-150	%			03-DEC-08	R764751
Surr: p-Terphenyl d14	89		52-158	%			03-DEC-08	R764751
Prep/Analysis Dates				No Unit			05-DEC-08	R765583
pH	10.5		0.01	pH units			01-DEC-08	R764008
L713254-3 BH11 (SS-2)								
Sampled By: CLIENT on 27-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L713254-3 BH11 (SS-2)								
Sampled By: CLIENT on 27-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg			04-DEC-08	
F2 (C10-C16)	<10		10	mg/kg			04-DEC-08	
F2-Naphth	<10		10	mg/kg			04-DEC-08	
F3 (C16-C34)	<50		50	mg/kg			04-DEC-08	
F3-PAH	<50		50	mg/kg			04-DEC-08	
F4 (C34-C50)	<50		50	mg/kg			04-DEC-08	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg			04-DEC-08	
Chromatogram to baseline at nC50	YES			No Unit			04-DEC-08	
Prep/Analysis Dates				No Unit			02-DEC-08	R764516
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			04-DEC-08	R765314
Surr: Octacosane	78		60-120	%			04-DEC-08	R765314
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	02-DEC-08	R764211
Arsenic (As)	1		1	mg/kg	14	17	02-DEC-08	R764211
Selenium (Se)	<1		1	mg/kg	1.4	1.9	02-DEC-08	R764211
Boron (B), Available	<0.1		0.1	ug/g			02-DEC-08	R764169
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	04-DEC-08	R765163
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	02-DEC-08	R764296
Standard Metal Scan (ICP)								
Barium (Ba)	18		1	mg/kg	190	210	02-DEC-08	R764231
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	02-DEC-08	R764231
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	02-DEC-08	R764231
Chromium (Cr)	8		1	mg/kg	67	71	02-DEC-08	R764231
Cobalt (Co)	3		1	mg/kg	19	21	02-DEC-08	R764231
Copper (Cu)	8		1	mg/kg	56	85	02-DEC-08	R764231
Lead (Pb)	11		1	mg/kg	55	120	02-DEC-08	R764231
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	02-DEC-08	R764231
Nickel (Ni)	5		1	mg/kg	43	43	02-DEC-08	R764231
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	02-DEC-08	R764231
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	02-DEC-08	R764231
Vanadium (V)	9		1	mg/kg	91	91	02-DEC-08	R764231
Zinc (Zn)	44		1	mg/kg	150	160	02-DEC-08	R764231
Individual Analytes								
% Moisture	10.7		0.5	%			01-DEC-08	R763998
CCME PAHs								
1-Methylnaphthalene	<0.05		0.05	mg/kg	0.05	0.26	03-DEC-08	R764751
2-Methylnaphthalene	<0.05		0.05	mg/kg			03-DEC-08	R764751
Acenaphthene	<0.05		0.05	mg/kg	0.05	0.07	03-DEC-08	R764751
Acenaphthylene	<0.05		0.05	mg/kg	0.08	0.08	03-DEC-08	R764751
Acridine	<0.8		0.8	mg/kg			03-DEC-08	R764751
Anthracene	<0.05		0.05	mg/kg	0.05	0.16	03-DEC-08	R764751
Benzo(a)anthracene	<0.05		0.05	mg/kg	0.10	0.74	03-DEC-08	R764751
Benzo(a)pyrene	<0.02		0.02	mg/kg	0.10	0.49	03-DEC-08	R764751

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L713254-3 BH11 (SS-2)								
Sampled By: CLIENT on 27-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Individual Analytes								
CCME PAHs								
Benzo(b)fluoranthene	<0.05		0.05	mg/kg	0.30	0.47	03-DEC-08	R764751
Benzo(g,h,i)perylene	<0.05		0.05	mg/kg	0.20	0.68	03-DEC-08	R764751
Benzo(k)fluoranthene	<0.05		0.05	mg/kg	0.05	0.48	03-DEC-08	R764751
Chrysene	<0.05		0.05	mg/kg	0.18	0.69	03-DEC-08	R764751
Dibenzo(ah)anthracene	<0.05		0.05	mg/kg	0.15	0.16	03-DEC-08	R764751
Fluoranthene	<0.05		0.05	mg/kg	0.24	1.1	03-DEC-08	R764751
Fluorene	<0.05		0.05	mg/kg	0.05	0.12	03-DEC-08	R764751
Indeno(1,2,3-cd)pyrene	<0.05		0.05	mg/kg	0.11	0.38	03-DEC-08	R764751
Naphthalene	<0.05		0.05	mg/kg	0.05	0.09	03-DEC-08	R764751
Phenanthrene	<0.05		0.05	mg/kg	0.19	0.69	03-DEC-08	R764751
Pyrene	<0.05		0.05	mg/kg	0.19	1.0	03-DEC-08	R764751
Quinoline	<0.05		0.05	mg/kg			03-DEC-08	R764751
Surr: 2-Fluorobiphenyl	91		50-150	%			03-DEC-08	R764751
Surr: p-Terphenyl d14	90		52-158	%			03-DEC-08	R764751
pH	8.08		0.01	pH units			01-DEC-08	R764008
L713254-4 BH17 (SS-3)								
Sampled By: CLIENT on 27-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
F1-F4 (O.Reg.153/04)								
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg			04-DEC-08	
F2 (C10-C16)	<10		10	mg/kg			04-DEC-08	
F3 (C16-C34)	<50		50	mg/kg			04-DEC-08	
F4 (C34-C50)	<50		50	mg/kg			04-DEC-08	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg			04-DEC-08	
Chromatogram to baseline at nC50	YES			No Unit			04-DEC-08	
Prep/Analysis Dates				No Unit			02-DEC-08	R764516
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates				No Unit			04-DEC-08	R765314
Surr: Octacosane	69		60-120	%			04-DEC-08	R765314
Regulation 153 Metals, Hg, Cr6+, Avail B								
As, Sb and Se by ICP/MS								
Antimony (Sb)	<1		1	mg/kg	1	1	02-DEC-08	R764211
Arsenic (As)	<1		1	mg/kg	14	17	02-DEC-08	R764211
Selenium (Se)	<1		1	mg/kg	1.4	1.9	02-DEC-08	R764211
Boron (B), Available	<0.1		0.1	ug/g			02-DEC-08	R764169
Chromium, Hexavalent	<2		2	mg/kg	2.5	2.5	04-DEC-08	R765163
Mercury (Hg)	<0.05		0.05	ug/g	0.16	0.23	02-DEC-08	R764296
Standard Metal Scan (ICP)								
Barium (Ba)	10		1	mg/kg	190	210	02-DEC-08	R764231
Beryllium (Be)	<0.5		0.5	mg/kg	1.2	1.2	02-DEC-08	R764231
Cadmium (Cd)	<0.5		0.5	mg/kg	1.0	1.0	02-DEC-08	R764231

** analytical results for this parameter exceed criteria limits listed on this report

ALS LABORATORY GROUP CRITERIA REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Criteria Specific Limits		Analyzed	Batch
L713254-4 BH17 (SS-3)								
Sampled By: CLIENT on 27-NOV-08								
Matrix: SOIL					AGRICULTURAL OR OTHER	ALL OTHER		
Regulation 153 Metals, Hg, Cr6+, Avail B								
Standard Metal Scan (ICP)								
Chromium (Cr)	5		1	mg/kg	67	71	02-DEC-08	R764231
Cobalt (Co)	2		1	mg/kg	19	21	02-DEC-08	R764231
Copper (Cu)	6		1	mg/kg	56	85	02-DEC-08	R764231
Lead (Pb)	6		1	mg/kg	55	120	02-DEC-08	R764231
Molybdenum (Mo)	<1		1	mg/kg	2.5	2.5	02-DEC-08	R764231
Nickel (Ni)	3		1	mg/kg	43	43	02-DEC-08	R764231
Silver (Ag)	<0.2		0.2	mg/kg	0.35	0.42	02-DEC-08	R764231
Thallium (Tl)	<1		1	mg/kg	2.5	2.5	02-DEC-08	R764231
Vanadium (V)	12		1	mg/kg	91	91	02-DEC-08	R764231
Zinc (Zn)	31		1	mg/kg	150	160	02-DEC-08	R764231
Individual Analytes								
% Moisture	7.7		0.5	%			01-DEC-08	R763998
pH	8.10		0.01	pH units			01-DEC-08	R764008

** analytical results for this parameter exceed criteria limits listed on this report

Sample Parameter Qualifier key listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
SOL:MI	Surrogate recovery outside acceptable limits due to matrix interference

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
AS,SB,SE-3050-MS-WT	Soil	As, Sb and Se by ICP/MS		SW846 3050B/6020A
B-AVAIL-WT	Soil	Boron (B), Available		HW EXTR, EPA 6010B
CR-CR6-WT	Soil	Hexavalent Chromium in Soil		EPA 7196
ETL-TVH,TEH-CCME-WT	Soil	CCME Total Hydrocarbons		CCME CWS-PHC Dec-2000 - Pub# 1310

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.

F1-WT	Soil	F1 (O.Reg.153/04)	MOE DECPH-E3398/CCME Tier 1
F2-F4-WT	Soil	F2-F4 (O.Reg.153/04)	MOE DECPH-E3398/CCME Tier 1
F4G-ADD-WT	Soil	F4G-SG (O.Reg.153/04)	MOE DECPH-E3398/CCME Tier 1
HG-WT	Soil	Mercury by CVAA	SW846 7470A
MET-R153-WT	Soil	Standard Metal Scan (ICP)	EPA 3050
MOISTURE-WT	Soil	% Moisture	Gravimetric: Oven Dried
PAH-CCME-WT	Soil	CCME PAHs	SW846 8270
PH-R153-WT	Soil	pH	MOEE E3137A
VOC-CCME-TABLE1-WT	Soil	Volatile Organics (153/04) Table 1	MOE-E3254

Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

69264

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	Laboratory Definition Code	Laboratory Location
WT	ALS LABORATORY GROUP - WATERLOO, ONTARIO, CAN		

Reference Information

5-698-17-02

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory control limits are determined under column heading D.L.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
< - Less than
D.L. - Detection 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.
UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS provides criteria information as a service to you, our customer. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. ALS recommends review of the most current version of the regulation, and assumes no responsibility for the accuracy of the criteria levels indicated.

ALS Laboratory Group Quality Control Report

Workorder: L713254 Report Date: 05-DEC-08

Client: XCG CONSULTANTS LTD.
820 TRILLIUM DRIVE
KITCHENER ON N2R 1K4
Contact: THOMAS KOLODZIEJ

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
AS,SB,SE-3050-MS-WT	**Soil**							
Batch R764211								
WG879851-2 CVS								
Antimony (Sb)			105		%		63-138	02-DEC-08
Arsenic (As)			119		%		63-138	02-DEC-08
Selenium (Se)			115		%		63-138	02-DEC-08
WG879815-4 DUP		**WG879815-3**						
Antimony (Sb)		<1	<1	RPD-NA	mg/kg	N/A	26	02-DEC-08
Arsenic (As)		1	1	J	mg/kg	0	4	02-DEC-08
Selenium (Se)		<1	<1	RPD-NA	mg/kg	N/A	26	02-DEC-08
WG879815-2 LCS								
Arsenic (As)			86		%		63-138	02-DEC-08
Selenium (Se)			78		%		63-138	02-DEC-08
WG879815-1 MB								
Antimony (Sb)			<1		mg/kg		1	02-DEC-08
Arsenic (As)			<1		mg/kg		1	02-DEC-08
Selenium (Se)			<1		mg/kg		1	02-DEC-08
B-AVAIL-WT	**Soil**							
Batch R764169								
WG879825-3 DUP		**L713553-3**						
Boron (B), Available		0.1	0.1	J	ug/g	0.0	0.4	02-DEC-08
WG879825-2 LCS								
Boron (B), Available			103		%		60-140	02-DEC-08
WG879825-1 MB								
Boron (B), Available			<0.1		ug/g		0.1	02-DEC-08
CR-CR6-WT	**Soil**							
Batch R765163								
WG881084-3 DUP		**L713254-4**						
Chromium, Hexavalent		<2	<2	RPD-NA	mg/kg	N/A	20	04-DEC-08
WG881084-4 DUP		**L714136-1**						
Chromium, Hexavalent		<2	<2	RPD-NA	mg/kg	N/A	20	04-DEC-08
WG881084-5 DUP		**L714614-4**						
Chromium, Hexavalent		<2	<2	RPD-NA	mg/kg	N/A	20	04-DEC-08
WG881084-1 MB								
Chromium, Hexavalent			<2		mg/kg		2	04-DEC-08
F1-WT	**Soil**							

ALS Laboratory Group Quality Control Report

Workorder: L713254 Report Date: 05-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-WT	**Soil**							
Batch R764516								
WG879810-1 CVS								
TVH: (C6-C10 / No BTEX Correction)			86		%		59-131	02-DEC-08
WG879192-3 DUP		**WG879192-2**						
TVH: (C6-C10 / No BTEX Correction)		<5	<5	RPD-NA	mg/kg	N/A	65	02-DEC-08
WG879192-1 MB								
TVH: (C6-C10 / No BTEX Correction)			<5		mg/kg		5	02-DEC-08
F2-F4-WT	**Soil**							
Batch R765314								
WG880559-1 CVS								
F2 (C10-C16)			96		%		80-120	04-DEC-08
F3 (C16-C34)			103		%		80-120	04-DEC-08
F4 (C34-C50)			106		%		70-130	04-DEC-08
WG879279-4 DUP		**L713118-2**						
F2 (C10-C16)		<10	<10	RPD-NA	mg/kg	N/A	65	04-DEC-08
F3 (C16-C34)		<50	<50	RPD-NA	mg/kg	N/A	65	04-DEC-08
F4 (C34-C50)		<50	<50	RPD-NA	mg/kg	N/A	65	04-DEC-08
WG879279-2 LCS								
F2 (C10-C16)			95		%		54-120	04-DEC-08
F3 (C16-C34)			98		%		60-106	04-DEC-08
F4 (C34-C50)			98		%		52-122	04-DEC-08
WG879279-3 LCSD		**WG879279-2**						
F2 (C10-C16)		95	93		%	2.5	45	04-DEC-08
F3 (C16-C34)		98	94		%	3.5	45	04-DEC-08
F4 (C34-C50)		98	99		%	0.52	45	04-DEC-08
WG879279-1 MB								
F2 (C10-C16)			<10		mg/kg		10	04-DEC-08
F3 (C16-C34)			<50		mg/kg		50	04-DEC-08
F4 (C34-C50)			<50		mg/kg		50	04-DEC-08
HG-WT	**Soil**							
Batch R764296								
WG879845-3 DUP		**L713254-1**						
Mercury (Hg)		<0.05	<0.05	RPD-NA	ug/g	N/A	20	02-DEC-08
WG879845-2 LCS								
Mercury (Hg)			89		%		70-130	02-DEC-08
WG879845-1 MB								
Mercury (Hg)			<0.05		ug/g		0.05	02-DEC-08

ALS Laboratory Group Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-R153-WT	**Soil**							
Batch R764231								
WG879914-2 CVS								
Barium (Ba)			104		%		80-120	02-DEC-08
Beryllium (Be)			98		%		80-120	02-DEC-08
Cadmium (Cd)			102		%		80-120	02-DEC-08
Chromium (Cr)			101		%		80-120	02-DEC-08
Cobalt (Co)			103		%		80-120	02-DEC-08
Copper (Cu)			102		%		80-120	02-DEC-08
Lead (Pb)			102		%		80-120	02-DEC-08
Molybdenum (Mo)			97		%		80-120	02-DEC-08
Nickel (Ni)			102		%		80-120	02-DEC-08
Silver (Ag)			95		%		80-120	02-DEC-08
Thallium (Tl)			102		%		80-120	02-DEC-08
Vanadium (V)			93		%		80-120	02-DEC-08
Zinc (Zn)			96		%		80-120	02-DEC-08
WG879815-4 DUP		**WG879815-3**						
Barium (Ba)		14	14		mg/kg	0.086	20	02-DEC-08
Beryllium (Be)		<0.5	<0.5	RPD-NA	mg/kg	N/A	20	02-DEC-08
Cadmium (Cd)		<0.5	<0.5	RPD-NA	mg/kg	N/A	20	02-DEC-08
Chromium (Cr)		7	7	J	mg/kg	0	4	02-DEC-08
Cobalt (Co)		3	3	J	mg/kg	0	4	02-DEC-08
Copper (Cu)		8	8	J	mg/kg	0	4	02-DEC-08
Lead (Pb)		13	10		mg/kg	25	120	02-DEC-08
Molybdenum (Mo)		<1	<1	RPD-NA	mg/kg	N/A	20	02-DEC-08
Nickel (Ni)		5	5	J	mg/kg	0	4	02-DEC-08
Silver (Ag)		<0.2	<0.2	RPD-NA	mg/kg	N/A	20	02-DEC-08
Thallium (Tl)		<1	<1	RPD-NA	mg/kg	N/A	20	02-DEC-08
Vanadium (V)		8	8	J	mg/kg	0	4	02-DEC-08
Zinc (Zn)		66	63		mg/kg	3.4	20	02-DEC-08
WG879815-2 LCS								
Barium (Ba)			102		%		80-120	02-DEC-08
Beryllium (Be)			96		%		80-120	02-DEC-08
Cadmium (Cd)			95		%		80-120	02-DEC-08
Chromium (Cr)			102		%		80-120	02-DEC-08
Cobalt (Co)			101		%		80-120	02-DEC-08

ALS Laboratory Group Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-R153-WT	**Soil**							
Batch R764231								
WG879815-2 LCS								
Copper (Cu)			100		%		80-120	02-DEC-08
Lead (Pb)			101		%		80-120	02-DEC-08
Nickel (Ni)			99		%		80-120	02-DEC-08
Thallium (Tl)			94		%		80-120	02-DEC-08
Vanadium (V)			97		%		80-120	02-DEC-08
Zinc (Zn)			89		%		80-120	02-DEC-08
WG879815-1 MB								
Barium (Ba)			<1		mg/kg		1	02-DEC-08
Beryllium (Be)			<0.5		mg/kg		0.5	02-DEC-08
Cadmium (Cd)			<0.5		mg/kg		0.5	02-DEC-08
Chromium (Cr)			<1		mg/kg		1	02-DEC-08
Cobalt (Co)			<1		mg/kg		1	02-DEC-08
Copper (Cu)			<1		mg/kg		1	02-DEC-08
Lead (Pb)			<1		mg/kg		1	02-DEC-08
Molybdenum (Mo)			<1		mg/kg		1	02-DEC-08
Nickel (Ni)			<1		mg/kg		1	02-DEC-08
Silver (Ag)			<0.2		mg/kg		0.2	02-DEC-08
Thallium (Tl)			<1		mg/kg		1	02-DEC-08
Vanadium (V)			<1		mg/kg		1	02-DEC-08
Zinc (Zn)			<1		mg/kg		1	02-DEC-08
MOISTURE-WT	**Soil**							
Batch R763998								
WG879396-3 DUP		**L713351-6**						
% Moisture		11.1	11.2		%	0.71	26	01-DEC-08
WG879396-2 LCS								
% Moisture			104		%		79-120	01-DEC-08
WG879396-1 MB								
% Moisture			<0.5		%		0.5	01-DEC-08
PAH-CCME-WT	**Soil**							
Batch R764751								
WG879812-1 CVS								
1-Methylnaphthalene			80		%		71-127	03-DEC-08
2-Methylnaphthalene			72		%		68-115	03-DEC-08
Acenaphthene			83		%		66-128	03-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-WT	**Soil**							
Batch R764751								
WG879812-1 CVS								
Acenaphthylene			82		%		60-132	03-DEC-08
Acridine			113		%		69-145	03-DEC-08
Anthracene			91		%		64-123	03-DEC-08
Benzo(a)anthracene			97		%		75-134	03-DEC-08
Benzo(a)pyrene			85		%		60-135	03-DEC-08
Benzo(b)fluoranthene			79		%		67-131	03-DEC-08
Benzo(g,h,i)perylene			85		%		60-136	03-DEC-08
Benzo(k)fluoranthene			105		%		68-137	03-DEC-08
Chrysene			94		%		72-131	03-DEC-08
Dibenzo(ah)anthracene			83		%		64-133	03-DEC-08
Fluoranthene			87		%		75-124	03-DEC-08
Fluorene			84		%		75-127	03-DEC-08
Indeno(1,2,3-cd)pyrene			95		%		58-140	03-DEC-08
Naphthalene			82		%		69-122	03-DEC-08
Phenanthrene			91		%		77-126	03-DEC-08
Pyrene			87		%		76-127	03-DEC-08
Quinoline			100		%		70-120	03-DEC-08
WG879302-5 DUP		**L713254-1**						
1-Methylnaphthalene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
2-Methylnaphthalene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Acenaphthene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Acenaphthylene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Acridine		<0.8	<0.8	RPD-NA	mg/kg	N/A	39	03-DEC-08
Anthracene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Benzo(a)anthracene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Benzo(a)pyrene		<0.02	<0.02	RPD-NA	mg/kg	N/A	65	03-DEC-08
Benzo(b)fluoranthene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Benzo(g,h,i)perylene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Benzo(k)fluoranthene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Chrysene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Dibenzo(ah)anthracene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Fluoranthene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Fluorene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08

ALS Laboratory Group Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-WT	**Soil**							
Batch R764751								
WG879302-5 DUP		**L713254-1**						
Indeno(1,2,3-cd)pyrene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Naphthalene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Phenanthrene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Pyrene		<0.05	<0.05	RPD-NA	mg/kg	N/A	65	03-DEC-08
Quinoline		<0.05	<0.05	RPD-NA	mg/kg	N/A	39	03-DEC-08
WG879302-2 LCS								
1-Methylnaphthalene			85		%		74-131	03-DEC-08
2-Methylnaphthalene			76		%		70-127	03-DEC-08
Acenaphthene			88		%		54-134	03-DEC-08
Acenaphthylene			87		%		49-136	03-DEC-08
Acridine			112		%		43-131	03-DEC-08
Anthracene			89		%		49-134	03-DEC-08
Benzo(a)anthracene			95		%		49-141	03-DEC-08
Benzo(a)pyrene			85		%		42-131	03-DEC-08
Benzo(b)fluoranthene			81		%		46-131	03-DEC-08
Benzo(g,h,i)perylene			85		%		43-126	03-DEC-08
Benzo(k)fluoranthene			100		%		48-143	03-DEC-08
Chrysene			93		%		48-129	03-DEC-08
Dibenzo(ah)anthracene			81		%		49-142	03-DEC-08
Fluoranthene			86		%		50-133	03-DEC-08
Fluorene			88		%		51-137	03-DEC-08
Indeno(1,2,3-cd)pyrene			93		%		38-134	03-DEC-08
Naphthalene			83		%		51-134	03-DEC-08
Phenanthrene			91		%		57-137	03-DEC-08
Pyrene			87		%		45-126	03-DEC-08
Quinoline			97		%		25-175	03-DEC-08
WG879302-3 LCSD		**WG879302-2**						
1-Methylnaphthalene		85	80		%	5.7	45	03-DEC-08
2-Methylnaphthalene		76	72		%	6.1	45	03-DEC-08
Acenaphthene		88	83		%	6.2	24	03-DEC-08
Acenaphthylene		87	82		%	5.1	45	03-DEC-08
Acridine		112	112		%	0.64	45	03-DEC-08
Anthracene		89	88		%	1.8	45	03-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-WT	**Soil**							
Batch R764751								
WG879302-3 LCSD		**WG879302-2**						
Benzo(a)anthracene		95	92		%	3.6	45	03-DEC-08
Benzo(a)pyrene		85	84		%	1.3	45	03-DEC-08
Benzo(b)fluoranthene		81	81		%	0.47	45	03-DEC-08
Benzo(g,h,i)perylene		85	83		%	2.6	45	03-DEC-08
Benzo(k)fluoranthene		100	98		%	1.7	45	03-DEC-08
Chrysene		93	93		%	0.83	45	03-DEC-08
Dibenzo(ah)anthracene		81	79		%	2.9	45	03-DEC-08
Fluoranthene		86	85		%	1.5	45	03-DEC-08
Fluorene		88	82		%	6.2	45	03-DEC-08
Indeno(1,2,3-cd)pyrene		93	84		%	9.8	45	03-DEC-08
Naphthalene		83	82		%	0.55	45	03-DEC-08
Phenanthrene		91	89		%	3.1	45	03-DEC-08
Pyrene		87	85		%	1.5	45	03-DEC-08
Quinoline		97	91		%	6.0	45	03-DEC-08
WG879302-1 MB								
1-Methylnaphthalene			<0.05		mg/kg		0.05	03-DEC-08
2-Methylnaphthalene			<0.05		mg/kg		0.05	03-DEC-08
Acenaphthene			<0.05		mg/kg		0.05	03-DEC-08
Acenaphthylene			<0.05		mg/kg		0.05	03-DEC-08
Acridine			<0.8		mg/kg		0.8	03-DEC-08
Anthracene			<0.05		mg/kg		0.05	03-DEC-08
Benzo(a)anthracene			<0.05		mg/kg		0.05	03-DEC-08
Benzo(a)pyrene			<0.02		mg/kg		0.02	03-DEC-08
Benzo(b)fluoranthene			<0.05		mg/kg		0.05	03-DEC-08
Benzo(g,h,i)perylene			<0.05		mg/kg		0.05	03-DEC-08
Benzo(k)fluoranthene			<0.05		mg/kg		0.05	03-DEC-08
Chrysene			<0.05		mg/kg		0.05	03-DEC-08
Dibenzo(ah)anthracene			<0.05		mg/kg		0.05	03-DEC-08
Fluoranthene			<0.05		mg/kg		0.05	03-DEC-08
Fluorene			<0.05		mg/kg		0.05	03-DEC-08
Indeno(1,2,3-cd)pyrene			<0.05		mg/kg		0.05	03-DEC-08
Naphthalene			<0.05		mg/kg		0.05	03-DEC-08
Phenanthrene			<0.05		mg/kg		0.05	03-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-WT	**Soil**							
Batch R764751								
WG879302-1 MB								
Pyrene			<0.05		mg/kg		0.05	03-DEC-08
Quinoline			<0.05		mg/kg		0.05	03-DEC-08
PH-R153-WT	**Soil**							
Batch R764008								
WG879793-1 CVS								
pH			100		%		63-138	01-DEC-08
WG879793-2 DUP		**L713553-1**						
pH		7.96	7.97		pH units	0.13	26	01-DEC-08
WG879793-3 DUP		**L713574-2**						
pH		7.70	7.66		pH units	0.52	26	01-DEC-08
VOC-CCME-TABLE1-WT	**Soil**							
Batch R763892								
WG879388-1 CVS								
1,1,1,2-Tetrachloroethane			98		%		75-125	01-DEC-08
1,1,1-Trichloroethane			101		%		75-125	01-DEC-08
1,1,2,2-Tetrachloroethane			102		%		75-125	01-DEC-08
1,1,2-Trichloroethane			98		%		75-125	01-DEC-08
1,1-Dichloroethane			102		%		75-125	01-DEC-08
1,1-Dichloroethylene			102		%		75-125	01-DEC-08
1,2-Dichlorobenzene			100		%		75-125	01-DEC-08
1,2-Dichloroethane			107		%		75-125	01-DEC-08
1,2-Dichloropropane			103		%		75-125	01-DEC-08
1,3-Dichlorobenzene			102		%		75-125	01-DEC-08
1,4-Dichlorobenzene			102		%		75-125	01-DEC-08
2-Hexanone			104		%		75-125	01-DEC-08
Acetone			111		%		75-125	01-DEC-08
Benzene			105		%		75-125	01-DEC-08
Bromodichloromethane			105		%		75-125	01-DEC-08
Bromoform			102		%		75-125	01-DEC-08
Bromomethane			99		%		55-145	01-DEC-08
Carbon Disulfide			102		%		75-125	01-DEC-08
Carbon tetrachloride			105		%		75-125	01-DEC-08
Chlorobenzene			102		%		75-125	01-DEC-08
Dibromochloromethane			94				75-125	

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-CCME-TABLE1-WT	**Soil**							
Batch R763892								
WG879388-1 CVS								
Dibromochloromethane			94		%		75-125	01-DEC-08
Chloroethane			101		%		75-125	01-DEC-08
Chloroform			105		%		75-125	01-DEC-08
Chloromethane			87		%		75-125	01-DEC-08
cis-1,2-Dichloroethylene			99		%		75-125	01-DEC-08
cis-1,3-Dichloropropene			97		%		75-125	01-DEC-08
Dibromomethane			101		%		55-145	01-DEC-08
Ethyl Benzene			109		%		75-125	01-DEC-08
1,2-Dibromoethane			96		%		55-145	01-DEC-08
m+p-Xylenes			109		%		75-125	01-DEC-08
Methyl Ethyl Ketone			113		%		75-125	01-DEC-08
Methyl Isobutyl Ketone			106		%		55-145	01-DEC-08
MTBE			102		%		75-125	01-DEC-08
Dichloromethane			100		%		55-145	01-DEC-08
o-Xylene			108		%		75-125	01-DEC-08
Styrene			105		%		75-125	01-DEC-08
Tetrachloroethylene			102		%		75-125	01-DEC-08
Toluene			106		%		75-125	01-DEC-08
trans-1,2-Dichloroethylene			106		%		75-125	01-DEC-08
trans-1,3-Dichloropropene			97		%		75-125	01-DEC-08
Trichloroethylene			96		%		75-125	01-DEC-08
Trichlorofluoromethane			110		%		66-137	01-DEC-08
Vinyl chloride			97		%		75-125	01-DEC-08
Dichlorodifluoromethane			59	G	%		75-125	01-DEC-08
COMMENTS: 10% of analytes may exceed QC limits. Analyte not present in related samples.								
WG879189-3 DUP		**WG879189-2**						
1,1,1,2-Tetrachloroethane		<0.008	<0.008	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1,1-Trichloroethane		<0.008	<0.008	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1,2,2-Tetrachloroethane		<0.004	<0.004	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1,2-Trichloroethane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1-Dichloroethane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1-Dichloroethylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,2-Dichlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08

ALS Laboratory Group Quality Control Report

Workorder: L713254 Report Date: 05-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-CCME-TABLE1-WT	**Soil**							
Batch R763892								
WG879189-3 DUP		**WG879189-2**						
1,2-Dichloroethane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,2-Dichloropropane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,3-Dichlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,4-Dichlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
2-Hexanone		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	02-DEC-08
Acetone		<0.5	<0.5	RPD-NA	mg/kg	N/A	39	02-DEC-08
Benzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Bromodichloromethane		<0.005	<0.005	RPD-NA	mg/kg	N/A	39	02-DEC-08
Bromoform		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Bromomethane		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
Carbon Disulfide		<0.02	<0.02	RPD-NA	mg/kg	N/A	39	02-DEC-08
Carbon tetrachloride		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Chlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Dibromochloromethane		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
Chloroethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	02-DEC-08
Chloroform		<0.006	<0.006	RPD-NA	mg/kg	N/A	39	02-DEC-08
Chloromethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	02-DEC-08
cis-1,2-Dichloroethylene		<0.02	<0.02	RPD-NA	mg/kg	N/A	39	02-DEC-08
cis-1,3-Dichloropropene		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
Dibromomethane		<0.01	<0.01	RPD-NA	mg/kg	N/A	39	02-DEC-08
Dichlorodifluoromethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	02-DEC-08
Ethyl Benzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,2-Dibromoethane		<0.004	<0.004	RPD-NA	mg/kg	N/A	39	02-DEC-08
m+p-Xylenes		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Methyl Ethyl Ketone		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	02-DEC-08
Methyl Isobutyl Ketone		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	02-DEC-08
MTBE		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	02-DEC-08
Dichloromethane		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
o-Xylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Styrene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Tetrachloroethylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Toluene		0.003	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
trans-1,2-Dichloroethylene		<0.002	<0.002					02-DEC-08

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-CCME-TABLE1-WT	**Soil**							
Batch R763892								
WG879189-3 DUP		**WG879189-2**						
trans-1,2-Dichloroethylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
trans-1,3-Dichloropropene		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
Trichloroethylene		<0.004	<0.004	RPD-NA	mg/kg	N/A	39	02-DEC-08
Trichlorofluoromethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	02-DEC-08
Vinyl chloride		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
WG879189-4 DUP		**WG879189-2**						
1,1,1,2-Tetrachloroethane		<0.008	<0.008	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1,1-Trichloroethane		<0.008	<0.008	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1,2,2-Tetrachloroethane		<0.004	<0.004	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1,2-Trichloroethane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1-Dichloroethane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,1-Dichloroethylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,2-Dichlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,2-Dichloroethane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,2-Dichloropropane		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,3-Dichlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,4-Dichlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
2-Hexanone		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	02-DEC-08
Acetone		<0.5	<0.5	RPD-NA	mg/kg	N/A	39	02-DEC-08
Benzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Bromodichloromethane		<0.005	<0.005	RPD-NA	mg/kg	N/A	39	02-DEC-08
Bromoform		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Bromomethane		<0.003	0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
Carbon Disulfide		<0.02	<0.02	RPD-NA	mg/kg	N/A	39	02-DEC-08
Carbon tetrachloride		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Chlorobenzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Dibromochloromethane		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
Chloroethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	02-DEC-08
Chloroform		<0.006	<0.006	RPD-NA	mg/kg	N/A	39	02-DEC-08
Chloromethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	02-DEC-08
cis-1,2-Dichloroethylene		<0.02	<0.02	RPD-NA	mg/kg	N/A	39	02-DEC-08
cis-1,3-Dichloropropene		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
Dibromomethane		<0.01	<0.01	RPD-NA	mg/kg	N/A	39	02-DEC-08

ALS Laboratory Group Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-CCME-TABLE1-WT	**Soil**							
Batch R763892								
WG879189-4 DUP		**WG879189-2**						
Dichlorodifluoromethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	02-DEC-08
Ethyl Benzene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
1,2-Dibromoethane		<0.004	<0.004	RPD-NA	mg/kg	N/A	39	02-DEC-08
m+p-Xylenes		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Methyl Ethyl Ketone		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	02-DEC-08
Methyl Isobutyl Ketone		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	02-DEC-08
MTBE		<0.2	<0.2	RPD-NA	mg/kg	N/A	39	02-DEC-08
Dichloromethane		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
o-Xylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Styrene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Tetrachloroethylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
Toluene		0.003	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
trans-1,2-Dichloroethylene		<0.002	<0.002	RPD-NA	mg/kg	N/A	39	02-DEC-08
trans-1,3-Dichloropropene		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08
Trichloroethylene		<0.004	<0.004	RPD-NA	mg/kg	N/A	39	02-DEC-08
Trichlorofluoromethane		<0.03	<0.03	RPD-NA	mg/kg	N/A	39	02-DEC-08
Vinyl chloride		<0.003	<0.003	RPD-NA	mg/kg	N/A	39	02-DEC-08

ALS Laboratory Group Quality Control Report

Legend:

Limit	99% Confidence Interval (Laboratory Control Limits)
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
G	QC result did not meet ALS DQO. Refer to narrative comments for further information.
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.

CH2M HILL Canada Ltd.
ATTN: VICTORIA PETERS
245 CONSUMERS ROAD
SUITE 400
TORONTO ON M2J 1R3

Date Received: 26-JUL-19
Report Date: 27-AUG-19 15:51 (MT)
Version: FINAL

Client Phone: 416-499-9000

Certificate of Analysis

Lab Work Order #: L2318180

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV 19 19-01
C of C Numbers: 17-20190726-1, 17-20190726-2
Legal Site Desc:

Emily Hansen
Account Manager

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
Guideline						
Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use						
L2318180-1	MW103-2-2.5'	Physical Tests	Conductivity	1.07	0.57	mS/cm
		Saturated Paste Extractables	SAR	18.6	2.4	SAR
L2318180-2	MW104-2.5-3'	Physical Tests	Conductivity	0.969	0.57	mS/cm
		Saturated Paste Extractables	SAR	24.0	2.4	SAR
L2318180-3	BH202-2-2.5'	Physical Tests	Conductivity	0.960	0.57	mS/cm
		Saturated Paste Extractables	SAR	26.1	2.4	SAR
L2318180-4	BH200-3.5-4.0"	Saturated Paste Extractables	SAR	7.63	2.4	SAR
L2318180-5	MW102-20-25"	Physical Tests	Conductivity	2.95	0.57	mS/cm
		Saturated Paste Extractables	SAR	94.2	2.4	SAR
L2318180-6	BH201-1-1.5'	Saturated Paste Extractables	SAR	7.34	2.4	SAR
L2318180-7	BH201-4-4.5'	Physical Tests	Conductivity	0.655	0.57	mS/cm
		Saturated Paste Extractables	SAR	22.7	2.4	SAR
L2318180-8	MW100-1.25-1.5'	Physical Tests	Conductivity	0.981	0.57	mS/cm
		Saturated Paste Extractables	SAR	8.27	2.4	SAR
		Speciated Metals	Chromium, Hexavalent	1.04	0.66	ug/g
L2318180-9	MW109-2.5-3.5'	Saturated Paste Extractables	SAR	8.80	2.4	SAR
L2318180-12	MW101-1.5-2'	Physical Tests	Conductivity	1.56	0.57	mS/cm
		Saturated Paste Extractables	SAR	16.6	2.4	SAR
		Metals	Lead (Pb)	207	120	ug/g
			Mercury (Hg)	0.889	0.27	ug/g
L2318180-13	DUP1	Saturated Paste Extractables	SAR	10.1	2.4	SAR

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

ANALYTICAL REPORT

Physical Tests - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2318180-1	L2318180-2	L2318180-3	L2318180-4	L2318180-5	L2318180-6	L2318180-7	L2318180-8	L2318180-9
				Sample Date	22-JUL-19	22-JUL-19	22-JUL-19	23-JUL-19	23-JUL-19	24-JUL-19	24-JUL-19	24-JUL-19	25-JUL-19
				Sample ID	MW103-2-2.5'	MW104-2.5-3'	BH202-2-2.5'	BH200-3.5-4.0"	MW102-20-25"	BH201-1-1.5'	BH201-4-4.5'	MW100-1.25-1.5'	MW109-2.5-3.5'
Conductivity	mS/cm	0.57	-		1.07	0.969	0.960	0.486	2.95	0.332	0.655	0.981	0.208
Grain Size Curve		-	-				SEE ATTACHED			SEE ATTACHED			
% Moisture	%	-	-		16.9	8.51	5.69	10.9	14.0	4.11	8.41	19.9	6.56
Moisture	%	-	-										
pH	pH units	-	-		7.52	7.96	8.12	7.44	7.93	8.11	7.98	8.12	7.83

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

Physical Tests - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID			
				L2318180-10	L2318180-11	L2318180-12	L2318180-13	L2318180-14
				25-JUL-19	25-JUL-19	26-JUL-19	23-JUL-19	26-JUL-19
				BH206-1-2'	MW108-5-6'	MW101-1.5-2'	DUP1	TB001
Conductivity	mS/cm	0.57	-	0.179	0.0902	1.56	0.499	
Grain Size Curve		-	-					
% Moisture	%	-	-	4.22	4.20	10.3	10.8	<0.10
Moisture	%	-	-			10.2		
pH	pH units	-	-	8.07	8.10		7.37	

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

Particle Size - SOIL

			Lab ID	L2318180-3	L2318180-6
			Sample Date	22-JUL-19	24-JUL-19
			Sample ID	BH202-2-2.5'	BH201-1-1.5'
		Guide Limits			
Analyte	**Unit**	**#1**	**#2**		
Gravel (4.75mm - 3in.)	%	-	-	19.9	30.1
Medium Sand (0.425mm - 2.0mm)	%	-	-	9.3	25.4
Coarse Sand (2.0mm - 4.75mm)	%	-	-	3.1	19.3
Fine Sand (0.075mm - 0.425mm)	%	-	-	30.8	11.2
Silt (0.005mm - 0.075mm)	%	-	-	24.7	5.6
Clay (<0.005mm)	%	-	-	12.4	8.6

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

Cyanides - SOIL

	Lab ID	L2318180-1	L2318180-2	L2318180-3	L2318180-4	L2318180-5	L2318180-6	L2318180-7	L2318180-8	L2318180-9
	Sample Date	22-JUL-19	22-JUL-19	22-JUL-19	23-JUL-19	23-JUL-19	24-JUL-19	24-JUL-19	24-JUL-19	25-JUL-19
	Sample ID	MW103-2-2.5'	MW104-2.5-3'	BH202-2-2.5'	BH200-3.5-4.0"	MW102-20-25"	BH201-1-1.5'	BH201-4-4.5'	MW100-1.25-1.5'	MW109-2.5-3.5'
Analyte	Unit	Guide Limits #1	#2							
Cyanide, Weak Acid Diss	ug/g	0.051	-	<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

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

		Guide Limits					
				Lab ID	L2318180-10	L2318180-11	L2318180-12	L2318180-13
				Sample Date	25-JUL-19	25-JUL-19	26-JUL-19	23-JUL-19
				Sample ID	BH206-1-2'	MW108-5-6'	MW101-1.5-2'	DUP1
Analyte	Unit	#1	#2					
Cyanide, Weak Acid Diss	ug/g	0.051	-		<0.050	<0.050	<0.050	<0.050

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

Organic / Inorganic Carbon - SOIL

		Guide Limits					
Lab ID				L2318180-1	L2318180-5	L2318180-8	L2318180-11
Sample Date				22-JUL-19	23-JUL-19	24-JUL-19	25-JUL-19
Sample ID				MW103-2-2.5'	MW102-20-25"	MW100-1.25-1.5'	MW108-5-6'
Analyte	**Unit**	**#1**	**#2**				
Fraction Organic Carbon		-	-	0.0117	0.0011	0.0047	<0.0010
				0.0119	0.0011	0.0052	<0.0010
				0.0118	0.0010	0.0049	<0.0010
Average Fraction Organic Carbon		-	-	0.0118	0.0011	0.0049	<0.0010
Total Organic Carbon	%	-	-	1.17	0.11	0.52	<0.10
				1.18	0.10	0.47	<0.10
				1.19	0.11	0.49	<0.10

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

Saturated Paste Extractables - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2318180-1	L2318180-2	L2318180-3	L2318180-4	L2318180-5	L2318180-6	L2318180-7	L2318180-8	L2318180-9
				Sample Date	22-JUL-19	22-JUL-19	22-JUL-19	23-JUL-19	23-JUL-19	24-JUL-19	24-JUL-19	24-JUL-19	25-JUL-19
				Sample ID	MW103-2-2.5'	MW104-2.5-3'	BH202-2-2.5'	BH200-3.5-4.0"	MW102-20-25"	BH201-1-1.5'	BH201-4-4.5'	MW100-1.25-1.5'	MW109-2.5-3.5'
SAR	SAR	2.4	-		18.6	24.0	26.1	7.63	94.2 SAR:M	7.34	22.7	8.27	8.80
Calcium (Ca)	mg/L	-	-		8.05	1.47	2.12	9.50	3.22	3.62	1.52	19.6	1.39
Magnesium (Mg)	mg/L	-	-		2.74	1.93	1.29	4.16	<0.50	3.50	0.66	27.2	0.57
Sodium (Na)	mg/L	-	-		239	188	195	112	614	81.7	133	241	48.8

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

Saturated Paste Extractables - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID: L2318180-10 / Sample Date: 25-JUL-19 / Sample ID: BH206-1-2'	Lab ID: L2318180-11 / Sample Date: 25-JUL-19 / Sample ID: MW108-5-6'	Lab ID: L2318180-12 / Sample Date: 26-JUL-19 / Sample ID: MW101-1.5-2'	Lab ID: L2318180-13 / Sample Date: 23-JUL-19 / Sample ID: DUP1
SAR	SAR	2.4	-	0.17	0.15	16.6	10.1
Calcium (Ca)	mg/L	-	-	17.7	7.84	15.9	7.59
Magnesium (Mg)	mg/L	-	-	4.74	2.49	3.61	0.98
Sodium (Na)	mg/L	-	-	3.21	1.93	281	111

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

Metals - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2318180-1	L2318180-2	L2318180-3	L2318180-4	L2318180-5	L2318180-6	L2318180-7	L2318180-8	L2318180-9
				Sample Date	22-JUL-19	22-JUL-19	22-JUL-19	23-JUL-19	23-JUL-19	24-JUL-19	24-JUL-19	24-JUL-19	25-JUL-19
				Sample ID	MW103-2-2.5'	MW104-2.5-3'	BH202-2-2.5'	BH200-3.5-4.0"	MW102-20-25"	BH201-1-1.5'	BH201-4-4.5'	MW100-1.25-1.5'	MW109-2.5-3.5'
Antimony (Sb)	ug/g	1.3	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	-		3.0	2.0	1.9	3.2	2.4	3.9	1.8	6.6	1.2
Barium (Ba)	ug/g	220	-		28.6	18.7	16.0	41.4	29.7	32.0	16.8	111	12.8
Beryllium (Be)	ug/g	2.5	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.98	<0.50
Boron (B)	ug/g	36	-		<5.0	<5.0	<5.0	6.3	7.6	6.7	<5.0	10.5	<5.0
Boron (B), Hot Water Ext.	ug/g	36	-		0.39	<0.10	<0.10	0.26	<0.10	<0.10	<0.10	0.81	<0.10
Cadmium (Cd)	ug/g	1.2	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	70	-		15.4	9.0	7.8	15.2	12.0	11.9	7.6	29.3	5.8
Cobalt (Co)	ug/g	21	-		4.6	3.6	2.6	4.8	4.5	4.5	2.7	7.1	1.6
Copper (Cu)	ug/g	92	-		8.7	8.7	7.3	12.7	10.0	18.9	7.8	17.0	4.0
Lead (Pb)	ug/g	120	-		29.4	9.4	11.1	17.2	15.4	34.9	8.9	25.2	5.9
Mercury (Hg)	ug/g	0.27	-		0.0595	0.0061	0.0065	0.0247	0.0151	0.0192	0.0078	0.117	0.0071
Molybdenum (Mo)	ug/g	2	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	82	-		8.8	7.0	5.4	9.8	9.7	9.3	5.7	19.0	3.8
Selenium (Se)	ug/g	1.5	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.5	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	2.5	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	-		34.3	17.8	14.7	30.9	21.8	24.0	14.1	50.8	10.6
Zinc (Zn)	ug/g	290	-		70.3	55.1	80.9	76.7	60.5	246	70.8	155	26.6

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

Metals - SOIL

		Guide Limits					
Lab ID				L2318180-10	L2318180-11	L2318180-12	L2318180-13
Sample Date				25-JUL-19	25-JUL-19	26-JUL-19	23-JUL-19
Sample ID				BH206-1-2'	MW108-5-6'	MW101-1.5-2'	DUP1
Analyte	**Unit**	**#1**	**#2**				
Antimony (Sb)	ug/g	1.3	-	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	-	2.2	2.1	5.2	3.0
Barium (Ba)	ug/g	220	-	13.0	11.2	90.7	36.5
Beryllium (Be)	ug/g	2.5	-	<0.50	<0.50	<0.50	<0.50
Boron (B)	ug/g	36	-	<5.0	<5.0	6.5	<5.0
Boron (B), Hot Water Ext.	ug/g	36	-	<0.10	<0.10	0.72	0.29
Cadmium (Cd)	ug/g	1.2	-	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	70	-	5.9	5.8	16.8	12.9
Cobalt (Co)	ug/g	21	-	2.5	2.2	4.8	3.9
Copper (Cu)	ug/g	92	-	10.0	8.4	21.1	11.9
Lead (Pb)	ug/g	120	-	11.3	9.4	207	18.8
Mercury (Hg)	ug/g	0.27	-	0.0058	<0.0050	0.889	0.0314
Molybdenum (Mo)	ug/g	2	-	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	82	-	5.0	4.6	9.4	8.3
Selenium (Se)	ug/g	1.5	-	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.5	-	<0.20	<0.20	0.21	<0.20
Thallium (Tl)	ug/g	1	-	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	2.5	-	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	-	14.4	14.5	28.4	25.9
Zinc (Zn)	ug/g	290	-	90.0	65.9	235	81.3

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

Speciated Metals - SOIL

	Lab ID	L2318180-1	L2318180-2	L2318180-3	L2318180-4	L2318180-5	L2318180-6	L2318180-7	L2318180-8	L2318180-9
	Sample Date	22-JUL-19	22-JUL-19	22-JUL-19	23-JUL-19	23-JUL-19	24-JUL-19	24-JUL-19	24-JUL-19	25-JUL-19
	Sample ID	MW103-2-2.5'	MW104-2.5-3'	BH202-2-2.5'	BH200-3.5-4.0"	MW102-20-25"	BH201-1-1.5'	BH201-4-4.5'	MW100-1.25-1.5'	MW109-2.5-3.5'
Analyte	Unit	Guide Limits #1	#2							
Chromium, Hexavalent	ug/g	0.66	-	<0.20	<0.20	<0.20	<0.20	0.23	<0.20	<0.20	1.04	<0.20
Methylmercury (as MeHg)	mg/kg	-	-							

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

Speciated Metals - SOIL

		Guide Limits					
Lab ID				L2318180-10	L2318180-11	L2318180-12	L2318180-13
Sample Date				25-JUL-19	25-JUL-19	26-JUL-19	23-JUL-19
Sample ID				BH206-1-2'	MW108-5-6'	MW101-1.5-2'	DUP1
Analyte	**Unit**	**#1**	**#2**				
Chromium, Hexavalent	ug/g	0.66	-	<0.20	<0.20	0.51	<0.20
Methylmercury (as MeHg)	mg/kg	-	-			<0.000050	

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

		Guide Limits									
Lab ID				L2318180-1	L2318180-2	L2318180-3	L2318180-4	L2318180-5	L2318180-6	L2318180-7	L2318180-8	L2318180-9
Sample Date				22-JUL-19	22-JUL-19	22-JUL-19	23-JUL-19	23-JUL-19	24-JUL-19	24-JUL-19	24-JUL-19	25-JUL-19
Sample ID				MW103-2-2.5'	MW104-2.5-3'	BH202-2-2.5'	BH200-3.5-4.0"	MW102-20-25"	BH201-1-1.5'	BH201-4-4.5'	MW100-1.25-1.5'	MW109-2.5-3.5'
Analyte	**Unit**	**#1**	**#2**									
Acetone	ug/g	0.5	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	-	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	ug/g	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	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	ug/g	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	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	0.05	-	<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	-	<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	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	ug/g	0.05	-	<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	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	ug/g	0.05	-	<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	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	ug/g	0.05	-	<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	-	<0.050	<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	-	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042
Ethylbenzene	ug/g	0.05	-	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
n-Hexane	ug/g	0.05	-	<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	-	<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	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
MTBE	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	ug/g	0.05	-	<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

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

Volatile Organic Compounds - SOIL

		Guide Limits						
Lab ID				L2318180-10	L2318180-11	L2318180-12	L2318180-13	L2318180-14
Sample Date				25-JUL-19	25-JUL-19	26-JUL-19	23-JUL-19	26-JUL-19
Sample ID				BH206-1-2'	MW108-5-6'	MW101-1.5-2'	DUP1	TB001
Analyte	**Unit**	**#1**	**#2**					
Acetone	ug/g	0.5	-	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	-	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon tetrachloride	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dibromoethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
trans-1,2-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	ug/g	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	-	<0.042	<0.042	<0.042	<0.042	<0.042
Ethylbenzene	ug/g	0.05	-	<0.018	<0.018	<0.018	<0.018	<0.018
n-Hexane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	ug/g	0.5	-	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	-	<0.50	<0.50	<0.50	<0.50	<0.50
MTBE	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050

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

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

Volatile Organic Compounds - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2318180-1	L2318180-2	L2318180-3	L2318180-4	L2318180-5	L2318180-6	L2318180-7	L2318180-8	L2318180-9
				Sample Date	22-JUL-19	22-JUL-19	22-JUL-19	23-JUL-19	23-JUL-19	24-JUL-19	24-JUL-19	24-JUL-19	25-JUL-19
				Sample ID	MW103-2-2.5'	MW104-2.5-3'	BH202-2-2.5'	BH200-3.5-4.0"	MW102-20-25"	BH201-1-1.5'	BH201-4-4.5'	MW100-1.25-1.5'	MW109-2.5-3.5'
1,1,1,2-Tetrachloroethane	ug/g	0.05	-		<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	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	0.2	-		<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	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	ug/g	0.05	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	ug/g	0.25	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	ug/g	0.02	-		<0.020	<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
m+p-Xylenes	ug/g	-	-		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-		82.3	86.8	95.0	88.3	84.7	86.5	84.0	82.2	84.7
Surrogate: 1,4-Difluorobenzene	%	-	-		97.0	102.1	113.5	104.6	99.9	102.1	99.8	98.1	100.8

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

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID			
				L2318180-10	L2318180-11	L2318180-12	L2318180-13	L2318180-14
				25-JUL-19	25-JUL-19	26-JUL-19	23-JUL-19	26-JUL-19
				BH206-1-2'	MW108-5-6'	MW101-1.5-2'	DUP1	TB001
1,1,1,2-Tetrachloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	0.2	-	<0.080	<0.080	<0.080	<0.080	<0.080
1,1,1-Trichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	ug/g	0.05	-	<0.010	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	ug/g	0.25	-	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	ug/g	0.02	-	<0.020	<0.020	<0.020	<0.020	<0.020
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020
m+p-Xylenes	ug/g	-	-	<0.030	<0.030	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	89.1	91.1	89.5	90.3	98.3
Surrogate: 1,4-Difluorobenzene	%	-	-	106.8	107.4	105.2	106.2	116.5

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

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2318180-1	L2318180-2	L2318180-3	L2318180-4	L2318180-5	L2318180-6	L2318180-7	L2318180-8	L2318180-9
				Sample Date	22-JUL-19	22-JUL-19	22-JUL-19	23-JUL-19	23-JUL-19	24-JUL-19	24-JUL-19	24-JUL-19	25-JUL-19
				Sample ID	MW103-2-2.5'	MW104-2.5-3'	BH202-2-2.5'	BH200-3.5-4.0"	MW102-20-25"	BH201-1-1.5'	BH201-4-4.5'	MW100-1.25-1.5'	MW109-2.5-3.5'
F1 (C6-C10)	ug/g	25	-		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	ug/g	25	-		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	ug/g	10	-		<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-Naphth	ug/g	-	-		<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	ug/g	240	-		<50	<50	<50	<50	<50	<50	<50	<50	<50
F3-PAH	ug/g	-	-		<50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	ug/g	120	-		<50	<50	<50	<50	<50	<50	<50	<50	<50
Total Hydrocarbons (C6-C50)	ug/g	-	-		<72	<72	<72	<72	<72	<72	<72	<72	<72
Chrom. to baseline at nC50		-	-		YES	YES	YES	YES	YES	YES	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-		76.2	74.3	83.4	73.1	76.0	83.7	70.6	74.7	74.1
Surrogate: 3,4-Dichlorotoluene	%	-	-		76.7	84.5	81.0	74.1	75.8	79.4	74.5	69.3	76.1

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

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2318180-10	L2318180-11	L2318180-12	L2318180-13
				Sample Date	25-JUL-19	25-JUL-19	26-JUL-19	23-JUL-19
				Sample ID	BH206-1-2'	MW108-5-6'	MW101-1.5-2'	DUP1
F1 (C6-C10)	ug/g	25	-		<5.0	<5.0	<5.0	<5.0
F1-BTEX	ug/g	25	-		<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	ug/g	10	-		<10	<10	<10	<10
F2-Naphth	ug/g	-	-		<10	<10	<10	<10
F3 (C16-C34)	ug/g	240	-		<50	<50	<50	<50
F3-PAH	ug/g	-	-		<50	<50	<50	<50
F4 (C34-C50)	ug/g	120	-		<50	<50	<50	<50
Total Hydrocarbons (C6-C50)	ug/g	-	-		<72	<72	<72	<72
Chrom. to baseline at nC50		-	-		YES	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-		69.9	87.0	91.0	88.5
Surrogate: 3,4-Dichlorotoluene	%	-	-		70.6	64.6	78.3	77.9

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

Polycyclic Aromatic Hydrocarbons - SOIL

		Guide Limits									
Lab ID				L2318180-1	L2318180-2	L2318180-3	L2318180-4	L2318180-5	L2318180-6	L2318180-7	L2318180-8	L2318180-9
Sample Date				22-JUL-19	22-JUL-19	22-JUL-19	23-JUL-19	23-JUL-19	24-JUL-19	24-JUL-19	24-JUL-19	25-JUL-19
Sample ID				MW103-2-2.5'	MW104-2.5-3'	BH202-2-2.5'	BH200-3.5-4.0"	MW102-20-25"	BH201-1-1.5'	BH201-4-4.5'	MW100-1.25-1.5'	MW109-2.5-3.5'
Analyte	**Unit**	**#1**	**#2**									
Acenaphthene	ug/g	0.072	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	ug/g	0.093	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	ug/g	0.16	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	ug/g	0.36	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	ug/g	0.3	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	ug/g	0.47	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	ug/g	0.68	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	ug/g	0.48	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	ug/g	2.8	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenzo(ah)anthracene	ug/g	0.1	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	ug/g	0.56	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluorene	ug/g	0.12	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1+2-Methylnaphthalenes	ug/g	0.59	-	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042
1-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
2-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Naphthalene	ug/g	0.09	-	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Phenanthrene	ug/g	0.69	-	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046
Pyrene	ug/g	1	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	98.9	94.9	107.4	96.1	97.1	103.4	95.2	94.4	95.7
Surrogate: p-Terphenyl d14	%	-	-	91.9	85.6	94.1	89.0	87.1	90.9	84.1	89.6	84.8

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

Polycyclic Aromatic Hydrocarbons - SOIL

		Guide Limits					
Lab ID				L2318180-10	L2318180-11	L2318180-12	L2318180-13
Sample Date				25-JUL-19	25-JUL-19	26-JUL-19	23-JUL-19
Sample ID				BH206-1-2'	MW108-5-6'	MW101-1.5-2'	DUP1
Analyte	**Unit**	**#1**	**#2**				
Acenaphthene	ug/g	0.072	-	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	ug/g	0.093	-	<0.050	<0.050	<0.050	<0.050
Anthracene	ug/g	0.16	-	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	ug/g	0.36	-	<0.050	<0.050	0.095	<0.050
Benzo(a)pyrene	ug/g	0.3	-	<0.050	<0.050	0.093	<0.050
Benzo(b)fluoranthene	ug/g	0.47	-	<0.050	<0.050	0.153	<0.050
Benzo(g,h,i)perylene	ug/g	0.68	-	<0.050	<0.050	0.110	<0.050
Benzo(k)fluoranthene	ug/g	0.48	-	<0.050	<0.050	<0.050	<0.050
Chrysene	ug/g	2.8	-	<0.050	<0.050	0.107	<0.050
Dibenzo(ah)anthracene	ug/g	0.1	-	<0.050	<0.050	<0.050	<0.050
Fluoranthene	ug/g	0.56	-	<0.050	<0.050	0.185	<0.050
Fluorene	ug/g	0.12	-	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	-	<0.050	<0.050	0.084	<0.050
1+2-Methylnaphthalenes	ug/g	0.59	-	<0.042	<0.042	<0.042	<0.042
1-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.030	<0.030
2-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.030	<0.030
Naphthalene	ug/g	0.09	-	<0.013	<0.013	<0.013	<0.013
Phenanthrene	ug/g	0.69	-	<0.046	<0.046	0.119	<0.046
Pyrene	ug/g	1	-	<0.050	<0.050	0.178	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	95.9	99.8	97.9	97.5
Surrogate: p-Terphenyl d14	%	-	-	86.1	89.0	94.3	84.9

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

Semi-Volatile Organics - SOIL

			Lab ID	L2318180-2
			Sample Date	22-JUL-19
			Sample ID	MW104-2.5-3'
		Guide Limits		
Analyte	**Unit**	**#1**	**#2**	
Biphenyl	ug/g	0.05	-	<0.050
4-Chloroaniline	ug/g	0.5	-	<0.10
Bis(2-chloroethyl)ether	ug/g	0.5	-	<0.10
Bis(2-chloroisopropyl)ether	ug/g	0.5	-	<0.10
3,3'-Dichlorobenzidine	ug/g	1	-	<0.10
Diethylphthalate	ug/g	0.5	-	<0.10
Dimethylphthalate	ug/g	0.5	-	<0.10
2,4-Dimethylphenol	ug/g	0.2	-	<0.10
2,4-Dinitrophenol	ug/g	2	-	<1.0
2,4-Dinitrotoluene	ug/g	-	-	<0.10
2,6-Dinitrotoluene	ug/g	-	-	<0.10
2,4+2,6-Dinitrotoluene	ug/g	0.5	-	<0.14
Bis(2-ethylhexyl)phthalate	ug/g	5	-	<0.10
Phenol	ug/g	0.5	-	<0.10
1,2,4-Trichlorobenzene	ug/g	0.05	-	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	87.5
Surrogate: Nitrobenzene d5	%	-	-	91.4
Surrogate: Phenol d5	%	-	-	99.3
Surrogate: p-Terphenyl d14	%	-	-	113.1
Surrogate: 2,4,6-Tribromophenol	%	-	-	89.1

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

Polychlorinated Biphenyls - SOIL

		Guide Limits			
Lab ID				L2318180-4	L2318180-13
Sample Date				23-JUL-19	23-JUL-19
Sample ID				BH200-3.5-4.0"	DUP1
Analyte	**Unit**	**#1**	**#2**		
Aroclor 1242	ug/g	-	-	<0.010	<0.010
Aroclor 1248	ug/g	-	-	<0.010	<0.010
Aroclor 1254	ug/g	-	-	<0.010	<0.010
Aroclor 1260	ug/g	-	-	<0.010	<0.010
Total PCBs	ug/g	0.3	-	<0.020	<0.020
Surrogate: d14-Terphenyl	%	-	-	93.5	91.8

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

Dioxins and Furans - SOIL

				Lab ID	L2318180-9	L2318180-11
				Sample Date	25-JUL-19	25-JUL-19
				Sample ID	MW109-2.5-3.5'	MW108-5-6'
		Guide Limits				
Analyte	Unit	#1	#2			
2,3,7,8-TCDD	pg/g	-	-		<0.025 [U]	<0.022 [U]
1,2,3,7,8-PeCDD	pg/g	-	-		<0.017 [U]	<0.023 [U]
1,2,3,4,7,8-HxCDD	pg/g	-	-		<0.027 [U]	<0.021 [U]
1,2,3,6,7,8-HxCDD	pg/g	-	-		0.040 M,J	0.023 M,J,R
1,2,3,7,8,9-HxCDD	pg/g	-	-		<0.026 [U]	<0.020 [U]
1,2,3,4,6,7,8-HpCDD	pg/g	-	-		0.808 [J]	0.133 [J]
OCDD	pg/g	-	-		7.30	1.06 J,B
Total-TCDD	pg/g	-	-		0.058	<0.022 [U]
Total TCDD # Homologues		-	-		1	0
Total-PeCDD	pg/g	-	-		<0.017 [U]	<0.023 [U]
Total PeCDD # Homologues		-	-		0	0
Total-HxCDD	pg/g	-	-		0.111	0.051
Total HxCDD # Homologues		-	-		2	1
Total-HpCDD	pg/g	-	-		1.48	0.247
Total HpCDD # Homologues		-	-		2	2
2,3,7,8-TCDF	pg/g	-	-		<0.024 [U]	<0.021 [U]
1,2,3,7,8-PeCDF	pg/g	-	-		<0.024 [U]	<0.023 [U]
2,3,4,7,8-PeCDF	pg/g	-	-		0.024 M,J,R	<0.018 [U]
1,2,3,4,7,8-HxCDF	pg/g	-	-		<0.027 [U]	<0.018 [U]
1,2,3,6,7,8-HxCDF	pg/g	-	-		<0.027 [U]	<0.019 [U]
1,2,3,7,8,9-HxCDF	pg/g	-	-		<0.036 [U]	<0.025 M,J,R
2,3,4,6,7,8-HxCDF	pg/g	-	-		<0.026 M,U	<0.018 [U]
1,2,3,4,6,7,8-HpCDF	pg/g	-	-		0.290 J,R	0.068 M,J,R
1,2,3,4,7,8,9-HpCDF	pg/g	-	-		<0.020 [U]	<0.019 [U]
OCDF	pg/g	-	-		0.862 [J]	0.175 [J]
Total-TCDF	pg/g	-	-		<0.024 [U]	<0.021 [U]
Total TCDF # Homologues		-	-		0	0
Total-PeCDF	pg/g	-	-		0.040	<0.023 [U]
Total PeCDF # Homologues		-	-		1	0
Total-HxCDF	pg/g	-	-		0.124	<0.025 [U]

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

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

Dioxins and Furans - SOIL

		Guide Limits			
Lab ID				L2318180-9	L2318180-11
Sample Date				25-JUL-19	25-JUL-19
Sample ID				MW109-2.5-3.5'	MW108-5-6'
Analyte	**Unit**	**#1**	**#2**		
Total HxCDF # Homologues		-	-	1	0
Total-HpCDF	pg/g	-	-	0.622	0.045
Total HpCDF # Homologues		-	-	1	1
Surrogate: 13C12-2,3,7,8-TCDD	%	-	-	92.0	97.0
Surrogate: 13C12-1,2,3,7,8-PeCDD	%	-	-	80.0	76.0
Surrogate: 13C12-1,2,3,4,7,8-HxCDD	%	-	-	63.0	63.0
Surrogate: 13C12-1,2,3,6,7,8-HxCDD	%	-	-	74.0	73.0
Surrogate: 13C12-1,2,3,4,6,7,8-HpCDD	%	-	-	65.0	63.0
Surrogate: 13C12-OCDD	%	-	-	48.0	46.0
Surrogate: 13C12-2,3,7,8-TCDF	%	-	-	73.0	73.0
Surrogate: 13C12-1,2,3,7,8-PeCDF	%	-	-	78.0	74.0
Surrogate: 13C12-2,3,4,7,8-PeCDF	%	-	-	79.0	73.0
Surrogate: 13C12-1,2,3,4,7,8-HxCDF	%	-	-	61.0	65.0
Surrogate: 13C12-1,2,3,6,7,8-HxCDF	%	-	-	69.0	72.0
Surrogate: 13C12-2,3,4,6,7,8-HxCDF	%	-	-	67.0	71.0
Surrogate: 13C12-1,2,3,7,8,9-HxCDF	%	-	-	63.0	64.0
Surrogate: 13C12-1,2,3,4,6,7,8-HpCDF	%	-	-	61.0	59.0
Surrogate: 13C12-1,2,3,4,7,8,9-HpCDF	%	-	-	68.0	67.0
Surrogate: 37Cl4-2,3,7,8-TCDD (Cleanup)	%	-	-	83.0	84.0
Lower Bound PCDD/F TEQ (WHO 2005)	pg/g	-	-	0.0146	0.00170
Mid Point PCDD/F TEQ (WHO 2005)	pg/g	-	-	0.0558	0.0387
Upper Bound PCDD/F TEQ (WHO 2005)	pg/g	-	-	0.0869	0.0702

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu 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
[U]	The analyte was not detected above the EDL.
M,U	A peak has been manually integrated, and the analyte was not detected above the EDL.
[J]	The analyte was detected below the calibrated range but above the EDL.
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.
J,R	The analyte was detected below the calibrated range but above the EDL, and the ion abundance ratio(s) did not meet the acceptance criteria. Value is an estimated maximum.
J,B	The analyte was detected below the calibrated range but above the EDL, and was detected in the Method Blank at >10% of the sample concentration.
M,J,R	A peak has been manually integrated, the analyte was detected below the calibrated range but above the EDL, and the ion abundance ratio(s) did not meet the acceptance criteria. Value is

Reference Information

an estimated maximum.

M,J A peak has been manually integrated, and the analyte was detected below the calibrated range but above the EDL.

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

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-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).

DINITROTOL-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
DX-R511-HRMS-BU	Soil	Dioxins and Furans	USEPA 1613B
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.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

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.

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).

GRAIN SIZE-HYD-WT Soil Grain Size by Hydrometer ASTM D422-63

Particle size curve is generated from dry sieving (particles > 2 mm), wet sieving (particles 2 mm-75 um and hydrometer readings (particles < 75 um)

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).

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
MEHG-GCAF-VA	Soil	Methylmercury in Soil by GCAFS	DeWild et al. (2004)

This method follows procedures published by DeWild, Olund, Olsen and Tate (2004) for the US Geological Survey (Techniques and Methods 5A-7). Samples are leached with an acidic copper sulphate solution to solubilize methylmercury for inorganic complexes. The methylmercury is then extracted into dichloromethane and then an aliquot is back extracted into ultra-pure water. The extract is analyzed by aqueous phase ethylation, purge and trap, desorption and GC separation. The separated species are then pyrolized to elemental Hg and quantified by cold vapour atomic flourescence spectroscopy. Results are reported "as MeHg".

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-INT-SVOC-BU	Solid	% Moisture - Internal Use	ASTM METHOD D2974-00
MOISTURE-VA	Soil	Moisture content	CCME PHC in Soil - Tier 1 (mod)

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of two hours.

MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

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).

PH-WT	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.

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).

SAR-R511-WT	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 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).

TOC-R511-WT	Soil		

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
		TOC & FOC-O.Reg 153/04 (July 2011)	CARTER 21.3.2

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).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

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:

17-20190726-1 17-20190726-2

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
BU	ALS ENVIRONMENTAL - BURLINGTON, ONTARIO, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, 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

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4734368								
WG3118993-7 DUP		**WG3118993-6**						
1,2,4-Trichlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	01-AUG-19
2,4-Dimethylphenol		<0.20	<0.20	RPD-NA	ug/g	N/A	40	01-AUG-19
2,4-Dinitrophenol		<2.0	<2.0	RPD-NA	ug/g	N/A	40	01-AUG-19
2,4-Dinitrotoluene		<0.20	<0.20	RPD-NA	ug/g	N/A	40	01-AUG-19
2,6-Dinitrotoluene		<0.20	<0.20	RPD-NA	ug/g	N/A	40	01-AUG-19
3,3'-Dichlorobenzidine		<0.20	<0.20	RPD-NA	ug/g	N/A	40	01-AUG-19
4-Chloroaniline		<0.20	<0.20	RPD-NA	ug/g	N/A	40	01-AUG-19
Biphenyl		<0.10	<0.10	RPD-NA	ug/g	N/A	40	01-AUG-19
Bis(2-chloroethyl)ether		<0.20	<0.20	RPD-NA	ug/g	N/A	40	01-AUG-19
Bis(2-chloroisopropyl)ether		<0.20	<0.20	RPD-NA	ug/g	N/A	40	01-AUG-19
Bis(2-ethylhexyl)phthalate		<10	<10	RPD-NA	ug/g	N/A	40	01-AUG-19
Diethylphthalate		<0.20	<0.20	RPD-NA	ug/g	N/A	40	01-AUG-19
Dimethylphthalate		<0.20	<0.20	RPD-NA	ug/g	N/A	40	01-AUG-19
Phenol		<5.0	<5.0	RPD-NA	ug/g	N/A	40	01-AUG-19
WG3118993-2 LCS								
1,2,4-Trichlorobenzene			86.9		%		50-140	31-JUL-19
2,4-Dimethylphenol			116.7		%		30-130	31-JUL-19
2,4-Dinitrophenol			116.5		%		30-130	31-JUL-19
2,4-Dinitrotoluene			99.7		%		50-140	31-JUL-19
2,6-Dinitrotoluene			98.0		%		50-140	31-JUL-19
3,3'-Dichlorobenzidine			96.0		%		30-130	31-JUL-19
4-Chloroaniline			98.9		%		30-130	31-JUL-19
Biphenyl			97.5		%		50-140	31-JUL-19
Bis(2-chloroethyl)ether			96.1		%		50-140	31-JUL-19
Bis(2-chloroisopropyl)ether			94.1		%		50-140	31-JUL-19
Bis(2-ethylhexyl)phthalate			110.2		%		50-140	31-JUL-19
Diethylphthalate			100.7		%		50-140	31-JUL-19
Dimethylphthalate			101.2		%		50-140	31-JUL-19
Phenol			115.9		%		30-130	31-JUL-19
WG3118993-1 MB								
1,2,4-Trichlorobenzene			<0.050		ug/g		0.05	31-JUL-19
2,4-Dimethylphenol			<0.10		ug/g		0.1	31-JUL-19
2,4-Dinitrophenol			<1.0		ug/g		1	31-JUL-19
							0.1	

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4734368								
WG3118993-1 MB								
2,4-Dinitrotoluene			<0.10		ug/g		0.1	31-JUL-19
2,6-Dinitrotoluene			<0.10		ug/g		0.1	31-JUL-19
3,3'-Dichlorobenzidine			<0.10		ug/g		0.1	31-JUL-19
4-Chloroaniline			<0.10		ug/g		0.1	31-JUL-19
Biphenyl			<0.050		ug/g		0.05	31-JUL-19
Bis(2-chloroethyl)ether			<0.10		ug/g		0.1	31-JUL-19
Bis(2-chloroisopropyl)ether			<0.10		ug/g		0.1	31-JUL-19
Bis(2-ethylhexyl)phthalate			<0.10		ug/g		0.1	31-JUL-19
Diethylphthalate			<0.10		ug/g		0.1	31-JUL-19
Dimethylphthalate			<0.10		ug/g		0.1	31-JUL-19
Phenol			<0.10		ug/g		0.1	31-JUL-19
Surrogate: 2-Fluorobiphenyl			56.6		%		50-140	31-JUL-19
Surrogate: 2,4,6-Tribromophenol			92.8		%		50-140	31-JUL-19
Surrogate: Nitrobenzene d5			82.1		%		50-140	31-JUL-19
Surrogate: p-Terphenyl d14			126.1		%		50-140	31-JUL-19
Surrogate: Phenol d5			103.0		%		30-130	31-JUL-19
WG3118993-8 MS		**WG3118993-6**						
1,2,4-Trichlorobenzene			81.0		%		50-140	01-AUG-19
2,4-Dimethylphenol			97.5		%		30-150	01-AUG-19
2,4-Dinitrophenol			105.7		%		30-150	01-AUG-19
2,4-Dinitrotoluene			90.7		%		50-140	01-AUG-19
2,6-Dinitrotoluene			94.9		%		50-140	01-AUG-19
3,3'-Dichlorobenzidine			84.9		%		30-130	01-AUG-19
4-Chloroaniline			82.3		%		30-130	01-AUG-19
Biphenyl			88.7		%		50-140	01-AUG-19
Bis(2-chloroethyl)ether			86.6		%		50-140	01-AUG-19
Bis(2-chloroisopropyl)ether			86.2		%		50-140	01-AUG-19
Bis(2-ethylhexyl)phthalate			99.1		%		50-140	01-AUG-19
Diethylphthalate			91.7		%		50-140	01-AUG-19
Dimethylphthalate			92.7		%		50-140	01-AUG-19
Phenol			97.0		%		30-130	01-AUG-19
B-HWS-R511-WT	**Soil**							

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4737418								
WG3122386-4 DUP		**L2318180-2**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	02-AUG-19
WG3122386-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			117.2		%		70-130	02-AUG-19
WG3122386-3 LCS								
Boron (B), Hot Water Ext.			102.3		%		70-130	02-AUG-19
WG3122386-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	02-AUG-19
Batch R4737748								
WG3122385-4 DUP		**L2318180-13**						
Boron (B), Hot Water Ext.		0.29	0.31		ug/g	8.4	30	02-AUG-19
WG3122385-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			99.6		%		70-130	02-AUG-19
WG3122385-3 LCS								
Boron (B), Hot Water Ext.			94.0		%		70-130	02-AUG-19
WG3122385-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	02-AUG-19
Batch R4739771								
WG3124163-4 DUP		**L2318770-1**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	06-AUG-19
WG3124163-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			96.8		%		70-130	06-AUG-19
WG3124163-3 LCS								
Boron (B), Hot Water Ext.			106.3		%		70-130	06-AUG-19
WG3124163-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	06-AUG-19
Batch R4746506								
WG3128526-4 DUP		**L2322352-4**						
Boron (B), Hot Water Ext.		0.13	0.11		ug/g	17	30	09-AUG-19
WG3128526-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			102.4		%		70-130	09-AUG-19
WG3128526-3 LCS								
Boron (B), Hot Water Ext.			86.9		%		70-130	09-AUG-19
WG3128526-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	09-AUG-19
CN-WAD-R511-WT	**Soil**							

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-WAD-R511-WT	**Soil**							
Batch R4733174								
WG3119446-3 DUP		**L2318180-2**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	31-JUL-19
WG3119743-3 DUP		**L2318180-10**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	31-JUL-19
WG3119446-2 LCS								
Cyanide, Weak Acid Diss			96.7		%		80-120	31-JUL-19
WG3119743-2 LCS								
Cyanide, Weak Acid Diss			96.4		%		80-120	31-JUL-19
WG3119446-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	31-JUL-19
WG3119743-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	31-JUL-19
WG3119446-4 MS		**L2318180-2**						
Cyanide, Weak Acid Diss			104.0		%		70-130	31-JUL-19
WG3119743-4 MS		**L2318180-10**						
Cyanide, Weak Acid Diss			103.3		%		70-130	31-JUL-19
Batch R4739965								
WG3122950-3 DUP		**L2319795-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	06-AUG-19
WG3122950-2 LCS								
Cyanide, Weak Acid Diss			97.6		%		80-120	06-AUG-19
WG3122950-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	06-AUG-19
WG3122950-4 MS		**L2319795-1**						
Cyanide, Weak Acid Diss			105.5		%		70-130	06-AUG-19
Batch R4744111								
WG3124213-3 DUP		**L2321692-3**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	08-AUG-19
WG3124213-2 LCS								
Cyanide, Weak Acid Diss			101.8		%		80-120	08-AUG-19
WG3124213-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	08-AUG-19
WG3124213-4 MS		**L2321692-3**						
Cyanide, Weak Acid Diss			105.5		%		70-130	08-AUG-19
CR-CR6-IC-WT	**Soil**							

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT	**Soil**							
Batch R4731385								
WG3117656-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			84.1		%		70-130	30-JUL-19
WG3117656-3 DUP		**L2318180-12**						
Chromium, Hexavalent		0.51	0.61		ug/g	16	35	30-JUL-19
WG3117656-2 LCS								
Chromium, Hexavalent			96.9		%		80-120	30-JUL-19
WG3117656-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	30-JUL-19
Batch R4734568								
WG3119364-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			91.0		%		70-130	01-AUG-19
WG3119364-5 DUP		**L2318180-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	01-AUG-19
WG3119364-2 LCS								
Chromium, Hexavalent			101.2		%		80-120	01-AUG-19
WG3119364-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	01-AUG-19
Batch R4734977								
WG3119535-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			91.4		%		70-130	01-AUG-19
WG3119849-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			86.9		%		70-130	01-AUG-19
WG3119535-3 DUP		**L2318180-7**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	01-AUG-19
WG3119849-3 DUP		**L2318065-3**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	01-AUG-19
WG3119535-2 LCS								
Chromium, Hexavalent			93.9		%		80-120	01-AUG-19
WG3119849-2 LCS								
Chromium, Hexavalent			89.0		%		80-120	01-AUG-19
WG3119535-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	01-AUG-19
WG3119849-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	01-AUG-19
Batch R4744962								
WG3124254-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			89.5		%		70-130	08-AUG-19
WG3124254-3 DUP		**L2321698-3**						

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT	**Soil**							
Batch R4744962								
WG3124254-3 DUP		**L2321698-3**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	08-AUG-19
WG3124254-2 LCS								
Chromium, Hexavalent			96.1		%		80-120	08-AUG-19
WG3124254-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	08-AUG-19
Batch R4754470								
WG3130355-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			90.8		%		70-130	14-AUG-19
WG3130355-3 DUP		**L2326254-1**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	14-AUG-19
WG3130355-2 LCS								
Chromium, Hexavalent			92.5		%		80-120	14-AUG-19
WG3130355-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	14-AUG-19
DX-R511-HRMS-BU	**Soil**							
Batch R4745047								
WG3116272-2 LCS								
2,3,7,8-TCDD			99.0		%		50-150	08-AUG-19
1,2,3,7,8-PeCDD			121.0		%		50-150	08-AUG-19
1,2,3,4,7,8-HxCDD			108.0		%		50-150	08-AUG-19
1,2,3,6,7,8-HxCDD			118.0		%		50-150	08-AUG-19
1,2,3,7,8,9-HxCDD			125.0		%		50-150	08-AUG-19
1,2,3,4,6,7,8-HpCDD			110.0		%		50-150	08-AUG-19
OCDD			110.0		%		50-150	08-AUG-19
2,3,7,8-TCDF			112.0		%		50-150	08-AUG-19
1,2,3,7,8-PeCDF			122.0		%		50-150	08-AUG-19
2,3,4,7,8-PeCDF			111.0		%		50-150	08-AUG-19
1,2,3,4,7,8-HxCDF			121.0		%		50-150	08-AUG-19
1,2,3,6,7,8-HxCDF			115.0		%		50-150	08-AUG-19
2,3,4,6,7,8-HxCDF			116.0		%		50-150	08-AUG-19
1,2,3,7,8,9-HxCDF			122.0		%		50-150	08-AUG-19
1,2,3,4,6,7,8-HpCDF			119.0		%		50-150	08-AUG-19
1,2,3,4,7,8,9-HpCDF			104.0		%		50-150	08-AUG-19
OCDF			123.0		%		50-150	08-AUG-19

COMMENTS: LCS is outside method criteria for select labelled targets. Natives all meet criteria. No impact to data quality is expected.

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
DX-R511-HRMS-BU	**Soil**							
Batch R4745047								
WG3116272-1 MB								
2,3,7,8-TCDD			<0.030	[U]	pg/g		0.03	08-AUG-19
1,2,3,7,8-PeCDD			<0.029	[U]	pg/g		0.029	08-AUG-19
1,2,3,4,7,8-HxCDD			<0.037	M,U	pg/g		0.037	08-AUG-19
1,2,3,6,7,8-HxCDD			<0.034	M,U	pg/g		0.034	08-AUG-19
1,2,3,7,8,9-HxCDD			<0.035	[U]	pg/g		0.035	08-AUG-19
1,2,3,4,6,7,8-HpCDD			0.031	M,J,R	pg/g		0.025	08-AUG-19
OCDD			0.168	M,J	pg/g		0.041	08-AUG-19
2,3,7,8-TCDF			<0.029	[U]	pg/g		0.029	08-AUG-19
1,2,3,7,8-PeCDF			0.033	M,J,R	pg/g		0.026	08-AUG-19
2,3,4,7,8-PeCDF			<0.021	[U]	pg/g		0.021	08-AUG-19
1,2,3,4,7,8-HxCDF			<0.031	[U]	pg/g		0.031	08-AUG-19
1,2,3,6,7,8-HxCDF			<0.028	M,U	pg/g		0.028	08-AUG-19
2,3,4,6,7,8-HxCDF			<0.030	[U]	pg/g		0.03	08-AUG-19
1,2,3,7,8,9-HxCDF			0.049	M,J	pg/g		0.042	08-AUG-19
1,2,3,4,6,7,8-HpCDF			0.072	M,J	pg/g		0.026	08-AUG-19
1,2,3,4,7,8,9-HpCDF			<0.032	[U]	pg/g		0.032	08-AUG-19
OCDF			0.120	M,J,R	pg/g		0.052	08-AUG-19
Total-TCDD			<0.030	[U]	pg/g		0.03	08-AUG-19
Total-PeCDD			<0.029	[U]	pg/g		0.029	08-AUG-19
Total-HxCDD			<0.037	[U]	pg/g		0.037	08-AUG-19
Total-HpCDD			<0.025	[U]	pg/g		0.025	08-AUG-19
Total-TCDF			<0.029	[U]	pg/g		0.029	08-AUG-19
Total-PeCDF			<0.026	[U]	pg/g		0.026	08-AUG-19
Total-HxCDF			0.049	A	pg/g		0.042	08-AUG-19
Total-HpCDF			0.072	A	pg/g		0.032	08-AUG-19
Surrogate: 13C12-2,3,7,8-TCDD			80.0		%		40-130	08-AUG-19
Surrogate: 13C12-1,2,3,7,8-PeCDD			64.0		%		40-140	08-AUG-19
Surrogate: 13C12-1,2,3,4,7,8-HxCDD			53.0		%		40-140	08-AUG-19
Surrogate: 13C12-1,2,3,6,7,8-HxCDD			66.0		%		40-140	08-AUG-19
Surrogate: 13C12-1,2,3,4,6,7,8-HpCDD			54.0		%		40-140	08-AUG-19
Surrogate: 13C12-OCDD			40.0		%		40-140	08-AUG-19
Surrogate: 13C12-2,3,7,8-TCDF			66.0		%		40-130	08-AUG-19
Surrogate: 13C12-1,2,3,7,8-PeCDF			63.0		%		40-140	08-AUG-19

COMMENTS: Blank has low levels of select targets that were within the reference method control limits

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
DX-R511-HRMS-BU	**Soil**							
Batch R4745047								
WG3116272-1 MB								
Surrogate: 13C12-2,3,4,7,8-PeCDF			60.0		%		40-140	08-AUG-19
Surrogate: 13C12-1,2,3,4,7,8-HxCDF			50.0		%		40-140	08-AUG-19
Surrogate: 13C12-1,2,3,6,7,8-HxCDF			66.0		%		40-140	08-AUG-19
Surrogate: 13C12-2,3,4,6,7,8-HxCDF			60.0		%		40-140	08-AUG-19
Surrogate: 13C12-1,2,3,7,8,9-HxCDF			56.0		%		40-140	08-AUG-19
Surrogate: 13C12-1,2,3,4,6,7,8-HpCDF			52.0		%		40-140	08-AUG-19
Surrogate: 13C12-1,2,3,4,7,8,9-HpCDF			60.0		%		40-140	08-AUG-19
Surrogate: 37Cl4-2,3,7,8-TCDD (Cleanup)			68.0		%		40-130	08-AUG-19
COMMENTS: Blank has low levels of select targets that were within the reference method control limits								
EC-WT	**Soil**							
Batch R4737351								
WG3122391-4 DUP		**WG3122391-3**						
Conductivity		0.426	0.432		mS/cm	1.4	20	02-AUG-19
WG3122391-2 IRM		**WT SAR3**						
Conductivity			98.6		%		70-130	02-AUG-19
WG3122665-1 LCS								
Conductivity			97.3		%		90-110	02-AUG-19
WG3122391-1 MB								
Conductivity			<0.0040		mS/cm		0.004	02-AUG-19
Batch R4738488								
WG3122393-4 DUP		**WG3122393-3**						
Conductivity		0.208	0.206		mS/cm	1.0	20	02-AUG-19
WG3122393-2 IRM		**WT SAR3**						
Conductivity			98.6		%		70-130	02-AUG-19
WG3122663-1 LCS								
Conductivity			97.7		%		90-110	02-AUG-19
WG3122393-1 MB								
Conductivity			<0.0040		mS/cm		0.004	02-AUG-19
Batch R4739844								
WG3124169-4 DUP		**WG3124169-3**						
Conductivity		0.389	0.389		mS/cm	0.0	20	06-AUG-19
WG3124169-2 IRM		**WT SAR3**						
Conductivity			96.4		%		70-130	06-AUG-19
WG3124436-1 LCS								
Conductivity			100.3		%		90-110	06-AUG-19
WG3124169-1 MB								

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4739844								
WG3124169-1 MB								
Conductivity			<0.0040		mS/cm		0.004	06-AUG-19
Batch R4746938								
WG3128641-4 DUP		**WG3128641-3**						
Conductivity		0.252	0.249		mS/cm	1.2	20	12-AUG-19
WG3128641-2 IRM		**WT SAR3**						
Conductivity			90.9		%		70-130	12-AUG-19
WG3130172-1 LCS								
Conductivity			99.3		%		90-110	12-AUG-19
WG3128641-1 MB								
Conductivity			<0.0040		mS/cm		0.004	12-AUG-19
Batch R4760888								
WG3137412-4 DUP		**WG3137412-3**						
Conductivity		3.30	3.31		mS/cm	0.3	20	20-AUG-19
WG3137412-2 IRM		**WT SAR3**						
Conductivity			94.1		%		70-130	20-AUG-19
WG3137831-1 LCS								
Conductivity			98.7		%		90-110	20-AUG-19
WG3137412-1 MB								
Conductivity			<0.0040		mS/cm		0.004	20-AUG-19
F1-HS-511-WT	**Soil**							
Batch R4737203								
WG3121780-4 DUP		**WG3121780-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	02-AUG-19
WG3121780-2 LCS								
F1 (C6-C10)			103.3		%		80-120	02-AUG-19
WG3121780-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	02-AUG-19
Surrogate: 3,4-Dichlorotoluene			84.0		%		60-140	02-AUG-19
WG3121780-6 MS		**L2318180-3**						
F1 (C6-C10)			79.4		%		60-140	02-AUG-19
F2-F4-511-WT	**Soil**							
Batch R4734301								
WG3119460-8 DUP		**WG3119460-10**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	31-JUL-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	31-JUL-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4734301								
WG3119460-8 DUP		**WG3119460-10**						
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	31-JUL-19
WG3119460-7 LCS								
F2 (C10-C16)			101.8		%		80-120	31-JUL-19
F3 (C16-C34)			99.8		%		80-120	31-JUL-19
F4 (C34-C50)			99.6		%		80-120	31-JUL-19
WG3119460-6 MB								
F2 (C10-C16)			<10		ug/g		10	31-JUL-19
F3 (C16-C34)			<50		ug/g		50	31-JUL-19
F4 (C34-C50)			<50		ug/g		50	31-JUL-19
Surrogate: 2-Bromobenzotrifluoride			88.8		%		60-140	31-JUL-19
WG3119460-9 MS		**WG3119460-10**						
F2 (C10-C16)			104.3		%		60-140	31-JUL-19
F3 (C16-C34)			102.7		%		60-140	31-JUL-19
F4 (C34-C50)			103.6		%		60-140	31-JUL-19
Batch R4734417								
WG3119679-3 DUP		**WG3119679-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	31-JUL-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	31-JUL-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	31-JUL-19
WG3119679-2 LCS								
F2 (C10-C16)			99.9		%		80-120	31-JUL-19
F3 (C16-C34)			101.4		%		80-120	31-JUL-19
F4 (C34-C50)			99.2		%		80-120	31-JUL-19
WG3119679-1 MB								
F2 (C10-C16)			<10		ug/g		10	31-JUL-19
F3 (C16-C34)			<50		ug/g		50	31-JUL-19
F4 (C34-C50)			<50		ug/g		50	31-JUL-19
Surrogate: 2-Bromobenzotrifluoride			80.3		%		60-140	31-JUL-19
WG3119679-4 MS		**WG3119679-5**						
F2 (C10-C16)			98.3		%		60-140	31-JUL-19
F3 (C16-C34)			99.9		%		60-140	31-JUL-19
F4 (C34-C50)			99.3		%		60-140	31-JUL-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4735109								
WG3121145-3 DUP		**WG3121145-5**						
F2 (C10-C16)		39	45		ug/g	14	30	01-AUG-19
F3 (C16-C34)		131	141		ug/g	6.9	30	01-AUG-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	01-AUG-19
WG3121145-2 LCS								
F2 (C10-C16)			97.5		%		80-120	01-AUG-19
F3 (C16-C34)			102.9		%		80-120	01-AUG-19
F4 (C34-C50)			107.2		%		80-120	01-AUG-19
WG3121145-1 MB								
F2 (C10-C16)			<10		ug/g		10	01-AUG-19
F3 (C16-C34)			<50		ug/g		50	01-AUG-19
F4 (C34-C50)			<50		ug/g		50	01-AUG-19
Surrogate: 2-Bromobenzotrifluoride			77.5		%		60-140	01-AUG-19
WG3121145-4 MS		**WG3121145-5**						
F2 (C10-C16)			92.2		%		60-140	01-AUG-19
F3 (C16-C34)			99.2		%		60-140	01-AUG-19
F4 (C34-C50)			96.9		%		60-140	01-AUG-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4737794								
WG3122340-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			101.8		%		70-130	02-AUG-19
WG3122340-6 DUP		**WG3122340-5**						
Mercury (Hg)		0.0333	0.0307		ug/g	8.0	40	02-AUG-19
WG3122340-3 LCS								
Mercury (Hg)			110.5		%		80-120	02-AUG-19
WG3122340-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	02-AUG-19
Batch R4739869								
WG3124147-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			97.5		%		70-130	06-AUG-19
WG3124147-6 DUP		**WG3124147-5**						
Mercury (Hg)		0.0241	0.0220		ug/g	9.0	40	06-AUG-19
WG3124147-3 LCS								
Mercury (Hg)			103.0		%		80-120	06-AUG-19
WG3124147-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	06-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R4745243								
WG3127124-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			93.0		%		70-130	09-AUG-19
WG3127124-6 DUP		**WG3127124-5**						
Mercury (Hg)		0.0065	0.0066		ug/g	2.1	40	09-AUG-19
WG3127124-3 LCS								
Mercury (Hg)			102.5		%		80-120	09-AUG-19
WG3127124-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	09-AUG-19
Batch R4759827								
WG3137385-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			102.6		%		70-130	20-AUG-19
WG3137385-6 DUP		**WG3137385-5**						
Mercury (Hg)		0.0207	0.0225		ug/g	8.6	40	20-AUG-19
WG3137385-3 LCS								
Mercury (Hg)			110.5		%		80-120	20-AUG-19
WG3137385-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	20-AUG-19
MEHG-GCAF-VA	**Soil**							
Batch R4767684								
WG3136906-3 LCS								
Methylmercury (as MeHg)			87.1		%		70-130	23-AUG-19
WG3136906-1 MB								
Methylmercury (as MeHg)			<0.000050		mg/kg wwt		0.00005	23-AUG-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4737292								
WG3122340-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			101.2		%		70-130	02-AUG-19
Arsenic (As)			103.0		%		70-130	02-AUG-19
Barium (Ba)			100.6		%		70-130	02-AUG-19
Beryllium (Be)			105.0		%		70-130	02-AUG-19
Boron (B)			2.9		mg/kg		0-8.2	02-AUG-19
Cadmium (Cd)			104.2		%		70-130	02-AUG-19
Chromium (Cr)			105.2		%		70-130	02-AUG-19
Cobalt (Co)			102.8		%		70-130	02-AUG-19
Copper (Cu)			106.6		%		70-130	02-AUG-19
Lead (Pb)			100.3		%		70-130	02-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4737292								
WG3122340-2 CRM		**WT-CANMET-TILL1**						
Molybdenum (Mo)			104.3		%		70-130	02-AUG-19
Nickel (Ni)			103.5		%		70-130	02-AUG-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	02-AUG-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	02-AUG-19
Thallium (Tl)			0.124		mg/kg		0.077-0.18	02-AUG-19
Uranium (U)			102.8		%		70-130	02-AUG-19
Vanadium (V)			103.5		%		70-130	02-AUG-19
Zinc (Zn)			98.4		%		70-130	02-AUG-19
WG3122340-6 DUP		**WG3122340-5**						
Antimony (Sb)		0.12	0.11		ug/g	12	30	02-AUG-19
Arsenic (As)		2.95	2.63		ug/g	12	30	02-AUG-19
Barium (Ba)		43.4	37.9		ug/g	14	40	02-AUG-19
Beryllium (Be)		0.38	0.31		ug/g	20	30	02-AUG-19
Boron (B)		7.4	5.6		ug/g	27	30	02-AUG-19
Cadmium (Cd)		0.183	0.161		ug/g	13	30	02-AUG-19
Chromium (Cr)		15.0	12.8		ug/g	16	30	02-AUG-19
Cobalt (Co)		4.71	4.28		ug/g	9.6	30	02-AUG-19
Copper (Cu)		11.3	10.3		ug/g	9.8	30	02-AUG-19
Lead (Pb)		16.4	16.2		ug/g	1.1	40	02-AUG-19
Molybdenum (Mo)		0.28	0.25		ug/g	11	40	02-AUG-19
Nickel (Ni)		10.2	9.27		ug/g	9.7	30	02-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	02-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	02-AUG-19
Thallium (Tl)		0.083	0.076		ug/g	8.7	30	02-AUG-19
Uranium (U)		0.490	0.470		ug/g	4.1	30	02-AUG-19
Vanadium (V)		27.3	22.7		ug/g	19	30	02-AUG-19
Zinc (Zn)		68.0	61.4		ug/g	10	30	02-AUG-19
WG3122340-4 LCS								
Antimony (Sb)			99.6		%		80-120	02-AUG-19
Arsenic (As)			96.7		%		80-120	02-AUG-19
Barium (Ba)			98.4		%		80-120	02-AUG-19
Beryllium (Be)			93.2		%		80-120	02-AUG-19
Boron (B)			90.4		%		80-120	02-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4737292								
WG3122340-4 LCS								
Cadmium (Cd)			97.1		%		80-120	02-AUG-19
Chromium (Cr)			98.7		%		80-120	02-AUG-19
Cobalt (Co)			96.4		%		80-120	02-AUG-19
Copper (Cu)			95.2		%		80-120	02-AUG-19
Lead (Pb)			98.1		%		80-120	02-AUG-19
Molybdenum (Mo)			101.1		%		80-120	02-AUG-19
Nickel (Ni)			95.9		%		80-120	02-AUG-19
Selenium (Se)			96.3		%		80-120	02-AUG-19
Silver (Ag)			98.5		%		80-120	02-AUG-19
Thallium (Tl)			89.9		%		80-120	02-AUG-19
Uranium (U)			101.6		%		80-120	02-AUG-19
Vanadium (V)			99.8		%		80-120	02-AUG-19
Zinc (Zn)			90.8		%		80-120	02-AUG-19
WG3122340-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	02-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	02-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	02-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	02-AUG-19
Boron (B)			<5.0		mg/kg		5	02-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	02-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	02-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	02-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	02-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	02-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	02-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	02-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	02-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	02-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	02-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	02-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	02-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	02-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4739822								
WG3124147-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			99.6		%		70-130	06-AUG-19
Arsenic (As)			97.3		%		70-130	06-AUG-19
Barium (Ba)			101.5		%		70-130	06-AUG-19
Beryllium (Be)			100.8		%		70-130	06-AUG-19
Boron (B)			3.3		mg/kg		0-8.2	06-AUG-19
Cadmium (Cd)			102.7		%		70-130	06-AUG-19
Chromium (Cr)			100.3		%		70-130	06-AUG-19
Cobalt (Co)			98.4		%		70-130	06-AUG-19
Copper (Cu)			99.7		%		70-130	06-AUG-19
Lead (Pb)			101.1		%		70-130	06-AUG-19
Molybdenum (Mo)			99.6		%		70-130	06-AUG-19
Nickel (Ni)			100.1		%		70-130	06-AUG-19
Selenium (Se)			0.29		mg/kg		0.11-0.51	06-AUG-19
Silver (Ag)			0.22		mg/kg		0.13-0.33	06-AUG-19
Thallium (Tl)			0.127		mg/kg		0.077-0.18	06-AUG-19
Uranium (U)			113.1		%		70-130	06-AUG-19
Vanadium (V)			100.4		%		70-130	06-AUG-19
Zinc (Zn)			91.4		%		70-130	06-AUG-19
WG3124147-6 DUP		**WG3124147-5**						
Antimony (Sb)		0.11	0.11		ug/g	0.8	30	06-AUG-19
Arsenic (As)		3.28	3.32		ug/g	1.2	30	06-AUG-19
Barium (Ba)		81.8	80.7		ug/g	1.3	40	06-AUG-19
Beryllium (Be)		0.60	0.64		ug/g	7.9	30	06-AUG-19
Boron (B)		8.3	7.3		ug/g	13	30	06-AUG-19
Cadmium (Cd)		0.110	0.106		ug/g	3.3	30	06-AUG-19
Chromium (Cr)		25.3	24.9		ug/g	1.4	30	06-AUG-19
Cobalt (Co)		9.19	9.27		ug/g	0.9	30	06-AUG-19
Copper (Cu)		18.9	19.3		ug/g	2.0	30	06-AUG-19
Lead (Pb)		9.79	10.1		ug/g	3.4	40	06-AUG-19
Molybdenum (Mo)		0.39	0.41		ug/g	3.3	40	06-AUG-19
Nickel (Ni)		21.6	21.8		ug/g	0.8	30	06-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	06-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	06-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4739822								
WG3124147-6 DUP		**WG3124147-5**						
Thallium (Tl)		0.167	0.172		ug/g	3.1	30	06-AUG-19
Uranium (U)		0.555	0.561		ug/g	1.0	30	06-AUG-19
Vanadium (V)		34.0	33.1		ug/g	2.7	30	06-AUG-19
Zinc (Zn)		43.0	42.7		ug/g	0.6	30	06-AUG-19
WG3124147-4 LCS								
Antimony (Sb)			98.3		%		80-120	06-AUG-19
Arsenic (As)			96.0		%		80-120	06-AUG-19
Barium (Ba)			100.1		%		80-120	06-AUG-19
Beryllium (Be)			99.2		%		80-120	06-AUG-19
Boron (B)			93.6		%		80-120	06-AUG-19
Cadmium (Cd)			98.3		%		80-120	06-AUG-19
Chromium (Cr)			98.2		%		80-120	06-AUG-19
Cobalt (Co)			97.1		%		80-120	06-AUG-19
Copper (Cu)			96.1		%		80-120	06-AUG-19
Lead (Pb)			99.8		%		80-120	06-AUG-19
Molybdenum (Mo)			101.2		%		80-120	06-AUG-19
Nickel (Ni)			96.4		%		80-120	06-AUG-19
Selenium (Se)			95.6		%		80-120	06-AUG-19
Silver (Ag)			97.5		%		80-120	06-AUG-19
Thallium (Tl)			97.0		%		80-120	06-AUG-19
Uranium (U)			98.4		%		80-120	06-AUG-19
Vanadium (V)			100.1		%		80-120	06-AUG-19
Zinc (Zn)			87.7		%		80-120	06-AUG-19
WG3124147-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	06-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	06-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	06-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	06-AUG-19
Boron (B)			<5.0		mg/kg		5	06-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	06-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	06-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	06-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	06-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	06-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4739822								
WG3124147-1 MB								
Molybdenum (Mo)			<0.10		mg/kg		0.1	06-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	06-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	06-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	06-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	06-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	06-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	06-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	06-AUG-19
Batch R4745327								
WG3127124-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			104.0		%		70-130	09-AUG-19
Arsenic (As)			103.1		%		70-130	09-AUG-19
Barium (Ba)			99.8		%		70-130	09-AUG-19
Beryllium (Be)			95.7		%		70-130	09-AUG-19
Boron (B)			2.6		mg/kg		0-8.2	09-AUG-19
Cadmium (Cd)			103.4		%		70-130	09-AUG-19
Chromium (Cr)			104.7		%		70-130	09-AUG-19
Cobalt (Co)			101.6		%		70-130	09-AUG-19
Copper (Cu)			103.7		%		70-130	09-AUG-19
Lead (Pb)			99.8		%		70-130	09-AUG-19
Molybdenum (Mo)			99.0		%		70-130	09-AUG-19
Nickel (Ni)			103.1		%		70-130	09-AUG-19
Selenium (Se)			0.30		mg/kg		0.11-0.51	09-AUG-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	09-AUG-19
Thallium (Tl)			0.126		mg/kg		0.077-0.18	09-AUG-19
Uranium (U)			99.9		%		70-130	09-AUG-19
Vanadium (V)			104.8		%		70-130	09-AUG-19
Zinc (Zn)			101.0		%		70-130	09-AUG-19
WG3127124-6 DUP		**WG3127124-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	09-AUG-19
Arsenic (As)		1.86	2.47		ug/g	28	30	09-AUG-19
Barium (Ba)		16.0	15.8		ug/g	1.2	40	09-AUG-19
Beryllium (Be)		0.16	0.16		ug/g	4.2	30	09-AUG-19
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	09-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4745327								
WG3127124-6 DUP		**WG3127124-5**						
Cadmium (Cd)		0.176	0.187		ug/g	5.8	30	09-AUG-19
Chromium (Cr)		7.83	7.85		ug/g	0.2	30	09-AUG-19
Cobalt (Co)		2.59	2.57		ug/g	0.9	30	09-AUG-19
Copper (Cu)		7.32	6.94		ug/g	5.4	30	09-AUG-19
Lead (Pb)		11.1	11.1		ug/g	0.0	40	09-AUG-19
Molybdenum (Mo)		0.16	0.17		ug/g	8.3	40	09-AUG-19
Nickel (Ni)		5.44	5.40		ug/g	0.7	30	09-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	09-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	09-AUG-19
Thallium (Tl)		0.050	<0.050	RPD-NA	ug/g	N/A	30	09-AUG-19
Uranium (U)		0.420	0.421		ug/g	0.2	30	09-AUG-19
Vanadium (V)		14.7	14.8		ug/g	0.2	30	09-AUG-19
Zinc (Zn)		80.9	78.3		ug/g	3.3	30	09-AUG-19
WG3127124-4 LCS								
Antimony (Sb)			108.4		%		80-120	09-AUG-19
Arsenic (As)			108.0		%		80-120	09-AUG-19
Barium (Ba)			111.0		%		80-120	09-AUG-19
Beryllium (Be)			96.5		%		80-120	09-AUG-19
Boron (B)			84.9		%		80-120	09-AUG-19
Cadmium (Cd)			102.9		%		80-120	09-AUG-19
Chromium (Cr)			107.6		%		80-120	09-AUG-19
Cobalt (Co)			106.1		%		80-120	09-AUG-19
Copper (Cu)			104.1		%		80-120	09-AUG-19
Lead (Pb)			102.3		%		80-120	09-AUG-19
Molybdenum (Mo)			105.8		%		80-120	09-AUG-19
Nickel (Ni)			105.2		%		80-120	09-AUG-19
Selenium (Se)			106.7		%		80-120	09-AUG-19
Silver (Ag)			105.9		%		80-120	09-AUG-19
Thallium (Tl)			101.1		%		80-120	09-AUG-19
Uranium (U)			104.2		%		80-120	09-AUG-19
Vanadium (V)			109.2		%		80-120	09-AUG-19
Zinc (Zn)			101.5		%		80-120	09-AUG-19
WG3127124-1 MB								
							0.1	

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4745327								
WG3127124-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	09-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	09-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	09-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	09-AUG-19
Boron (B)			<5.0		mg/kg		5	09-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	09-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	09-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	09-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	09-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	09-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	09-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	09-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	09-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	09-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	09-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	09-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	09-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	09-AUG-19
Batch R4759650								
WG3137385-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			102.0		%		70-130	20-AUG-19
Arsenic (As)			99.0		%		70-130	20-AUG-19
Barium (Ba)			94.9		%		70-130	20-AUG-19
Beryllium (Be)			101.9		%		70-130	20-AUG-19
Boron (B)			3.3		mg/kg		0-8.2	20-AUG-19
Cadmium (Cd)			98.0		%		70-130	20-AUG-19
Chromium (Cr)			105.8		%		70-130	20-AUG-19
Cobalt (Co)			101.9		%		70-130	20-AUG-19
Copper (Cu)			101.8		%		70-130	20-AUG-19
Lead (Pb)			101.3		%		70-130	20-AUG-19
Molybdenum (Mo)			98.3		%		70-130	20-AUG-19
Nickel (Ni)			104.5		%		70-130	20-AUG-19
Selenium (Se)			0.29		mg/kg		0.11-0.51	20-AUG-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	20-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4759650								
WG3137385-2 CRM		**WT-CANMET-TILL1**						
Thallium (Tl)			0.123		mg/kg		0.077-0.18	20-AUG-19
Uranium (U)			101.0		%		70-130	20-AUG-19
Vanadium (V)			102.0		%		70-130	20-AUG-19
Zinc (Zn)			100.4		%		70-130	20-AUG-19
WG3137385-6 DUP		**WG3137385-5**						
Antimony (Sb)		0.23	0.24		ug/g	3.5	30	20-AUG-19
Arsenic (As)		3.01	2.93		ug/g	2.5	30	20-AUG-19
Barium (Ba)		72.1	70.3		ug/g	2.5	40	20-AUG-19
Beryllium (Be)		0.52	0.49		ug/g	5.9	30	20-AUG-19
Boron (B)		10.4	10.7		ug/g	3.3	30	20-AUG-19
Cadmium (Cd)		<0.50	<0.50	RPD-NA	ug/g	N/A	30	20-AUG-19
Chromium (Cr)		18.3	18.4		ug/g	0.5	30	20-AUG-19
Cobalt (Co)		5.88	5.72		ug/g	2.8	30	20-AUG-19
Copper (Cu)		17.2	16.7		ug/g	2.7	30	20-AUG-19
Lead (Pb)		20.1	19.1		ug/g	5.0	40	20-AUG-19
Molybdenum (Mo)		0.67	0.64		ug/g	5.0	40	20-AUG-19
Nickel (Ni)		14.1	13.9		ug/g	1.0	30	20-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	20-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-AUG-19
Thallium (Tl)		0.106	0.108		ug/g	1.6	30	20-AUG-19
Uranium (U)		0.565	0.587		ug/g	3.9	30	20-AUG-19
Vanadium (V)		26.0	25.9		ug/g	0.6	30	20-AUG-19
Zinc (Zn)		90.9	93.4		ug/g	2.8	30	20-AUG-19
WG3137385-4 LCS								
Antimony (Sb)			99.0		%		80-120	20-AUG-19
Arsenic (As)			94.0		%		80-120	20-AUG-19
Barium (Ba)			94.6		%		80-120	20-AUG-19
Beryllium (Be)			92.2		%		80-120	20-AUG-19
Boron (B)			91.1		%		80-120	20-AUG-19
Cadmium (Cd)			93.0		%		80-120	20-AUG-19
Chromium (Cr)			94.4		%		80-120	20-AUG-19
Cobalt (Co)			94.5		%		80-120	20-AUG-19
Copper (Cu)			93.0		%		80-120	20-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4759650								
WG3137385-4 LCS								
Lead (Pb)			92.5		%		80-120	20-AUG-19
Molybdenum (Mo)			100.8		%		80-120	20-AUG-19
Nickel (Ni)			94.0		%		80-120	20-AUG-19
Selenium (Se)			92.0		%		80-120	20-AUG-19
Silver (Ag)			101.6		%		80-120	20-AUG-19
Thallium (Tl)			88.9		%		80-120	20-AUG-19
Uranium (U)			95.9		%		80-120	20-AUG-19
Vanadium (V)			97.0		%		80-120	20-AUG-19
Zinc (Zn)			91.0		%		80-120	20-AUG-19
WG3137385-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	20-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	20-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	20-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	20-AUG-19
Boron (B)			<5.0		mg/kg		5	20-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	20-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	20-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	20-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	20-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	20-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	20-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	20-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	20-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	20-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	20-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	20-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	20-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	20-AUG-19
MOISTURE-VA	**Soil**							
Batch R4752360								
WG3131379-3 DUP		**L2318180-12**						
Moisture		10.2	10.7		%	4.8	20	13-AUG-19
WG3131379-2 LCS								
Moisture			99.95		%		90-110	13-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-VA	**Soil**							
Batch R4752360								
WG3131379-1 MB								
Moisture			<0.25		%		0.25	13-AUG-19
MOISTURE-WT	**Soil**							
Batch R4728938								
WG3117670-3 DUP		**L2318180-12**						
% Moisture		10.3	10.0		%	2.2	20	29-JUL-19
WG3117670-2 LCS								
% Moisture			99.6		%		90-110	29-JUL-19
WG3117670-1 MB								
% Moisture			<0.10		%		0.1	29-JUL-19
Batch R4729471								
WG3117862-3 DUP		**L2318090-21**						
% Moisture		9.51	9.68		%	1.7	20	29-JUL-19
WG3117862-2 LCS								
% Moisture			98.0		%		90-110	29-JUL-19
WG3117862-1 MB								
% Moisture			<0.10		%		0.1	29-JUL-19
PAH-511-WT	**Soil**							
Batch R4730876								
WG3117773-3 DUP		**WG3117773-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-JUL-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-JUL-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Fluoranthene		<0.050	0.057	RPD-NA	ug/g	N/A	40	30-JUL-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4730876								
WG3117773-3 DUP		**WG3117773-5**						
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	30-JUL-19
Phenanthrene		<0.046	0.056	RPD-NA	ug/g	N/A	40	30-JUL-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-JUL-19
WG3117773-2 LCS								
1-Methylnaphthalene			109.6		%		50-140	30-JUL-19
2-Methylnaphthalene			104.5		%		50-140	30-JUL-19
Acenaphthene			110.9		%		50-140	30-JUL-19
Acenaphthylene			108.1		%		50-140	30-JUL-19
Anthracene			108.1		%		50-140	30-JUL-19
Benzo(a)anthracene			108.3		%		50-140	30-JUL-19
Benzo(a)pyrene			104.1		%		50-140	30-JUL-19
Benzo(b)fluoranthene			111.3		%		50-140	30-JUL-19
Benzo(g,h,i)perylene			86.7		%		50-140	30-JUL-19
Benzo(k)fluoranthene			106.5		%		50-140	30-JUL-19
Chrysene			117.1		%		50-140	30-JUL-19
Dibenzo(ah)anthracene			74.8		%		50-140	30-JUL-19
Fluoranthene			106.3		%		50-140	30-JUL-19
Fluorene			109.4		%		50-140	30-JUL-19
Indeno(1,2,3-cd)pyrene			84.1		%		50-140	30-JUL-19
Naphthalene			108.8		%		50-140	30-JUL-19
Phenanthrene			113.3		%		50-140	30-JUL-19
Pyrene			105.2		%		50-140	30-JUL-19
WG3117773-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	30-JUL-19
2-Methylnaphthalene			<0.030		ug/g		0.03	30-JUL-19
Acenaphthene			<0.050		ug/g		0.05	30-JUL-19
Acenaphthylene			<0.050		ug/g		0.05	30-JUL-19
Anthracene			<0.050		ug/g		0.05	30-JUL-19
Benzo(a)anthracene			<0.050		ug/g		0.05	30-JUL-19
Benzo(a)pyrene			<0.050		ug/g		0.05	30-JUL-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	30-JUL-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	30-JUL-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	30-JUL-19
Chrysene			<0.050		ug/g		0.05	30-JUL-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4730876								
WG3117773-1 MB								
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	30-JUL-19
Fluoranthene			<0.050		ug/g		0.05	30-JUL-19
Fluorene			<0.050		ug/g		0.05	30-JUL-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	30-JUL-19
Naphthalene			<0.013		ug/g		0.013	30-JUL-19
Phenanthrene			<0.046		ug/g		0.046	30-JUL-19
Pyrene			<0.050		ug/g		0.05	30-JUL-19
Surrogate: 2-Fluorobiphenyl			99.5		%		50-140	30-JUL-19
Surrogate: p-Terphenyl d14			80.0		%		50-140	30-JUL-19
WG3117773-4 MS		**WG3117773-5**						
1-Methylnaphthalene			101.2		%		50-140	30-JUL-19
2-Methylnaphthalene			96.2		%		50-140	30-JUL-19
Acenaphthene			101.7		%		50-140	30-JUL-19
Acenaphthylene			103.2		%		50-140	30-JUL-19
Anthracene			101.6		%		50-140	30-JUL-19
Benzo(a)anthracene			105.0		%		50-140	30-JUL-19
Benzo(a)pyrene			95.8		%		50-140	30-JUL-19
Benzo(b)fluoranthene			107.5		%		50-140	30-JUL-19
Benzo(g,h,i)perylene			95.4		%		50-140	30-JUL-19
Benzo(k)fluoranthene			89.7		%		50-140	30-JUL-19
Chrysene			107.3		%		50-140	30-JUL-19
Dibenzo(ah)anthracene			89.5		%		50-140	30-JUL-19
Fluoranthene			106.9		%		50-140	30-JUL-19
Fluorene			98.1		%		50-140	30-JUL-19
Indeno(1,2,3-cd)pyrene			92.0		%		50-140	30-JUL-19
Naphthalene			99.8		%		50-140	30-JUL-19
Phenanthrene			105.0		%		50-140	30-JUL-19
Pyrene			106.6		%		50-140	30-JUL-19
Batch R4745564								
WG3124840-3 DUP		**WG3124840-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	09-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	09-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4745564								
WG3124840-3 DUP		**WG3124840-5**						
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	09-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	09-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	09-AUG-19
WG3124840-2 LCS								
1-Methylnaphthalene			105.6		%		50-140	09-AUG-19
2-Methylnaphthalene			99.8		%		50-140	09-AUG-19
Acenaphthene			107.5		%		50-140	09-AUG-19
Acenaphthylene			112.2		%		50-140	09-AUG-19
Anthracene			106.6		%		50-140	09-AUG-19
Benzo(a)anthracene			109.7		%		50-140	09-AUG-19
Benzo(a)pyrene			106.3		%		50-140	09-AUG-19
Benzo(b)fluoranthene			99.7		%		50-140	09-AUG-19
Benzo(g,h,i)perylene			106.1		%		50-140	09-AUG-19
Benzo(k)fluoranthene			108.5		%		50-140	09-AUG-19
Chrysene			109.4		%		50-140	09-AUG-19
Dibenzo(ah)anthracene			109.1		%		50-140	09-AUG-19
Fluoranthene			104.6		%		50-140	09-AUG-19
Fluorene			106.2		%		50-140	09-AUG-19
Indeno(1,2,3-cd)pyrene			112.2		%		50-140	09-AUG-19
Naphthalene			101.6		%		50-140	09-AUG-19
Phenanthrene			105.4		%		50-140	09-AUG-19
Pyrene			104.6		%		50-140	09-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4745564								
WG3124840-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	09-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	09-AUG-19
Acenaphthene			<0.050		ug/g		0.05	09-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	09-AUG-19
Anthracene			<0.050		ug/g		0.05	09-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	09-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	09-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	09-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	09-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	09-AUG-19
Chrysene			<0.050		ug/g		0.05	09-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	09-AUG-19
Fluoranthene			<0.050		ug/g		0.05	09-AUG-19
Fluorene			<0.050		ug/g		0.05	09-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	09-AUG-19
Naphthalene			<0.013		ug/g		0.013	09-AUG-19
Phenanthrene			<0.046		ug/g		0.046	09-AUG-19
Pyrene			<0.050		ug/g		0.05	09-AUG-19
Surrogate: 2-Fluorobiphenyl			106.6		%		50-140	09-AUG-19
Surrogate: p-Terphenyl d14			93.4		%		50-140	09-AUG-19
WG3124840-4 MS		**WG3124840-5**						
1-Methylnaphthalene			105.8		%		50-140	09-AUG-19
2-Methylnaphthalene			99.8		%		50-140	09-AUG-19
Acenaphthene			107.2		%		50-140	09-AUG-19
Acenaphthylene			109.7		%		50-140	09-AUG-19
Anthracene			105.9		%		50-140	09-AUG-19
Benzo(a)anthracene			108.4		%		50-140	09-AUG-19
Benzo(a)pyrene			105.8		%		50-140	09-AUG-19
Benzo(b)fluoranthene			103.7		%		50-140	09-AUG-19
Benzo(g,h,i)perylene			105.4		%		50-140	09-AUG-19
Benzo(k)fluoranthene			105.7		%		50-140	09-AUG-19
Chrysene			110.2		%		50-140	09-AUG-19
Dibenzo(ah)anthracene			107.3		%		50-140	09-AUG-19
Fluoranthene			104.2		%		50-140	09-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4745564								
WG3124840-4 MS		**WG3124840-5**						
Fluorene			104.9		%		50-140	09-AUG-19
Indeno(1,2,3-cd)pyrene			111.9		%		50-140	09-AUG-19
Naphthalene			101.8		%		50-140	09-AUG-19
Phenanthrene			105.8		%		50-140	09-AUG-19
Pyrene			104.3		%		50-140	09-AUG-19
Batch R4758787								
WG3130786-3 DUP		**WG3130786-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	19-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	19-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	19-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	19-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
WG3130786-2 LCS								
1-Methylnaphthalene			98.2		%		50-140	19-AUG-19
2-Methylnaphthalene			93.0		%		50-140	19-AUG-19
Acenaphthene			98.6		%		50-140	19-AUG-19
Acenaphthylene			102.1		%		50-140	19-AUG-19
Anthracene			101.3		%		50-140	19-AUG-19
Benzo(a)anthracene			103.5		%		50-140	19-AUG-19
Benzo(a)pyrene			101.2		%		50-140	19-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4758787								
WG3130786-2 LCS								
Benzo(b)fluoranthene			97.6		%		50-140	19-AUG-19
Benzo(g,h,i)perylene			96.8		%		50-140	19-AUG-19
Benzo(k)fluoranthene			107.0		%		50-140	19-AUG-19
Chrysene			107.3		%		50-140	19-AUG-19
Dibenzo(ah)anthracene			95.8		%		50-140	19-AUG-19
Fluoranthene			99.3		%		50-140	19-AUG-19
Fluorene			96.3		%		50-140	19-AUG-19
Indeno(1,2,3-cd)pyrene			93.8		%		50-140	19-AUG-19
Naphthalene			98.0		%		50-140	19-AUG-19
Phenanthrene			101.2		%		50-140	19-AUG-19
Pyrene			99.8		%		50-140	19-AUG-19
WG3130786-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	19-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	19-AUG-19
Acenaphthene			<0.050		ug/g		0.05	19-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	19-AUG-19
Anthracene			<0.050		ug/g		0.05	19-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	19-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	19-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	19-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	19-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	19-AUG-19
Chrysene			<0.050		ug/g		0.05	19-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	19-AUG-19
Fluoranthene			<0.050		ug/g		0.05	19-AUG-19
Fluorene			<0.050		ug/g		0.05	19-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	19-AUG-19
Naphthalene			<0.013		ug/g		0.013	19-AUG-19
Phenanthrene			<0.046		ug/g		0.046	19-AUG-19
Pyrene			<0.050		ug/g		0.05	19-AUG-19
Surrogate: 2-Fluorobiphenyl			99.0		%		50-140	19-AUG-19
Surrogate: p-Terphenyl d14			88.1		%		50-140	19-AUG-19
WG3130786-4 MS		**WG3130786-5**						
1-Methylnaphthalene			98.2		%		50-140	19-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4758787								
WG3130786-4 MS		**WG3130786-5**						
2-Methylnaphthalene			93.2		%		50-140	19-AUG-19
Acenaphthene			99.0		%		50-140	19-AUG-19
Acenaphthylene			101.2		%		50-140	19-AUG-19
Anthracene			100.1		%		50-140	19-AUG-19
Benzo(a)anthracene			103.8		%		50-140	19-AUG-19
Benzo(a)pyrene			101.9		%		50-140	19-AUG-19
Benzo(b)fluoranthene			107.9		%		50-140	19-AUG-19
Benzo(g,h,i)perylene			96.5		%		50-140	19-AUG-19
Benzo(k)fluoranthene			116.2		%		50-140	19-AUG-19
Chrysene			108.8		%		50-140	19-AUG-19
Dibenzo(ah)anthracene			94.6		%		50-140	19-AUG-19
Fluoranthene			100.8		%		50-140	19-AUG-19
Fluorene			99.6		%		50-140	19-AUG-19
Indeno(1,2,3-cd)pyrene			91.8		%		50-140	19-AUG-19
Naphthalene			99.0		%		50-140	19-AUG-19
Phenanthrene			102.5		%		50-140	19-AUG-19
Pyrene			100.9		%		50-140	19-AUG-19
PCB-511-WT	**Soil**							
Batch R4732569								
WG3117773-3 DUP		**WG3117773-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	31-JUL-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	31-JUL-19
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	31-JUL-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	31-JUL-19
WG3117773-2 LCS								
Aroclor 1242			107.7		%		60-140	31-JUL-19
Aroclor 1248			102.6		%		60-140	31-JUL-19
Aroclor 1254			109.2		%		60-140	31-JUL-19
Aroclor 1260			108.1		%		60-140	31-JUL-19
WG3117773-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	31-JUL-19
Aroclor 1248			<0.010		ug/g		0.01	31-JUL-19
Aroclor 1254			<0.010		ug/g		0.01	31-JUL-19
Aroclor 1260			<0.010		ug/g		0.01	31-JUL-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT	**Soil**							
Batch R4732569								
WG3117773-1 MB								
Surrogate: d14-Terphenyl			89.2		%		60-140	31-JUL-19
WG3117773-4 MS		**WG3117773-5**						
Aroclor 1242			113.1		%		60-140	31-JUL-19
Aroclor 1254			114.9		%		60-140	31-JUL-19
Aroclor 1260			113.1		%		60-140	31-JUL-19
PH-WT	**Soil**							
Batch R4738711								
WG3119324-1 DUP		**L2318180-9**						
pH		7.83	7.89	J	pH units	0.06	0.3	02-AUG-19
WG3121365-1 LCS								
pH			6.99		pH units		6.9-7.1	02-AUG-19
Batch R4744524								
WG3124136-1 DUP		**L2321692-3**						
pH		8.01	8.05	J	pH units	0.04	0.3	08-AUG-19
WG3127202-1 LCS								
pH			7.02		pH units		6.9-7.1	08-AUG-19
Batch R4756893								
WG3130270-1 DUP		**L2326037-18**						
pH		7.86	7.88	J	pH units	0.02	0.3	15-AUG-19
WG3133651-1 LCS								
pH			7.00		pH units		6.9-7.1	15-AUG-19
SAR-R511-WT	**Soil**							
Batch R4737469								
WG3122391-4 DUP		**WG3122391-3**						
Calcium (Ca)		44.0	42.4		mg/L	3.7	30	02-AUG-19
Sodium (Na)		32.4	32.2		mg/L	0.6	30	02-AUG-19
Magnesium (Mg)		4.85	4.71		mg/L	2.9	30	02-AUG-19
WG3122391-2 IRM		**WT SAR3**						
Calcium (Ca)			97.6		%		70-130	02-AUG-19
Sodium (Na)			106.3		%		70-130	02-AUG-19
Magnesium (Mg)			101.1		%		70-130	02-AUG-19
WG3122391-5 LCS								
Calcium (Ca)			102.3		%		70-130	02-AUG-19
Sodium (Na)			97.4		%		70-130	02-AUG-19
Magnesium (Mg)			97.0		%		70-130	02-AUG-19
WG3122391-1 MB								

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4737469								
WG3122391-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	02-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	02-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	02-AUG-19
Batch R4737489								
WG3122393-4 DUP		**WG3122393-3**						
Calcium (Ca)		1.95	1.39	J	mg/L	0.56	1	02-AUG-19
Sodium (Na)		48.3	48.8		mg/L	1.0	30	02-AUG-19
Magnesium (Mg)		1.28	0.57	J	mg/L	0.71	1	02-AUG-19
WG3122393-2 IRM		**WT SAR3**						
Calcium (Ca)			99.6		%		70-130	02-AUG-19
Sodium (Na)			103.2		%		70-130	02-AUG-19
Magnesium (Mg)			101.6		%		70-130	02-AUG-19
WG3122393-5 LCS								
Calcium (Ca)			106.0		%		70-130	02-AUG-19
Sodium (Na)			101.0		%		70-130	02-AUG-19
Magnesium (Mg)			100.8		%		70-130	02-AUG-19
WG3122393-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	02-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	02-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	02-AUG-19
Batch R4739784								
WG3124169-4 DUP		**WG3124169-3**						
Calcium (Ca)		33.1	33.8		mg/L	2.1	30	06-AUG-19
Sodium (Na)		37.0	36.7		mg/L	0.8	30	06-AUG-19
Magnesium (Mg)		2.75	2.80		mg/L	1.8	30	06-AUG-19
WG3124169-2 IRM		**WT SAR3**						
Calcium (Ca)			100.8		%		70-130	06-AUG-19
Sodium (Na)			104.0		%		70-130	06-AUG-19
Magnesium (Mg)			103.2		%		70-130	06-AUG-19
WG3124169-5 LCS								
Calcium (Ca)			106.3		%		70-130	06-AUG-19
Sodium (Na)			99.8		%		70-130	06-AUG-19
Magnesium (Mg)			100.6		%		70-130	06-AUG-19
WG3124169-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	06-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4739784								
WG3124169-1 MB								
Sodium (Na)			<0.50		mg/L		0.5	06-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	06-AUG-19
Batch R4746826								
WG3128641-4 DUP		**WG3128641-3**						
Calcium (Ca)		41.0	41.8		mg/L	1.9	30	12-AUG-19
Sodium (Na)		4.69	4.78		mg/L	1.9	30	12-AUG-19
Magnesium (Mg)		2.15	2.23		mg/L	3.7	30	12-AUG-19
WG3128641-2 IRM		**WT SAR3**						
Calcium (Ca)			92.1		%		70-130	12-AUG-19
Sodium (Na)			97.0		%		70-130	12-AUG-19
Magnesium (Mg)			94.6		%		70-130	12-AUG-19
WG3128641-5 LCS								
Calcium (Ca)			105.3		%		70-130	12-AUG-19
Sodium (Na)			99.0		%		70-130	12-AUG-19
Magnesium (Mg)			100.0		%		70-130	12-AUG-19
WG3128641-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	12-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	12-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	12-AUG-19
Batch R4760069								
WG3137412-4 DUP		**WG3137412-3**						
Calcium (Ca)		630	622		mg/L	1.3	30	20-AUG-19
Sodium (Na)		175	177		mg/L	1.1	30	20-AUG-19
Magnesium (Mg)		99.6	99.5		mg/L	0.1	30	20-AUG-19
WG3137412-2 IRM		**WT SAR3**						
Calcium (Ca)			97.6		%		70-130	20-AUG-19
Sodium (Na)			100.1		%		70-130	20-AUG-19
Magnesium (Mg)			99.5		%		70-130	20-AUG-19
WG3137412-5 LCS								
Calcium (Ca)			105.0		%		70-130	20-AUG-19
Sodium (Na)			99.0		%		70-130	20-AUG-19
Magnesium (Mg)			100.2		%		70-130	20-AUG-19
WG3137412-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	20-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	20-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4760069								
WG3137412-1 MB								
Magnesium (Mg)			<0.50		mg/L		0.5	20-AUG-19
TOC-R511-WT	**Soil**							
Batch R4735333								
WG3121442-3 CRM		**WT-TOC-CRM**						
Total Organic Carbon			103.7		%		70-130	01-AUG-19
WG3121442-4 DUP		**L2318180-1**						
Total Organic Carbon		1.19	1.15		%	3.2	35	01-AUG-19
WG3121442-2 LCS								
Total Organic Carbon			110.0		%		80-120	01-AUG-19
Total Organic Carbon			110.0		%		80-120	01-AUG-19
Total Organic Carbon			110.0		%		80-120	01-AUG-19
WG3121442-1 MB								
Total Organic Carbon			<0.10		%		0.1	01-AUG-19
Batch R4759174								
WG3136812-3 CRM		**WT-TOC-CRM**						
Total Organic Carbon			91.2		%		70-130	19-AUG-19
WG3136812-4 DUP		**L2318180-5**						
Total Organic Carbon		0.10	0.11		%	11	35	19-AUG-19
WG3136812-2 LCS								
Total Organic Carbon			104.7		%		80-120	19-AUG-19
Total Organic Carbon			104.7		%		80-120	19-AUG-19
Total Organic Carbon			104.7		%		80-120	19-AUG-19
WG3136812-1 MB								
Total Organic Carbon			<0.10		%		0.1	19-AUG-19
Batch R4761956								
WG3137881-3 CRM		**WT-TOC-CRM**						
Total Organic Carbon			93.4		%		70-130	20-AUG-19
WG3137881-4 DUP		**L2329061-1**						
Total Organic Carbon		<0.10	0.11	RPD-NA	%	N/A	35	20-AUG-19
WG3137881-2 LCS								
Total Organic Carbon			102.4		%		80-120	20-AUG-19
Total Organic Carbon			102.4		%		80-120	20-AUG-19
Total Organic Carbon			102.4		%		80-120	20-AUG-19
WG3137881-1 MB								
Total Organic Carbon			<0.10		%		0.1	20-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4737203								
WG3121780-4 DUP		**WG3121780-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	02-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	02-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	02-AUG-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	02-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	02-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-AUG-19
Styrene		<0.050	<0.050		ug/g			02-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4737203								
WG3121780-4 DUP		**WG3121780-3**						
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	02-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	02-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-AUG-19
WG3121780-2 LCS								
1,1,1,2-Tetrachloroethane			113.1		%		60-130	02-AUG-19
1,1,2,2-Tetrachloroethane			93.5		%		60-130	02-AUG-19
1,1,1-Trichloroethane			110.1		%		60-130	02-AUG-19
1,1,2-Trichloroethane			103.3		%		60-130	02-AUG-19
1,1-Dichloroethane			109.7		%		60-130	02-AUG-19
1,1-Dichloroethylene			112.0		%		60-130	02-AUG-19
1,2-Dibromoethane			100.8		%		70-130	02-AUG-19
1,2-Dichlorobenzene			112.5		%		70-130	02-AUG-19
1,2-Dichloroethane			99.3		%		60-130	02-AUG-19
1,2-Dichloropropane			106.7		%		70-130	02-AUG-19
1,3-Dichlorobenzene			117.1		%		70-130	02-AUG-19
1,4-Dichlorobenzene			116.4		%		70-130	02-AUG-19
Acetone			94.8		%		60-140	02-AUG-19
Benzene			114.4		%		70-130	02-AUG-19
Bromodichloromethane			103.8		%		50-140	02-AUG-19
Bromoform			100.8		%		70-130	02-AUG-19
Bromomethane			99.4		%		50-140	02-AUG-19
Carbon tetrachloride			112.4		%		70-130	02-AUG-19
Chlorobenzene			111.4		%		70-130	02-AUG-19
Chloroform			109.5		%		70-130	02-AUG-19
cis-1,2-Dichloroethylene			111.2		%		70-130	02-AUG-19
cis-1,3-Dichloropropene			104.2		%		70-130	02-AUG-19
Dibromochloromethane			103.8		%		60-130	02-AUG-19
Dichlorodifluoromethane			82.7		%		50-140	02-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4737203								
WG3121780-2 LCS								
Ethylbenzene			116.1		%		70-130	02-AUG-19
n-Hexane			107.6		%		70-130	02-AUG-19
Methylene Chloride			108.8		%		70-130	02-AUG-19
MTBE			113.8		%		70-130	02-AUG-19
m+p-Xylenes			111.1		%		70-130	02-AUG-19
Methyl Ethyl Ketone			87.8		%		60-140	02-AUG-19
Methyl Isobutyl Ketone			81.4		%		60-140	02-AUG-19
o-Xylene			112.7		%		70-130	02-AUG-19
Styrene			110.9		%		70-130	02-AUG-19
Tetrachloroethylene			118.8		%		60-130	02-AUG-19
Toluene			116.7		%		70-130	02-AUG-19
trans-1,2-Dichloroethylene			111.4		%		60-130	02-AUG-19
trans-1,3-Dichloropropene			102.3		%		70-130	02-AUG-19
Trichloroethylene			115.2		%		60-130	02-AUG-19
Trichlorofluoromethane			114.4		%		50-140	02-AUG-19
Vinyl chloride			112.3		%		60-140	02-AUG-19
WG3121780-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	02-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	02-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	02-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	02-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	02-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	02-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	02-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	02-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	02-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	02-AUG-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	02-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	02-AUG-19
Acetone			<0.50		ug/g		0.5	02-AUG-19
Benzene			<0.0068		ug/g		0.0068	02-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	02-AUG-19
Bromoform			<0.050		ug/g		0.05	02-AUG-19
Bromomethane			<0.050		ug/g		0.05	02-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4737203								
WG3121780-1 MB								
Carbon tetrachloride			<0.050		ug/g		0.05	02-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	02-AUG-19
Chloroform			<0.050		ug/g		0.05	02-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	02-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	02-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	02-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	02-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	02-AUG-19
n-Hexane			<0.050		ug/g		0.05	02-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	02-AUG-19
MTBE			<0.050		ug/g		0.05	02-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	02-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	02-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	02-AUG-19
o-Xylene			<0.020		ug/g		0.02	02-AUG-19
Styrene			<0.050		ug/g		0.05	02-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	02-AUG-19
Toluene			<0.080		ug/g		0.08	02-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	02-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	02-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	02-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	02-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	02-AUG-19
Surrogate: 1,4-Difluorobenzene			111.7		%		50-140	02-AUG-19
Surrogate: 4-Bromofluorobenzene			92.8		%		50-140	02-AUG-19
WG3121780-5 MS		**L2318180-1**						
1,1,1,2-Tetrachloroethane			115.0		%		50-140	02-AUG-19
1,1,2,2-Tetrachloroethane			94.5		%		50-140	02-AUG-19
1,1,1-Trichloroethane			111.9		%		50-140	02-AUG-19
1,1,2-Trichloroethane			104.4		%		50-140	02-AUG-19
1,1-Dichloroethane			111.1		%		50-140	02-AUG-19
1,1-Dichloroethylene			113.5		%		50-140	02-AUG-19
1,2-Dibromoethane			101.2		%		50-140	02-AUG-19
1,2-Dichlorobenzene			112.6		%		50-140	02-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4737203								
WG3121780-5 MS		**L2318180-1**						
1,2-Dichloroethane			99.9		%		50-140	02-AUG-19
1,2-Dichloropropane			107.8		%		50-140	02-AUG-19
1,3-Dichlorobenzene			116.0		%		50-140	02-AUG-19
1,4-Dichlorobenzene			115.2		%		50-140	02-AUG-19
Acetone			93.8		%		50-140	02-AUG-19
Benzene			115.0		%		50-140	02-AUG-19
Bromodichloromethane			105.0		%		50-140	02-AUG-19
Bromoform			101.8		%		50-140	02-AUG-19
Bromomethane			99.0		%		50-140	02-AUG-19
Carbon tetrachloride			114.1		%		50-140	02-AUG-19
Chlorobenzene			111.6		%		50-140	02-AUG-19
Chloroform			111.1		%		50-140	02-AUG-19
cis-1,2-Dichloroethylene			111.5		%		50-140	02-AUG-19
cis-1,3-Dichloropropene			100.9		%		50-140	02-AUG-19
Dibromochloromethane			105.2		%		50-140	02-AUG-19
Dichlorodifluoromethane			83.7		%		50-140	02-AUG-19
Ethylbenzene			116.4		%		50-140	02-AUG-19
n-Hexane			109.2		%		50-140	02-AUG-19
Methylene Chloride			108.7		%		50-140	02-AUG-19
MTBE			114.7		%		50-140	02-AUG-19
m+p-Xylenes			111.7		%		50-140	02-AUG-19
Methyl Ethyl Ketone			85.3		%		50-140	02-AUG-19
Methyl Isobutyl Ketone			81.6		%		50-140	02-AUG-19
o-Xylene			113.3		%		50-140	02-AUG-19
Styrene			110.4		%		50-140	02-AUG-19
Tetrachloroethylene			118.4		%		50-140	02-AUG-19
Toluene			117.8		%		50-140	02-AUG-19
trans-1,2-Dichloroethylene			110.2		%		50-140	02-AUG-19
trans-1,3-Dichloropropene			98.9		%		50-140	02-AUG-19
Trichloroethylene			115.2		%		50-140	02-AUG-19
Trichlorofluoromethane			116.7		%		50-140	02-AUG-19
Vinyl chloride			112.8		%		50-140	02-AUG-19

Quality Control Report

Workorder: L2318180 Report Date: 27-AUG-19

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

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
A	Method Blank exceeds ALS DQO. Refer to narrative comments for further information.
J	Duplicate results and limits are expressed in terms of absolute difference.
M,J	A peak has been manually integrated, and the analyte was detected below the calibrated range but above the EDL.
M,J,R	A peak has been manually integrated, the analyte was detected below the calibrated range but above the EDL, and the ion abundance ratio(s) did not meet the acceptance criteria. Value is an estimated maximum.
M,U	A peak has been manually integrated, and the analyte was not detected above the EDL.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
[U]	The analyte was not detected above the EDL.

Quality Control Report

Workorder: L2318180 Report Date: 27-AUG-19

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Moisture content							
	12	26-JUL-19 12:30	13-AUG-19 11:00	14	18	days	EHT

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 L2318180 were received on 26-JUL-19 17:05.

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.

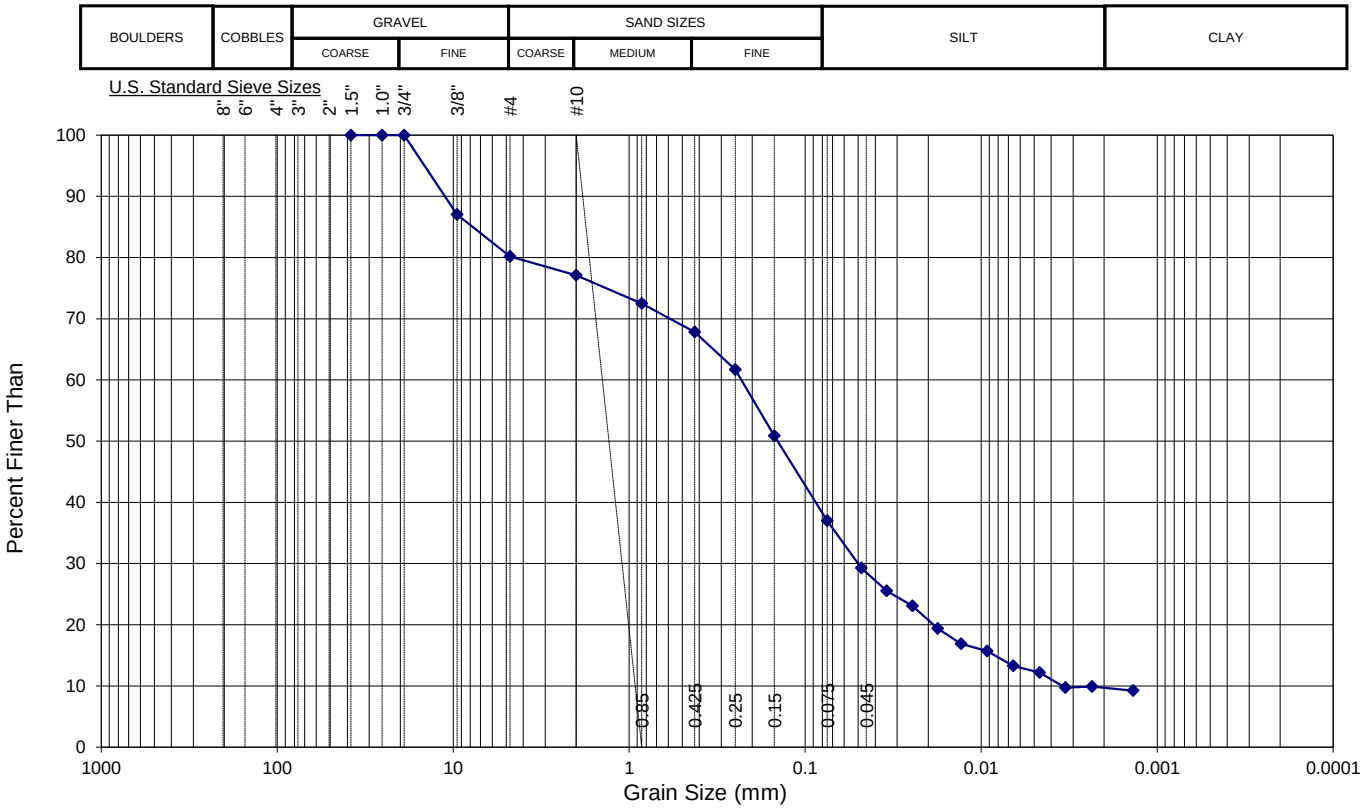
Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

Waterloo, Ontario

PARTICLE SIZE DISTRIBUTION CURVE

Client Name:	CH2M HILL Canada Ltd.~TORONTO
Client Sample ID	BH202-2-2.5'
Lab Sample ID	L2318180-3
Date Sample Received:	26-Jul-19
Test Completion Date:	12-Aug-19
Analyst:	



Particle Size	% Passing	Particle Size	% Passing	Particle Size	% Passing
38.1	100.00	0.2500	61.68	0.00924	15.70
25.4	100.00	0.1500	50.89	0.00659	13.28
19	100.00	0.0750	37.01	0.00467	12.21
9.5	87.02	0.0481	29.26	0.00333	9.73
4.75	80.15	0.0345	25.55	0.00235	9.90
2	77.10	0.0246	23.07	0.00137	9.23
0.85	72.47	0.0177	19.37		
0.425	67.85	0.0130	16.91		

METHOD DESCRIPTION

Method Reference: ASTM D422-63(2007)

Soil classification system used: ASTM D422-63 Classification

Dispersion method: Mechanical

Dispersion period: 1 minute

Hydrometer Type: 151H

Coarse Grained — Hazen Estimated K (cm/s): 3.6E-06

Coarse: > 50% particles > 0.075mm — % Pass/Susp: 9.90

Fine: < 50% particles > 0.075mm

SUMMARY OF RESULTS

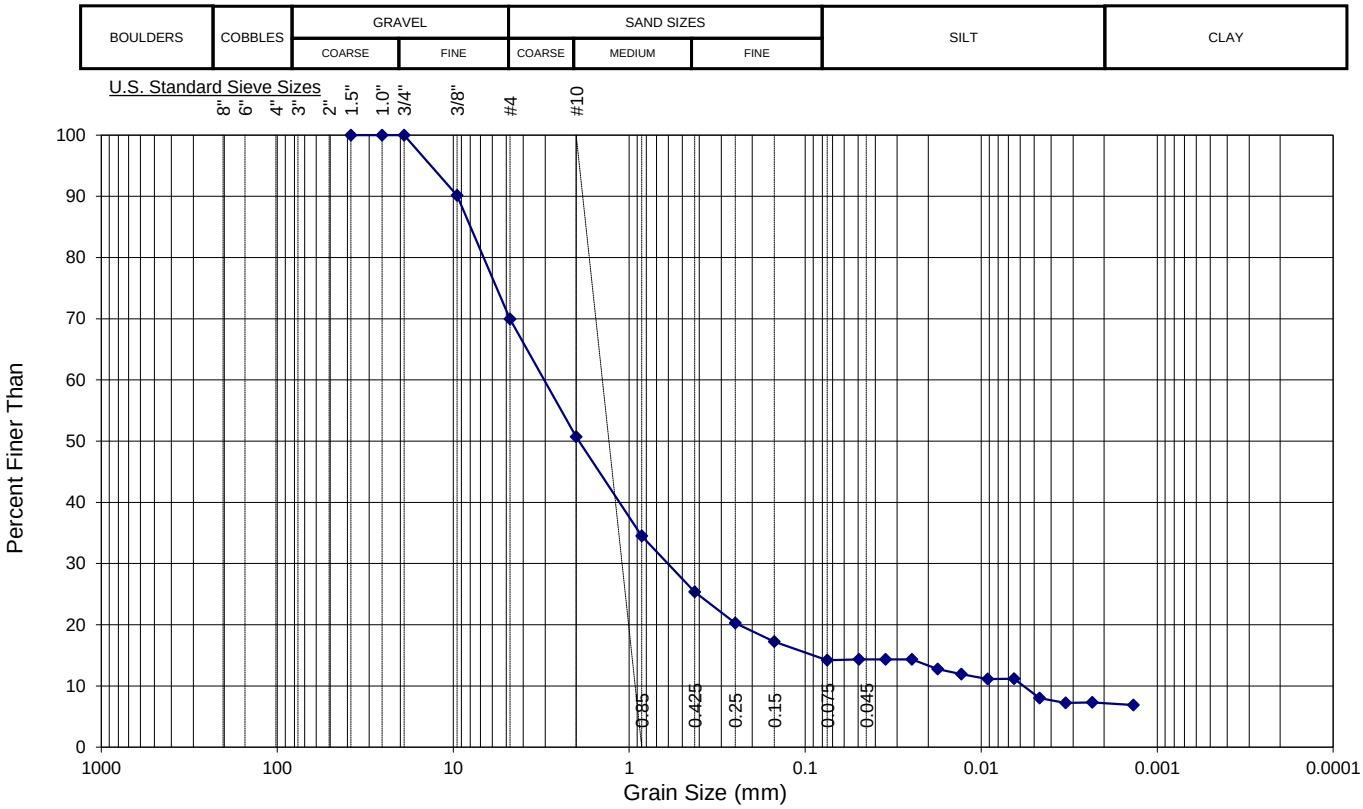
GRAIN SIZE	WT %	DIA. RANGE (mm)
% GRAVEL :	19.85	> 4.75
% COARSE SAND :	3.05	4.75 - 2.0
% MEDIUM SAND :	9.25	2.0 - 0.425
% FINE SAND :	30.84	0.425 - 0.075
% SILT :	24.59	0.075 - 0.005
% CLAY :	12.42	< 0.005
% CLAY:	9.70	< 0.002

ALS Environmental

Waterloo, Ontario

PARTICLE SIZE DISTRIBUTION CURVE

Client Name:	CH2M HILL Canada Ltd.~TORONTO
Client Sample ID	BH201-1-1.5'
Lab Sample ID	L2318180-6
Date Sample Received:	26-Jul-19
Test Completion Date:	12-Aug-19
Analyst:	



Particle Size	% Passing	Particle Size	% Passing	Particle Size	% Passing
38.1	100.00	0.2500	20.28	0.00920	11.14
25.4	100.00	0.1500	17.24	0.00650	11.17
19	100.00	0.0750	14.20	0.00467	8.03
9.5	90.14	0.0495	14.36	0.00331	7.21
4.75	69.95	0.0350	14.36	0.00234	7.32
2	50.70	0.0247	14.36	0.00136	6.88
0.85	34.48	0.0177	12.74		
0.425	25.35	0.0130	11.93		

METHOD DESCRIPTION

Method Reference: ASTM D422-63(2007)

Soil classification system used: ASTM D422-63 Classification

Dispersion method: Mechanical

Dispersion period: 1 minute

Hydrometer Type: 151H

Coarse Grained — Hazen Estimated K (cm/s): 3.2E-05

Coarse: > 50% particles > 0.075mm — % Pass/Susp: 11.14

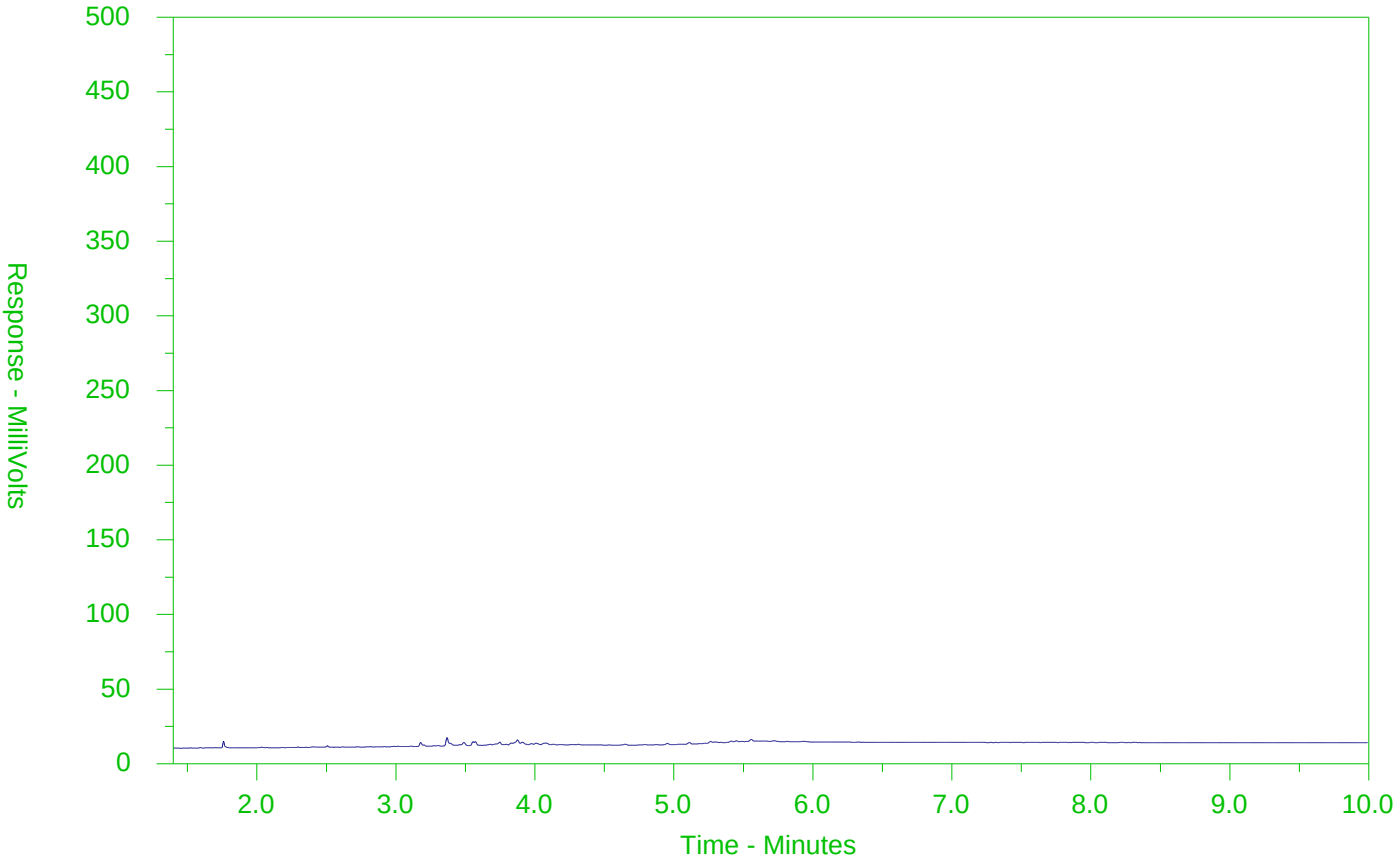
Fine: < 50% particles > 0.075mm

SUMMARY OF RESULTS

GRAIN SIZE	WT %	DIA. RANGE (mm)
% GRAVEL :	30.05	> 4.75
% COARSE SAND :	19.25	4.75 - 2.0
% MEDIUM SAND :	25.35	2.0 - 0.425
% FINE SAND :	11.15	0.425 - 0.075
% SILT :	5.51	0.075 - 0.005
% CLAY :	8.68	< 0.005
% CLAY:	7.20	< 0.002

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-1
Client Sample ID: MW103-2-2.5'



←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.

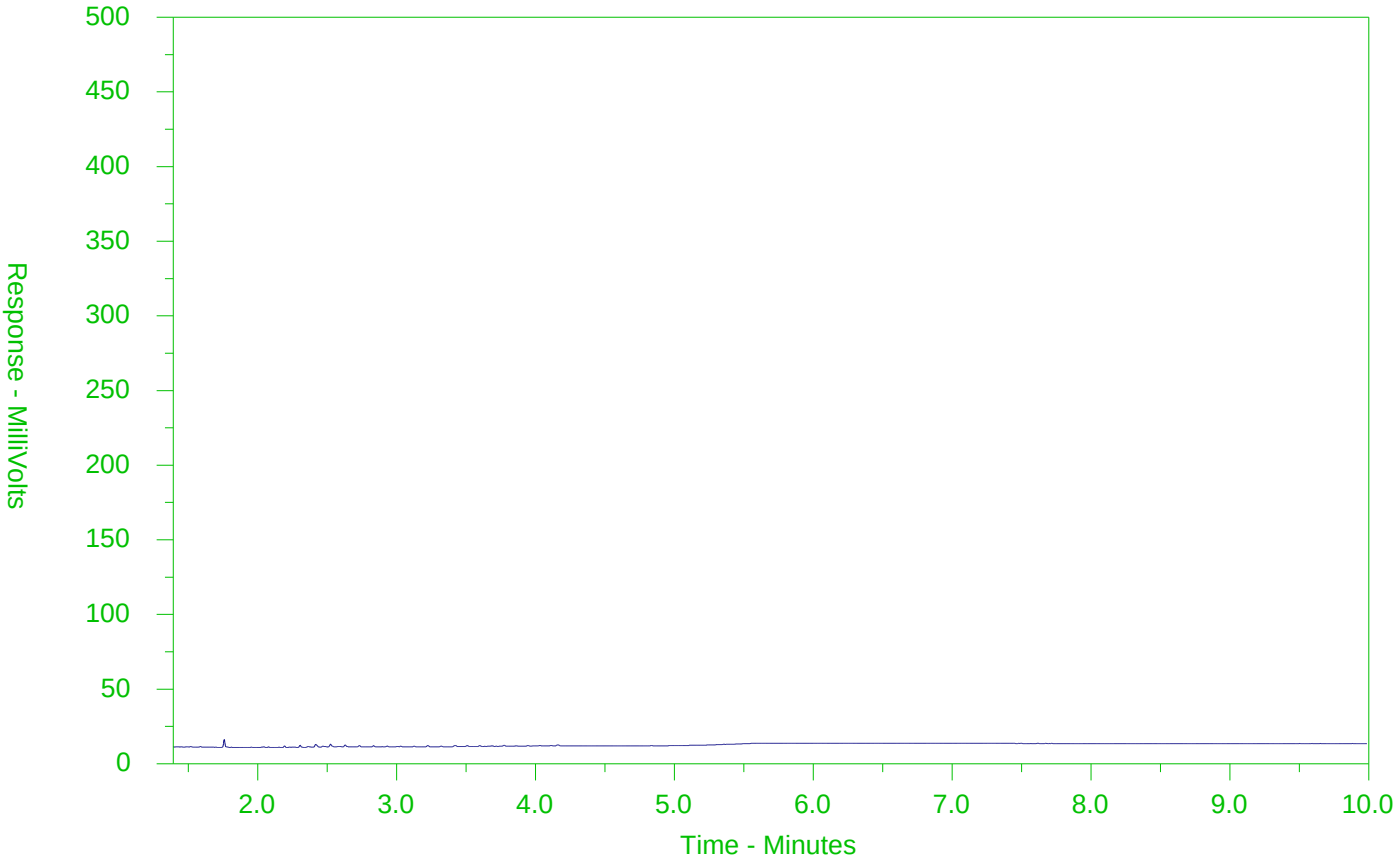
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-2
Client Sample ID: MW104-2.5-3'



←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.

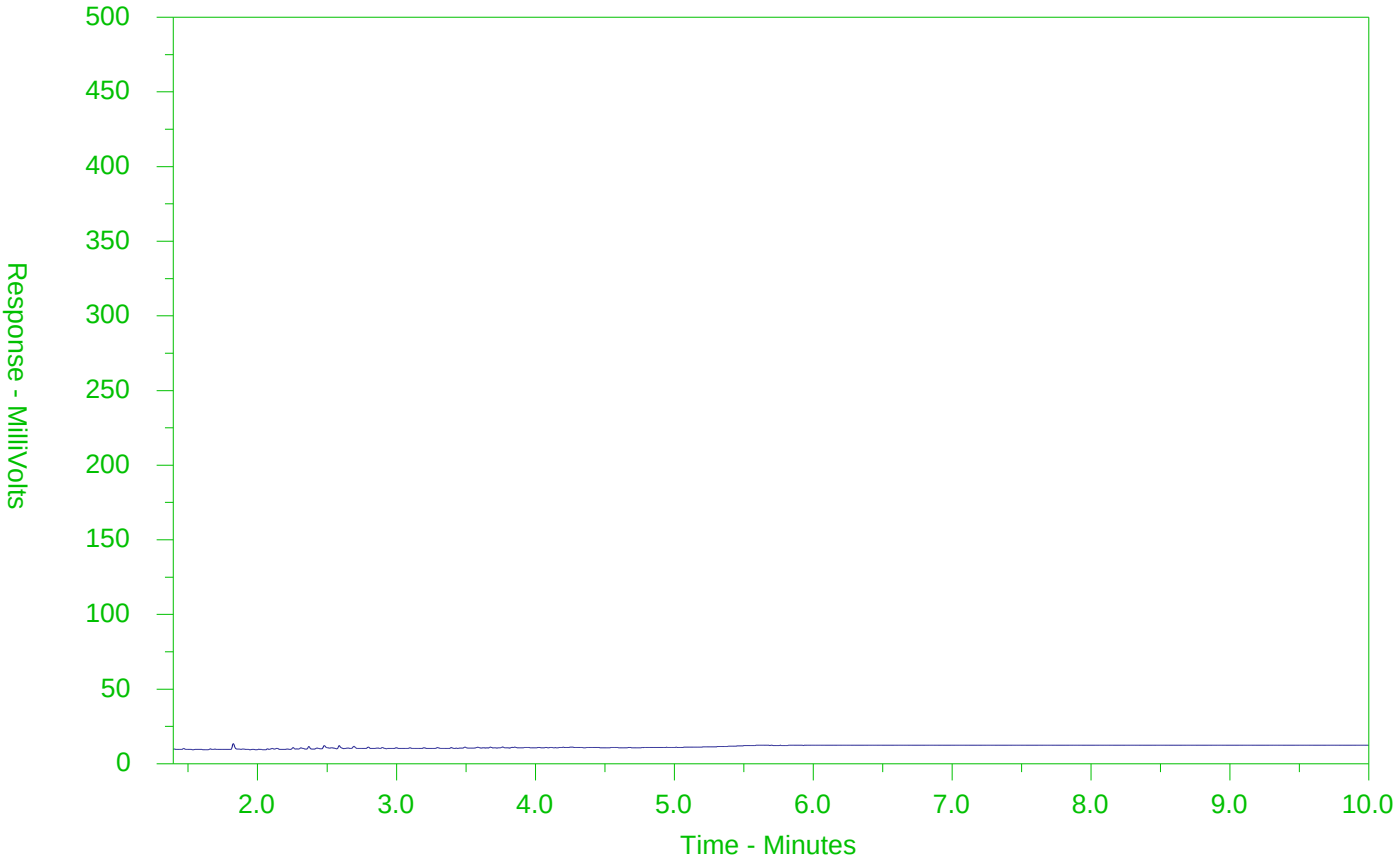
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-3
Client Sample ID: BH202-2-2.5'



←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.

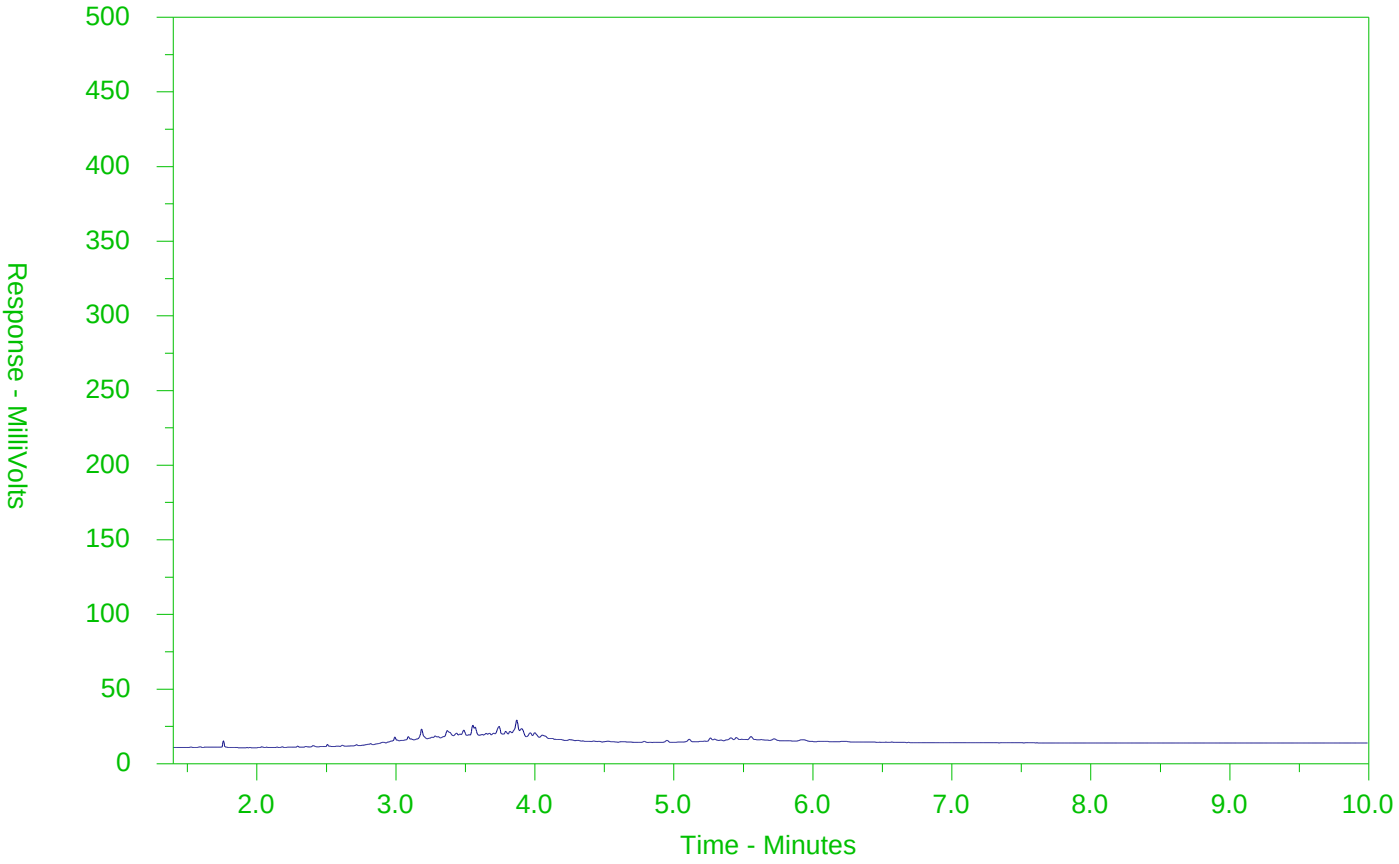
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-4
Client Sample ID: BH200-3.5-4.0"



←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.

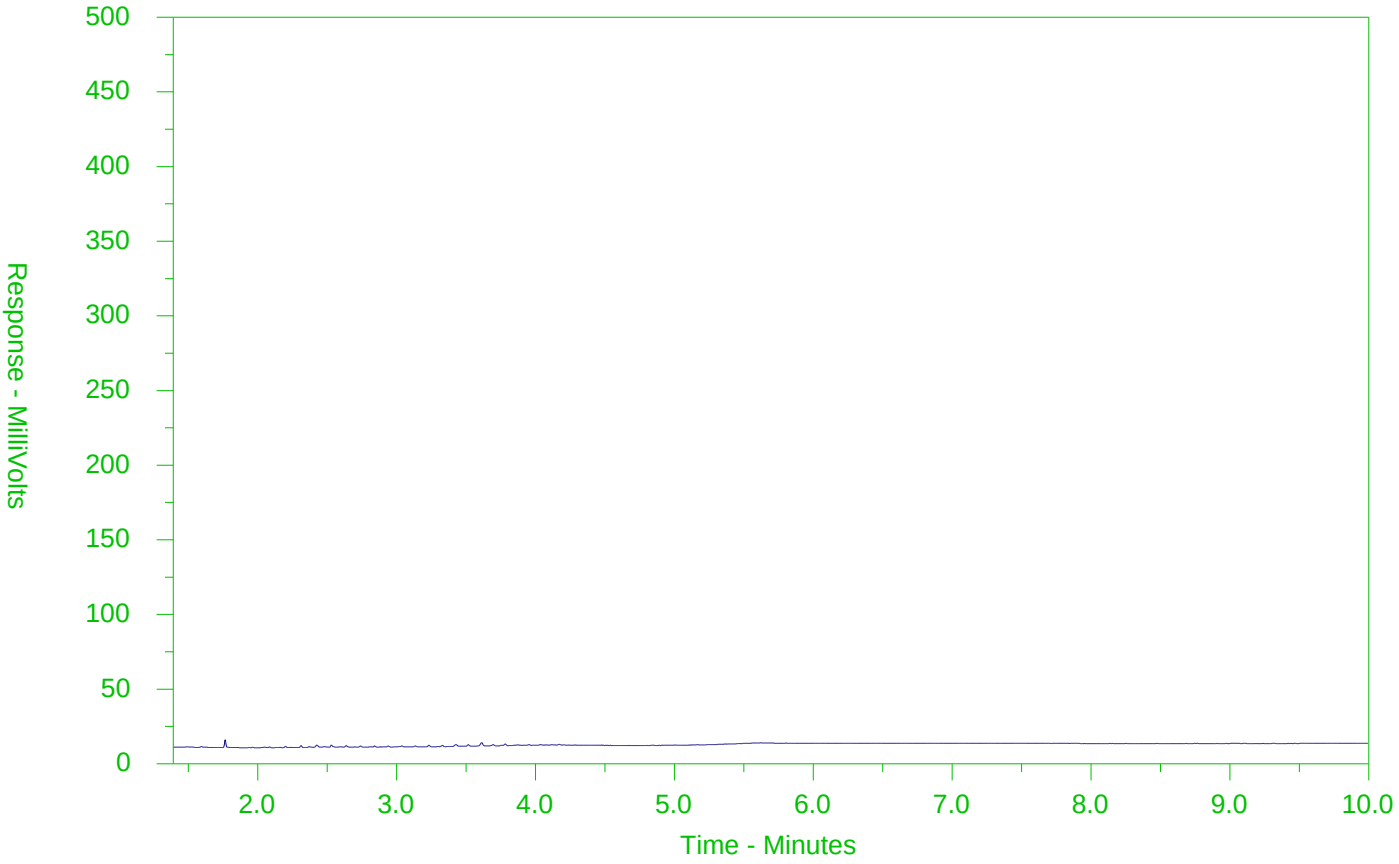
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-5
Client Sample ID: MW102-20-25"



←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.

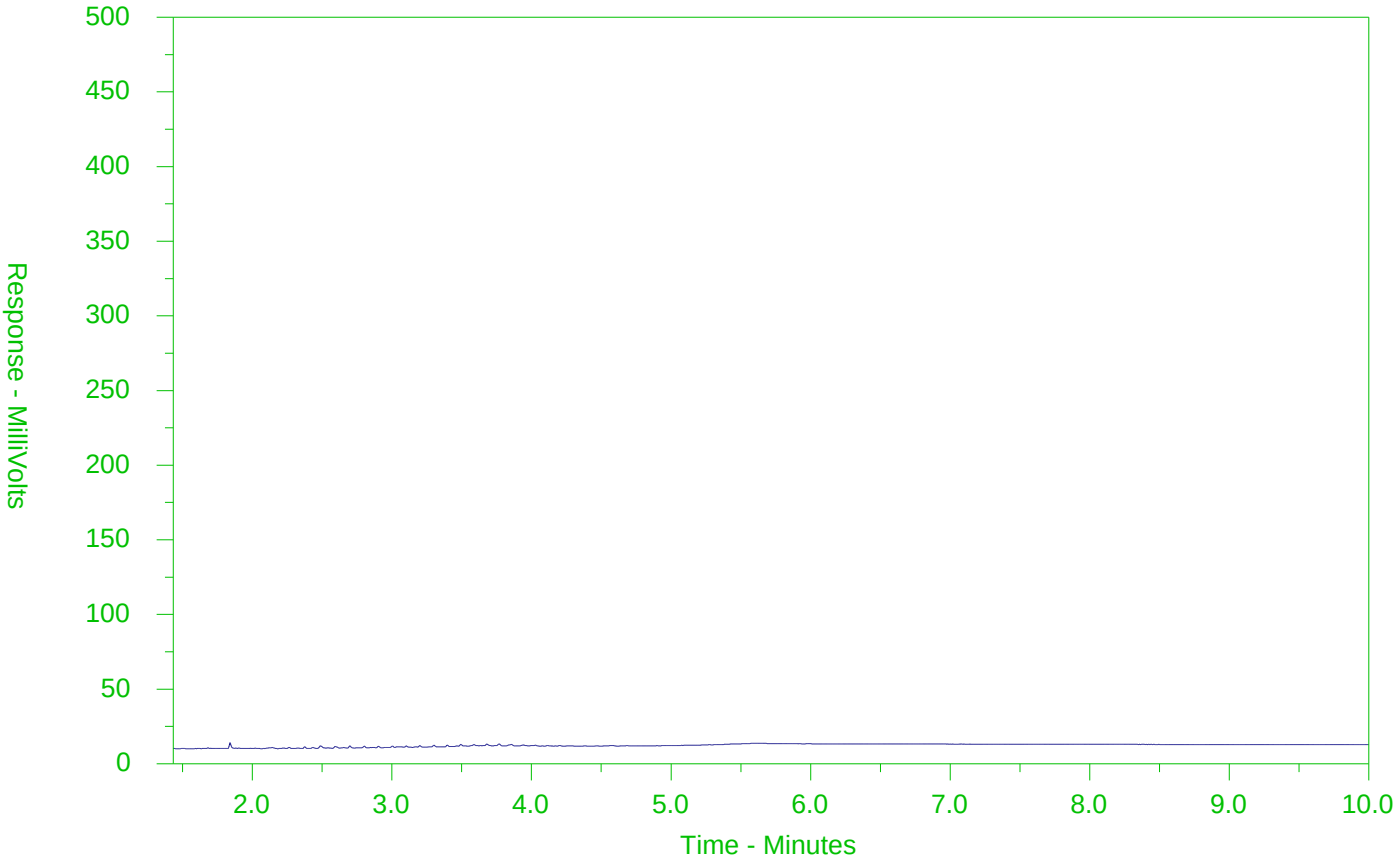
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-6
Client Sample ID: BH201-1-1.5'



←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.

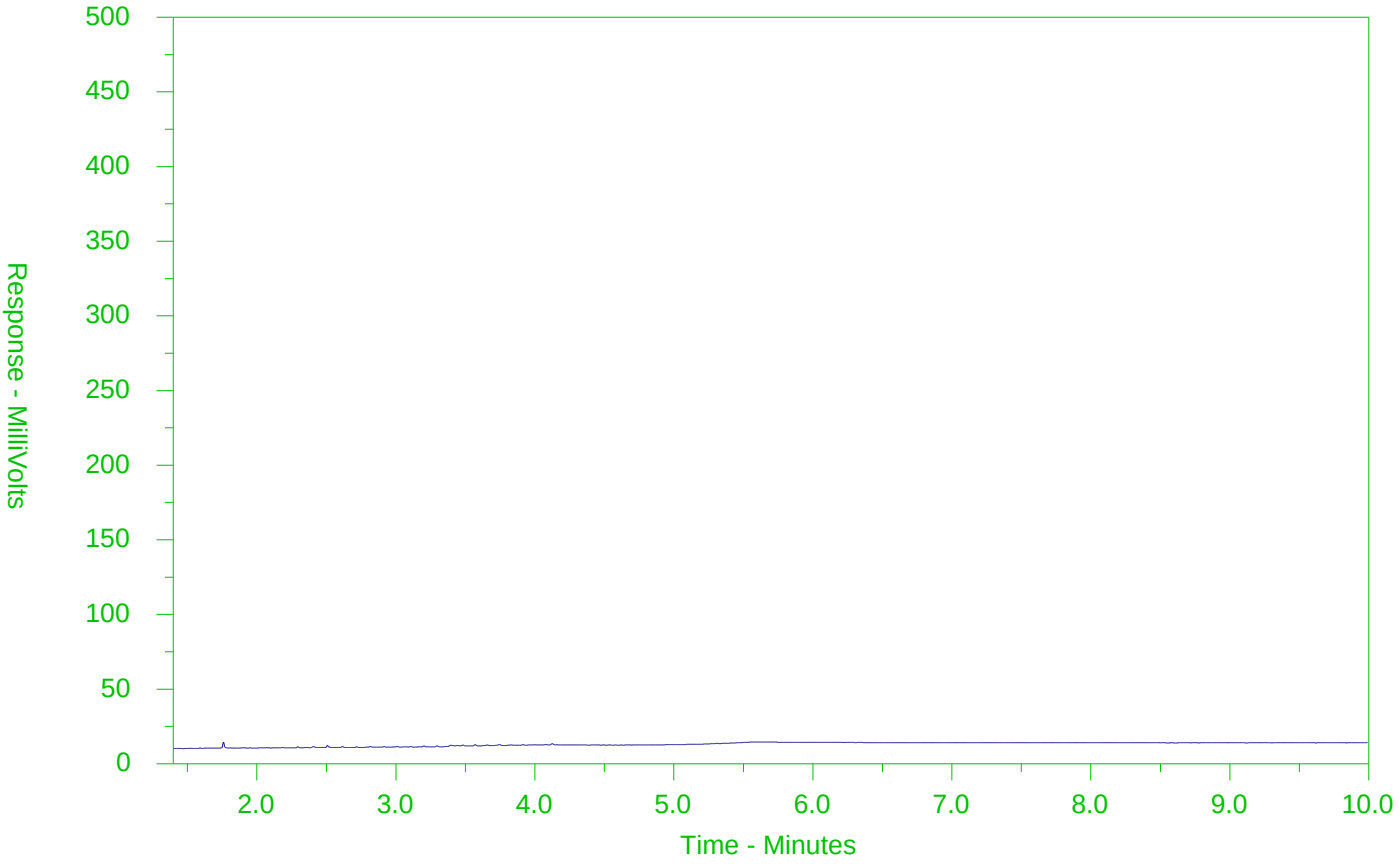
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-7
Client Sample ID: BH201-4-4.5'



←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.

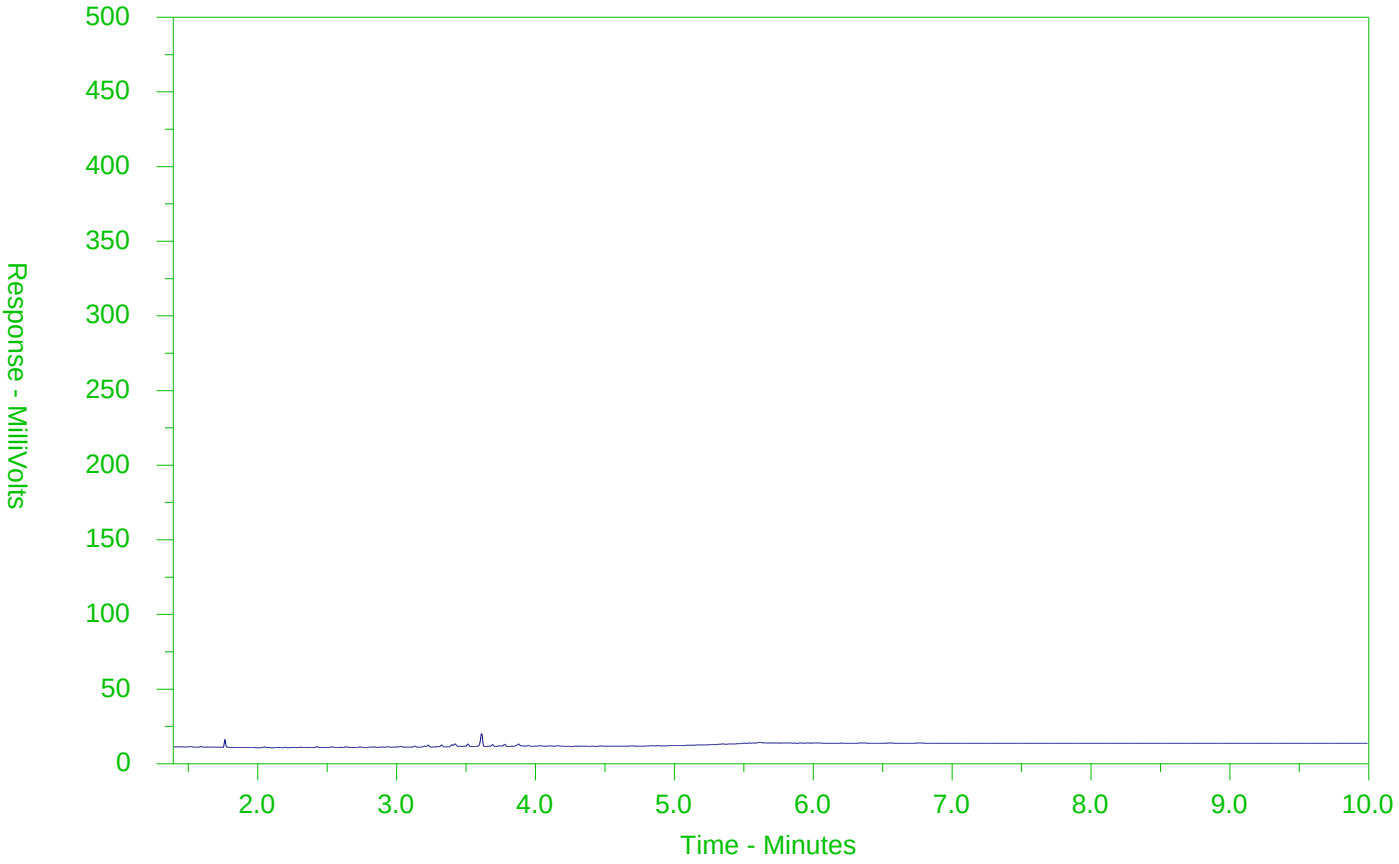
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-8
Client Sample ID: MW100-1.25-1.5'



←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.

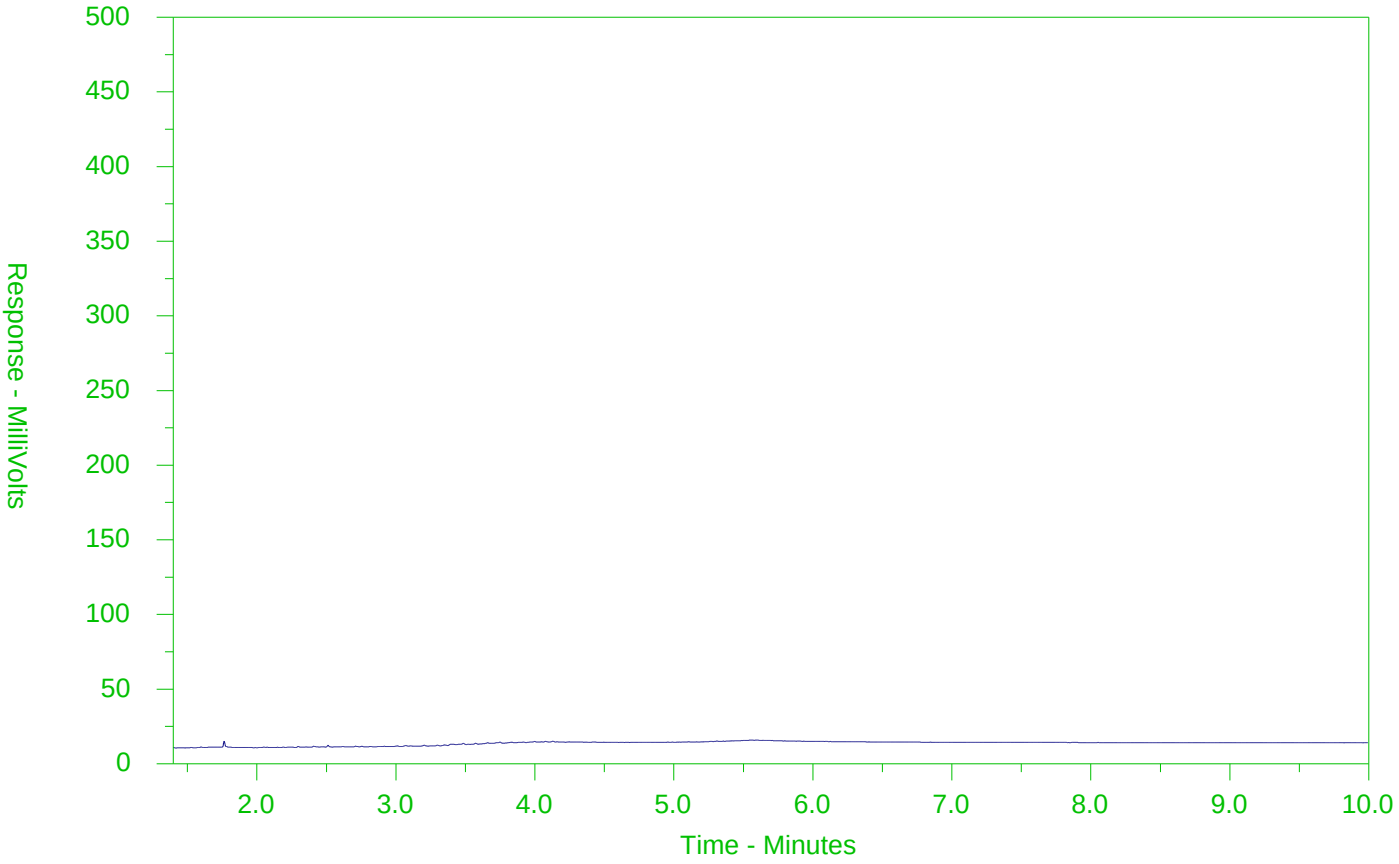
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-9
Client Sample ID: MW109-2.5-3.5'



←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.

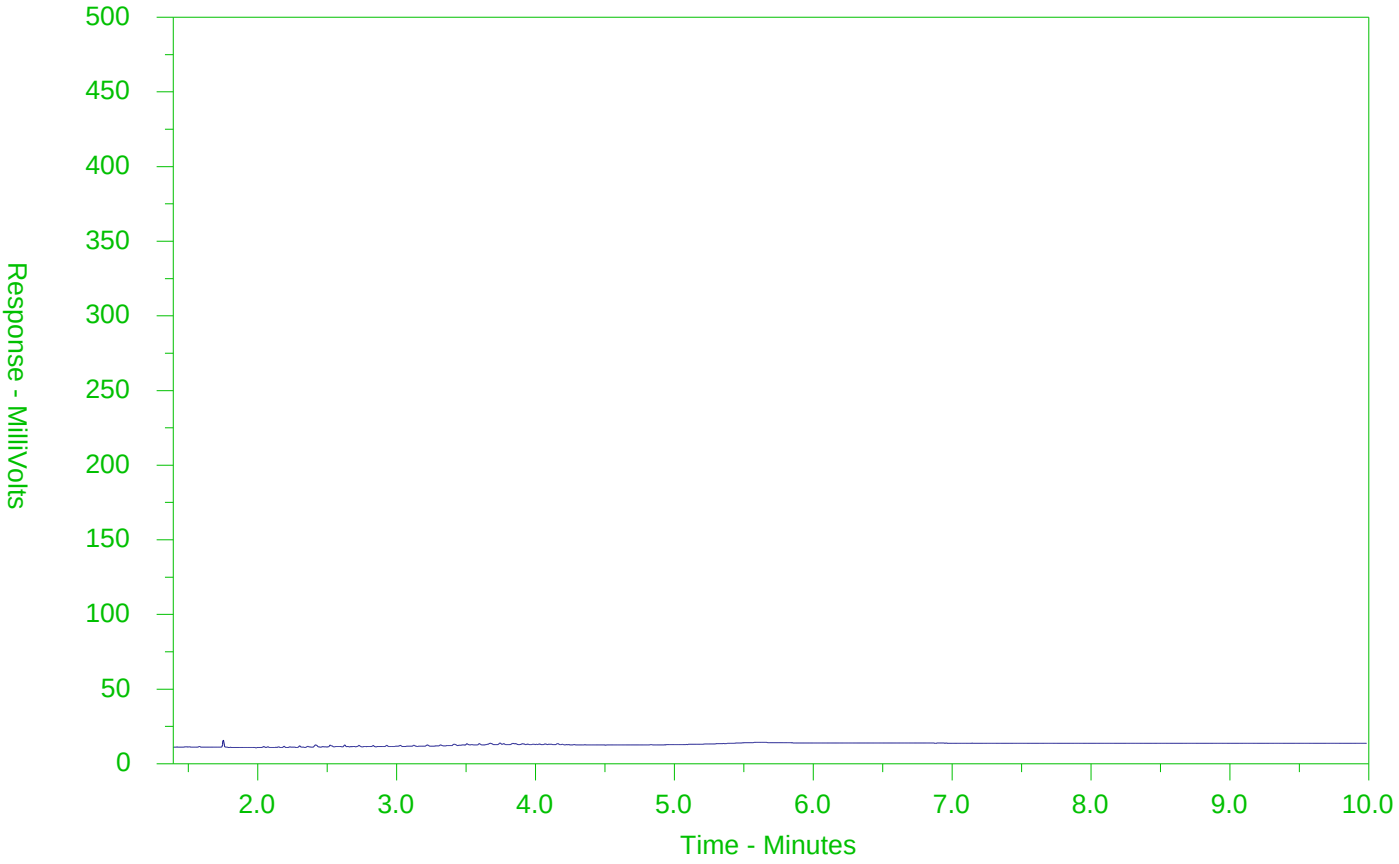
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-10
Client Sample ID: BH206-1-2'



←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.

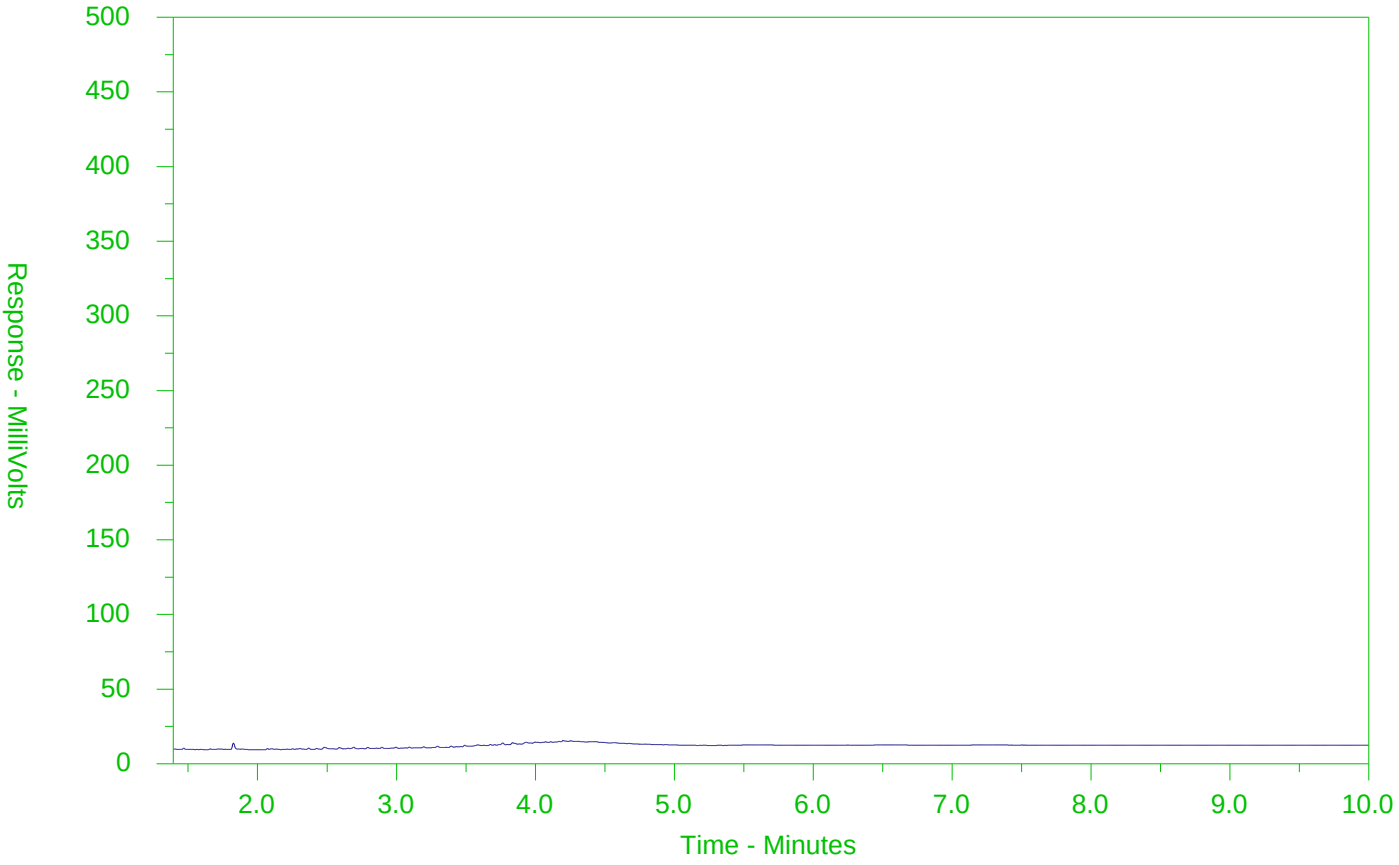
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-11
Client Sample ID: MW108-5-6'



←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.

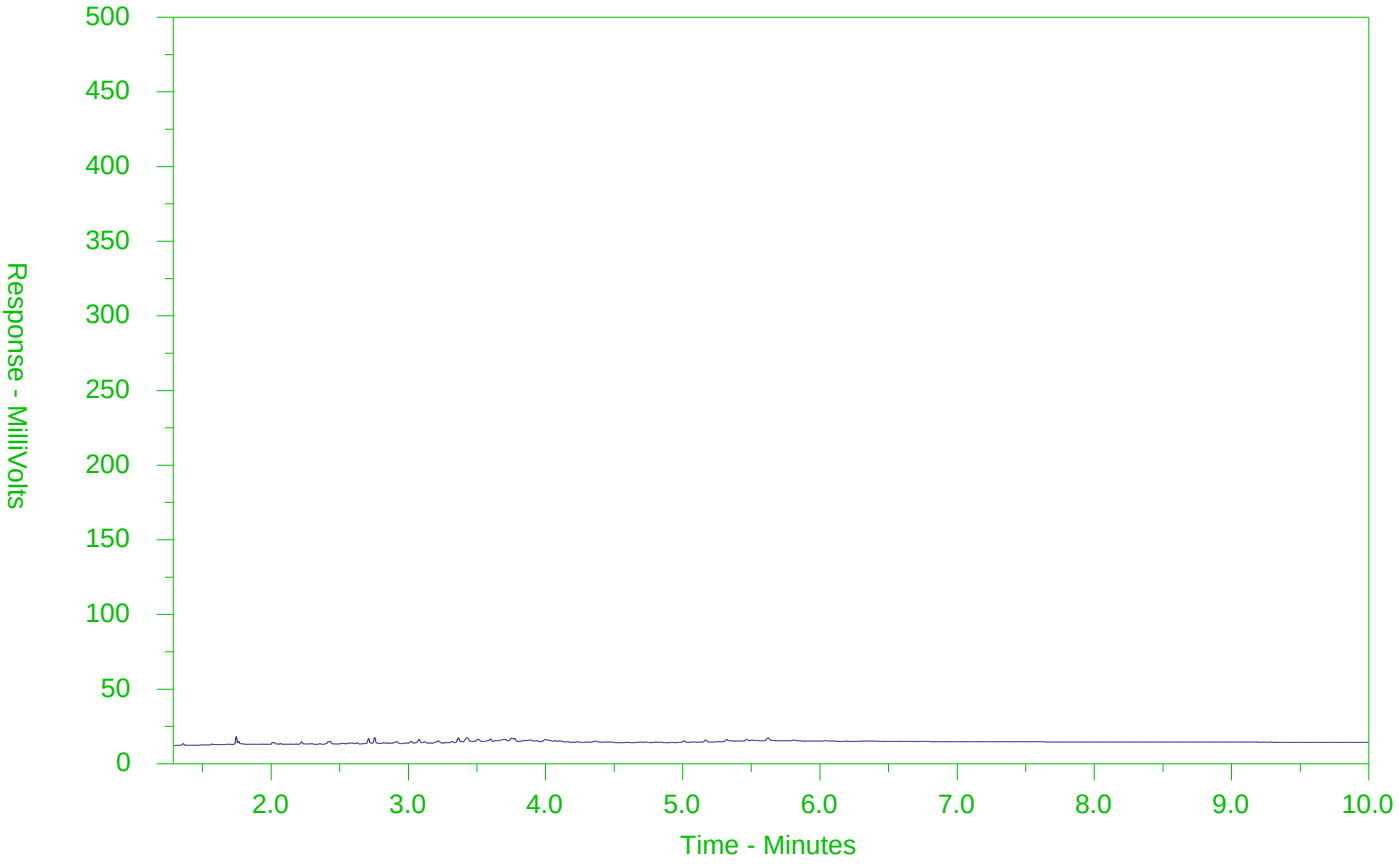
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-12
Client Sample ID: MW101-1.5-2'



←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.

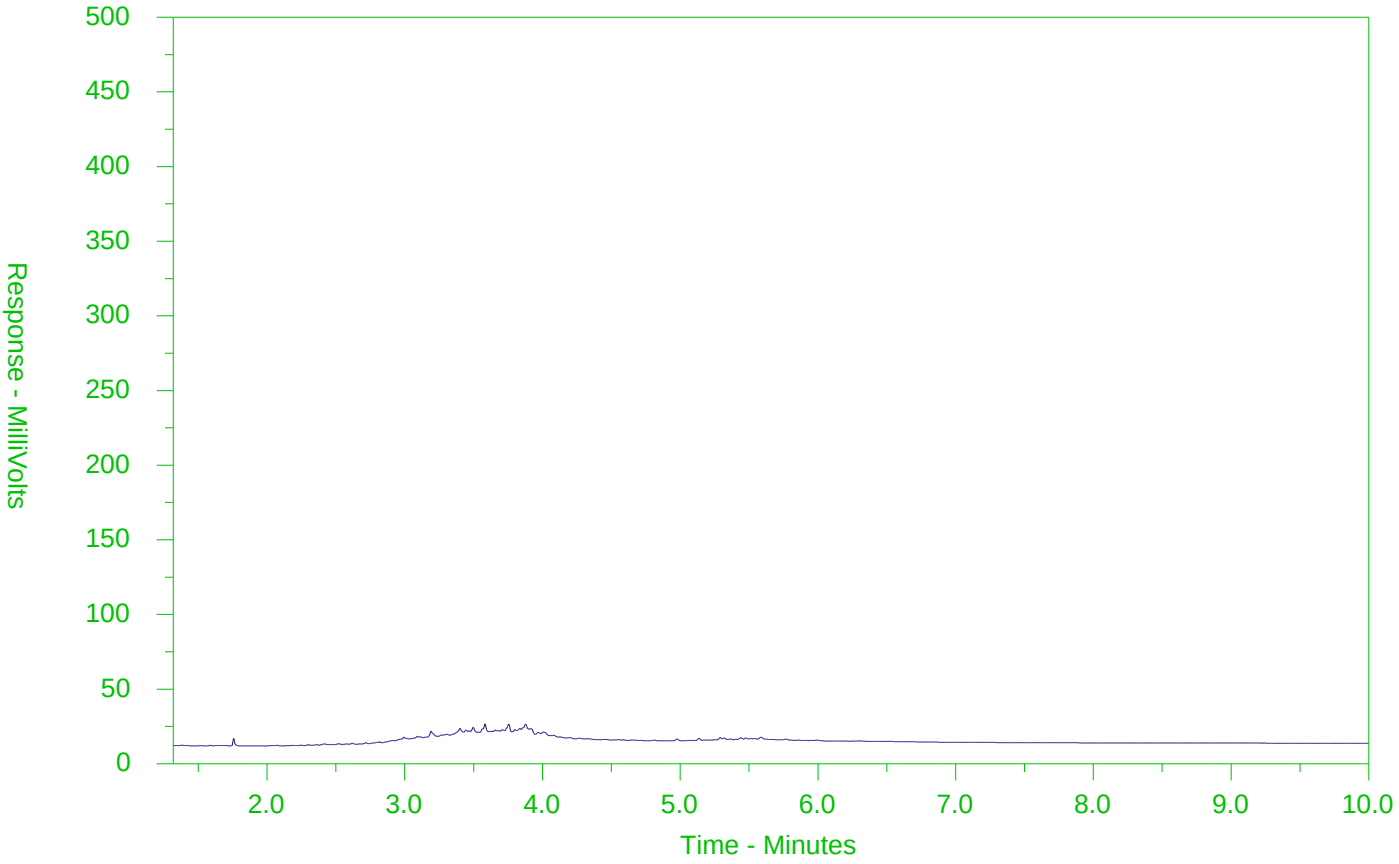
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2318180-13
Client Sample ID: DUP1



←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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2318180-COFC

COC Number: 17 - 20190726

Page 1 of 2

Report To	Contact and company name below will appear on the final report	Report Format	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	CH2M Hill/ Jacobs	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Victoria Peters	Quality Control (QC) Report with Report ☑ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-579-3500 x73252	☑ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E1 - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Street:	72 Victoria Street South, Suite 300	Email 1 or Fax as per quote	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province	Kitchener, Ontario	Email 2	
Postal Code:	N2G 4Y9	Email 3	
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company	CH2M HILL	Email 1 or Fax Accounts Payable	
Contact:	Victoria Peters	Email 2	
Project Information		**Oil and Gas Required Fields (client use)**	
ALS Account # / Quote #:	Q71421	AFE/Cost Center:	PO#
Job #	CE751900 A.CS EV 19 19-01	Major/Minor Code	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2318180	ALS Contact:	Sampler: V. Peters

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metal (O. Reg. 153/04)	Inorganics (Free Cyanide, pH, EC, and SAR)	PHCs F1-F4 incl BTEX	PAHs	VOCs	Dioxins/Furans	PCBs	ABNs	FOC	Grain Size Analysis	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	MW103-2-2.5'	22-7-19	9:40	soil	X	X	X	X	X				X				5
	MW104-2.5-3'	22-7-19	11:40	soil								X					5
	BH202-2'-2.5'	22-7-19	15:50	soil										X			5
	BH200-3.5-4.0"	23-7-19	11:00	soil							X						5
	MW102-20-25"	23-7-19	15:45	soil													4
	BH201-1-1.5'	24-7-19	10:15	soil										X			5
	BH201-4-4.5'	24-7-19	10:30	soil													4
	MW100-1.25-1.5'	24-7-19	13:45	soil									X				5
	MW109-2.5-3.5'	25-7-19	9:30	soil						X							5
	BH206-1-2'	25-7-19	11:30	soil													4
	MW108-5-6'	25-7-19	15:15	soil						X			X				6
	MW101-1.5-2'	26-7-19	12:30	soil	X	X	X	X	X								4

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	Ontario Regulation 153/04 - April 15, 2011 Standards
Are samples for human consumption/ use? ☐ YES ☑ NO	*no pH on MW101-1.5-2'

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☑ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C				
					12.7				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Victoria Peters	Date: 2019/7/26	Time: 17:05	Received by:	Date:	Time:	Received by: AP	Date: 26-7-19	Time: 17:05

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEP1 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

L2318180-COFC

COC Number: 17 - 20190726

Page 2 of 2

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	CH2M Hill/ Jacobs
Contact:	Victoria Peters
Phone:	519-579-3500 x73252
	Company address below will appear on the final report
Street:	72 Victoria Street South, Suite 300
City/Province:	Kitchener, Ontario
Postal Code	N2G 4Y9
Invoice To	Same as Report To ☒ YES ☐ NO
	Copy of Invoice with Report ☒ YES ☐ NO
Company	CH2M HILL
Contact:	Victoria Peters

Report Format / Distribution

Select Report Format: ☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)
Quality Control (QC) Report with Report ☒ YES ☐ NO
☒ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax as per quote
Email 2
Email 3

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax Accounts Payable
Email 2

Project Information

ALS Account # / Quote #:	Q71421
Job #:	CE751900 A CS.EV 19.19-01
PO / AFE:	
LSD:	
ALS Lab Work Order # (lab use only):	L2318180

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler: V. Peters

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)
- 4 day [P4-20%] ☐
- 3 day [P3-25%] ☐
- 2 day [P2-50%] ☐

EMERGENCY
- 1 Business day [E1 - 100%] ☐
- Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals (O. Reg. 153/04)	Inorganics (Free Cyanide, pH, EC and SAR)	PHCs F1-F4 incl BTEX	PAHs	VOCs	Dioxins/Furans	PCBs	ABNs	FOC	Grain Size Analysis	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	DUP1	23-7-19	—	soil	X	X	X	X	X		X						5
	TBOO1	—		soil					X								
				soil													
				soil													
				soil													
				soil													
				soil													
				soil													
				soil													
				soil													
				soil													
				soil													
				soil													

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☒ NO

Are samples for human consumption/ use?
☐ YES ☒ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Ontario Regulation 153/04 - April 15, 2011 Standards

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				12.7			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Victoria Peters	2019/7/26	18:05

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
AP	26-7-19	17:05

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2012 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

CH2M HILL Canada Ltd.
ATTN: VICTORIA PETERS
245 CONSUMERS ROAD
SUITE 400
TORONTO ON M2J 1R3

Date Received: 31-JUL-19
Report Date: 07-AUG-19 12:29 (MT)
Version: FINAL

Client Phone: 416-499-9000

Certificate of Analysis

Lab Work Order #: L2319997

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV.19.19-01
C of C Numbers: 17-31072019
Legal Site Desc:

Comments: ADDITIONAL 31-JUL-19 11:13

Mathy Mahadeva
Account Manager

ANALYTICAL REPORT

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit	Guideline

Federal & Provincial Waste Regulations (MAR, 2008) - Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90

(No parameter exceedances)

Federal & Provincial Waste Regulations (MAR, 2008) - Polychlorinated Biphenyls (PCBs) - Ontario Regulation 347/90

(No parameter exceedances)

ANALYTICAL REPORT

Sample Preparation - WASTE

		Guide Limits			
				Lab ID	L2319997-1
				Sample Date	30-JUL-19
				Sample ID	TCLP COMP-0-6'
Analyte	**Unit**	**#1**	**#2**		
Initial pH	pH units	-	-	9.86	
Final pH	pH units	-	-	5.67	

Guide Limit #1: Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90
Guide Limit #2: Polychlorinated Biphenyls (PCBs) - Ontario Regulation 347/90

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

Physical Tests - SOIL

			Lab ID	L2319997-1
			Sample Date	30-JUL-19
			Sample ID	TCLP COMP-0-6'
Analyte	**Unit**	**Guide Limits #1**	**#2**	
% Moisture	%	-	-	8.52

Guide Limit #1: Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90
Guide Limit #2: Polychlorinated Biphenyls (PCBs) - Ontario Regulation 347/90

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

TCLP Extractables - WASTE

				Lab ID	L2319997-1
				Sample Date	30-JUL-19
				Sample ID	TCLP COMP-0-6'
		Guide Limits			
Analyte	Unit	#1	#2		
Acenaphthene	mg/L	-	-	<0.0050	
Acenaphthylene	mg/L	-	-	<0.0050	
Anthracene	mg/L	-	-	<0.0050	
Benzo(a)anthracene	mg/L	-	-	<0.0050	
Benzo(a)pyrene	mg/L	0.001	-	<0.00020	
Benzo(b)fluoranthene	mg/L	-	-	<0.0010	
Benzo(g,h,i)perylene	mg/L	-	-	<0.0050	
3&4-Methylphenol	mg/L	-	-	<0.010	
Cresols (total)	mg/L	200	-	<0.015	
Cyanide, Weak Acid Diss	mg/L	20	-	<0.10	
2,4-Dichlorophenol	mg/L	90	-	<0.0050	
2,4-Dinitrotoluene	mg/L	0.13	-	<0.0040	
Fluoride (F)	mg/L	150.0	-	<10	
Hexachlorobenzene	mg/L	0.13	-	<0.0040	
Hexachlorobutadiene	mg/L	0.5	-	<0.0040	
Hexachloroethane	mg/L	3.0	-	<0.0040	
2-Methylphenol	mg/L	-	-	<0.0050	
Nitrate and Nitrite as N	mg/L	1000	-	<4.0	
Nitrate-N	mg/L	-	-	<2.0	
Nitrite-N	mg/L	-	-	<2.0	
Nitrobenzene	mg/L	2.0	-	<0.0040	
Pentachlorophenol	mg/L	6	-	<0.0050	
Pyridine	mg/L	5.0	-	<2.0	
2,3,4,6-Tetrachlorophenol	mg/L	10.0	-	<0.0050	
2,4,5-Trichlorophenol	mg/L	400	-	<0.0050	
2,4,6-Trichlorophenol	mg/L	0.5	-	<0.0050	
Surrogate: 2,4,6-Tribromophenol	%	-	-	123.5	
Surrogate: 2-Fluorobiphenyl	%	-	-	92.6	
Surrogate: Nitrobenzene d5	%	-	-	105.5	
Surrogate: p-Terphenyl d14	%	-	-	102.5	

Guide Limit #1: Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90

ANALYTICAL REPORT

TCLP Extractables - WASTE

Guide Limit #1: Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90
Guide Limit #2: Polychlorinated Biphenyls (PCBs) - Ontario Regulation 347/90

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

TCLP Metals - WASTE

			Lab ID	L2319997-1
			Sample Date	30-JUL-19
			Sample ID	TCLP COMP-0-6'
Analyte	**Unit**	**Guide Limits #1**	**#2**	
Arsenic (As)	mg/L	2.5	-	<0.050
Barium (Ba)	mg/L	100	-	<0.50
Boron (B)	mg/L	500	-	<2.5
Cadmium (Cd)	mg/L	0.5	-	<0.0050
Chromium (Cr)	mg/L	5.0	-	<0.050
Lead (Pb)	mg/L	5.0	-	<0.050
Mercury (Hg)	mg/L	0.1	-	<0.00010
Selenium (Se)	mg/L	1.0	-	<0.025
Silver (Ag)	mg/L	5.0	-	<0.0050
Uranium (U)	mg/L	10	-	<0.25

Guide Limit #1: Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90
Guide Limit #2: Polychlorinated Biphenyls (PCBs) - Ontario Regulation 347/90

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

TCLP VOCs - WASTE

			Lab ID	L2319997-1
			Sample Date	30-JUL-19
			Sample ID	TCLP COMP-0-6'
		Guide Limits		
Analyte	**Unit**	**#1**	**#2**	
1,1-Dichloroethylene	mg/L	1.4	-	<0.025
1,2-Dichlorobenzene	mg/L	20.0	-	<0.025
1,2-Dichloroethane	mg/L	0.5	-	<0.025
1,4-Dichlorobenzene	mg/L	0.5	-	<0.025
Benzene	mg/L	0.5	-	<0.025
Carbon tetrachloride	mg/L	0.5	-	<0.025
Chlorobenzene	mg/L	8	-	<0.025
Chloroform	mg/L	10	-	<0.10
Dichloromethane	mg/L	5.0	-	<0.50
Methyl Ethyl Ketone	mg/L	200.0	-	<1.0
Tetrachloroethylene	mg/L	3	-	<0.025
Trichloroethylene	mg/L	5	-	<0.025
Vinyl chloride	mg/L	0.2	-	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	98.0

Guide Limit #1: Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90
Guide Limit #2: Polychlorinated Biphenyls (PCBs) - Ontario Regulation 347/90

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 - WASTE

			Lab ID	L2319997-1
			Sample Date	30-JUL-19
			Sample ID	TCLP COMP-0-6'
Analyte	**Unit**	**Guide Limits #1**	**#2**	
Surrogate: 1,4-Difluorobenzene	%	-	-	98.7

Guide Limit #1: Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90
Guide Limit #2: Polychlorinated Biphenyls (PCBs) - Ontario Regulation 347/90

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

Polycyclic Aromatic Hydrocarbons - WASTE

		Guide Limits		Lab ID	Sample Date	Sample ID
Analyte	Unit	#1	#2	L2319997-1	30-JUL-19	TCLP COMP-0-6'
Benzo(k)fluoranthene	mg/L	-	-	<0.0050		
Chrysene	mg/L	-	-	<0.0050		
Dibenzo(ah)anthracene	mg/L	-	-	<0.0050		
Fluoranthene	mg/L	-	-	<0.0050		
Fluorene	mg/L	-	-	<0.0050		
Indeno(1,2,3-cd)pyrene	mg/L	-	-	<0.0050		
Naphthalene	mg/L	-	-	<0.0050		
Phenanthrene	mg/L	-	-	<0.0050		
Pyrene	mg/L	-	-	<0.0050		
Quinoline	mg/L	-	-	<0.0050		
Surrogate: d10-Acenaphthene	%	-	-	102.8		
Surrogate: d12-Chrysene	%	-	-	106.4		
Surrogate: d8-Naphthalene	%	-	-	107.8		
Surrogate: d10-Phenanthrene	%	-	-	105.0		

Guide Limit #1: Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90
Guide Limit #2: Polychlorinated Biphenyls (PCBs) - Ontario Regulation 347/90

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

Polychlorinated Biphenyls - SOIL

			Lab ID	L2319997-1
			Sample Date	30-JUL-19
			Sample ID	TCLP COMP-0-6'
Analyte	**Unit**	**Guide Limits #1**	**#2**	
Aroclor 1242	ug/g	-	-	<0.010
Aroclor 1248	ug/g	-	-	<0.010
Aroclor 1254	ug/g	-	-	<0.010
Aroclor 1260	ug/g	-	-	<0.010
Total PCBs	ug/g	-	50.0	<0.020
Surrogate: d14-Terphenyl	%	-	-	78.5

Guide Limit #1: Ontario Ministry of the Environment, General Waste Control Regulation No. 347/90
Guide Limit #2: Polychlorinated Biphenyls (PCBs) - Ontario Regulation 347/90

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**
BNA-TCLP-WT	Waste	BNAs for O. Reg 347	SW846 8270

Samples are leached according to TCLP protocol and then the aqueous leachate is extracted and the resulting extracts are analyzed on GC/MSD

CN-TCLP-WT	Waste	Cyanide for O. Reg 347	APHA 4500CN I

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fiber filter. The extract is then analyzed using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

F-TCLP-WT	Waste	Fluoride (F) for O. Reg 347	EPA 300.1

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fiber filter. The extract is then analyzed using procedures adapted from EPA 300.1 and is analyzed by Ion Chromatography with conductivity and/or UV detection.

HG-TCLP-WT	Waste	Mercury (CVAA) for O.Reg 347	EPA 1631E

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry (EPA 1631E).

LEACH-TCLP-WT	Waste	Leachate Procedure for Reg 347	EPA 1311

Inorganic and Semi-Volatile Organic contaminants are leached from waste samples in strict accordance with US EPA Method 1311, "Toxicity Characteristic Leaching Procedure" (TCLP). Test results are reported in leachate concentration units (normally mg/L).

MET-TCLP-WT	Waste	O.Reg 347 TCLP Leachable Metals	EPA 6020B

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020B).

MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
N2N3-TCLP-WT	Waste	Nitrate/Nitrite-N for O. Reg 347	EPA 300.1

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fiber filter. The extract is then analyzed using procedures adapted from EPA 300.1 and is analyzed by Ion Chromatography with conductivity and/or UV detection.

PAH-TCLP-WT	Waste	PAH for O. Reg 347	SW846 8270 (PAH)

Samples are leached according to TCLP protocol and then the aqueous leachate is extracted and the resulting extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

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).

PYR-TCLP-WT	Waste	Pyridine for O. Reg 347	SW846 8260D

Samples are leached according to TCLP protocol and then analyzed on GC/MSD

VOC-TCLP-WT	Waste	VOC for O. Reg 347	SW846 8260

A sample of waste is leached in a zero headspace extractor at 30–2 rpm for 18–2.0 hours with the appropriate leaching solution. After tumbling the leachate is analyzed directly by headspace technology, followed by GC/MS using internal standard quantitation.

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

Chain of Custody Numbers:

17-31072019

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: L2319997 Report Date: 07-AUG-19

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3

Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT	**Soil**							
Batch R4739122								
WG3123546-3 DUP		**L2321240-1**						
% Moisture		19.5	19.3		%	1.3	20	04-AUG-19
WG3123546-2 LCS								
% Moisture			99.7		%		90-110	04-AUG-19
WG3123546-1 MB								
% Moisture			<0.10		%		0.1	04-AUG-19
PCB-511-WT	**Soil**							
Batch R4739770								
WG3123397-3 DUP		**WG3123397-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	06-AUG-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	06-AUG-19
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	06-AUG-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	06-AUG-19
WG3123397-2 LCS								
Aroclor 1242			98.8		%		60-140	06-AUG-19
Aroclor 1248			92.4		%		60-140	06-AUG-19
Aroclor 1254			95.4		%		60-140	06-AUG-19
Aroclor 1260			90.2		%		60-140	06-AUG-19
WG3123397-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	06-AUG-19
Aroclor 1248			<0.010		ug/g		0.01	06-AUG-19
Aroclor 1254			<0.010		ug/g		0.01	06-AUG-19
Aroclor 1260			<0.010		ug/g		0.01	06-AUG-19
Surrogate: d14-Terphenyl			73.9		%		60-140	06-AUG-19
WG3123397-4 MS		**WG3123397-5**						
Aroclor 1242			102.9		%		60-140	06-AUG-19
Aroclor 1254			99.3		%		60-140	06-AUG-19
Aroclor 1260			91.8		%		60-140	06-AUG-19
BNA-TCLP-WT	**Waste**							
Batch R4742489								
WG3122480-5 DUP		**WG3122480-3**						
2,3,4,6-Tetrachlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	07-AUG-19
2,4,5-Trichlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	07-AUG-19
2,4,6-Trichlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	07-AUG-19
2,4-Dichlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	07-AUG-19
2,4-Dinitrotoluene		<0.0040	<0.0040		mg/L			07-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BNA-TCLP-WT	**Waste**							
Batch R4742489								
WG3122480-5 DUP		**WG3122480-3**						
2,4-Dinitrotoluene		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	07-AUG-19
2-Methylphenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	07-AUG-19
3&4-Methylphenol		<0.010	<0.010	RPD-NA	mg/L	N/A	50	07-AUG-19
Benzo(a)pyrene		<0.00020	<0.00020	RPD-NA	mg/L	N/A	50	07-AUG-19
Hexachlorobenzene		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	07-AUG-19
Hexachlorobutadiene		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	07-AUG-19
Hexachloroethane		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	07-AUG-19
Nitrobenzene		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	07-AUG-19
Pentachlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	07-AUG-19
WG3122480-2 LCS								
2,3,4,6-Tetrachlorophenol			117.2		%		60-140	07-AUG-19
2,4,5-Trichlorophenol			115.9		%		60-140	07-AUG-19
2,4,6-Trichlorophenol			112.0		%		60-140	07-AUG-19
2,4-Dichlorophenol			106.8		%		60-140	07-AUG-19
2,4-Dinitrotoluene			106.8		%		50-150	07-AUG-19
2-Methylphenol			86.9		%		60-140	07-AUG-19
3&4-Methylphenol			83.2		%		60-140	07-AUG-19
Benzo(a)pyrene			84.6		%		60-140	07-AUG-19
Hexachlorobenzene			90.2		%		60-140	07-AUG-19
Hexachlorobutadiene			84.2		%		40-130	07-AUG-19
Hexachloroethane			78.4		%		40-130	07-AUG-19
Nitrobenzene			95.6		%		60-140	07-AUG-19
Pentachlorophenol			104.4		%		50-160	07-AUG-19
WG3122480-1 MB								
2,3,4,6-Tetrachlorophenol			<0.0050		mg/L		0.005	07-AUG-19
2,4,5-Trichlorophenol			<0.0050		mg/L		0.005	07-AUG-19
2,4,6-Trichlorophenol			<0.0050		mg/L		0.005	07-AUG-19
2,4-Dichlorophenol			<0.0050		mg/L		0.005	07-AUG-19
2,4-Dinitrotoluene			<0.0040		mg/L		0.004	07-AUG-19
2-Methylphenol			<0.0050		mg/L		0.005	07-AUG-19
3&4-Methylphenol			<0.010		mg/L		0.01	07-AUG-19
Benzo(a)pyrene			<0.00020		mg/L		0.0002	07-AUG-19
Hexachlorobenzene			<0.0040		mg/L		0.004	07-AUG-19
Hexachlorobutadiene			<0.0040		mg/L		0.004	07-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BNA-TCLP-WT	**Waste**							
Batch R4742489								
WG3122480-1 MB								
Hexachloroethane			<0.0040		mg/L		0.004	07-AUG-19
Nitrobenzene			<0.0040		mg/L		0.004	07-AUG-19
Pentachlorophenol			<0.0050		mg/L		0.005	07-AUG-19
Surrogate: Nitrobenzene d5			95.0		%		50-150	07-AUG-19
Surrogate: 2-Fluorobiphenyl			80.7		%		40-160	07-AUG-19
Surrogate: p-Terphenyl d14			106.8		%		60-140	07-AUG-19
Surrogate: 2,4,6-Tribromophenol			108.0		%		50-150	07-AUG-19
WG3122480-6 MB								
2,3,4,6-Tetrachlorophenol			<0.0050		mg/L		0.005	07-AUG-19
2,4,5-Trichlorophenol			<0.0050		mg/L		0.005	07-AUG-19
2,4,6-Trichlorophenol			<0.0050		mg/L		0.005	07-AUG-19
2,4-Dichlorophenol			<0.0050		mg/L		0.005	07-AUG-19
2,4-Dinitrotoluene			<0.0040		mg/L		0.004	07-AUG-19
2-Methylphenol			<0.0050		mg/L		0.005	07-AUG-19
3&4-Methylphenol			<0.010		mg/L		0.01	07-AUG-19
Benzo(a)pyrene			<0.00020		mg/L		0.0002	07-AUG-19
Hexachlorobenzene			<0.0040		mg/L		0.004	07-AUG-19
Hexachlorobutadiene			<0.0040		mg/L		0.004	07-AUG-19
Hexachloroethane			<0.0040		mg/L		0.004	07-AUG-19
Nitrobenzene			<0.0040		mg/L		0.004	07-AUG-19
Pentachlorophenol			<0.0050		mg/L		0.005	07-AUG-19
Surrogate: Nitrobenzene d5			96.2		%		50-150	07-AUG-19
Surrogate: 2-Fluorobiphenyl			89.7		%		40-160	07-AUG-19
Surrogate: p-Terphenyl d14			103.7		%		60-140	07-AUG-19
Surrogate: 2,4,6-Tribromophenol			113.5		%		50-150	07-AUG-19
WG3122480-4 MS		**WG3122480-3**						
2,3,4,6-Tetrachlorophenol			91.7		%		50-150	07-AUG-19
2,4,5-Trichlorophenol			87.2		%		50-150	07-AUG-19
2,4,6-Trichlorophenol			87.6		%		50-150	07-AUG-19
2,4-Dichlorophenol			85.3		%		50-150	07-AUG-19
2,4-Dinitrotoluene			80.7		%		50-150	07-AUG-19
2-Methylphenol			72.5		%		50-150	07-AUG-19
3&4-Methylphenol			69.0		%		50-150	07-AUG-19
Benzo(a)pyrene			72.0		%		50-150	07-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BNA-TCLP-WT	**Waste**							
Batch R4742489								
WG3122480-4 MS		**WG3122480-3**						
Hexachlorobenzene			73.7		%		40-150	07-AUG-19
Hexachlorobutadiene			45.2		%		40-150	07-AUG-19
Hexachloroethane			44.0		%		40-150	07-AUG-19
Nitrobenzene			74.5		%		50-150	07-AUG-19
Pentachlorophenol			102.6		%		50-150	07-AUG-19
CN-TCLP-WT	**Waste**							
Batch R4739902								
WG3123004-3 DUP		**L2317397-1**						
Cyanide, Weak Acid Diss		<0.10	<0.10	RPD-NA	mg/L	N/A	50	02-AUG-19
WG3123004-2 LCS								
Cyanide, Weak Acid Diss			113.2		%		70-130	02-AUG-19
WG3123004-1 MB								
Cyanide, Weak Acid Diss			<0.10		mg/L		0.1	02-AUG-19
WG3123004-4 MS		**L2317397-1**						
Cyanide, Weak Acid Diss			112.3		%		50-140	02-AUG-19
F-TCLP-WT	**Waste**							
Batch R4740025								
WG3122765-3 DUP		**L2317397-1**						
Fluoride (F)		<10	<10	RPD-NA	mg/L	N/A	30	02-AUG-19
WG3122765-2 LCS								
Fluoride (F)			103.9		%		70-130	02-AUG-19
WG3122765-1 MB								
Fluoride (F)			<10		mg/L		10	02-AUG-19
WG3122765-4 MS		**L2317397-1**						
Fluoride (F)			102.2		%		50-150	02-AUG-19
HG-TCLP-WT	**Waste**							
Batch R4737827								
WG3122793-3 DUP		**L2319198-2**						
Mercury (Hg)		<0.00010	<0.00010	RPD-NA	mg/L	N/A	50	02-AUG-19
WG3122793-2 LCS								
Mercury (Hg)			102.0		%		70-130	02-AUG-19
WG3122793-1 MB								
Mercury (Hg)			<0.00010		mg/L		0.0001	02-AUG-19
WG3122793-4 MS		**L2319198-2**						
Mercury (Hg)			89.4		%		50-140	02-AUG-19
MET-TCLP-WT	**Waste**							

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-WT	**Waste**							
Batch R4738918								
WG3122710-4 DUP		**WG3122710-3**						
Silver (Ag)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	02-AUG-19
Arsenic (As)		<0.050	<0.050	RPD-NA	mg/L	N/A	50	02-AUG-19
Boron (B)		<2.5	<2.5	RPD-NA	mg/L	N/A	50	02-AUG-19
Barium (Ba)		<0.50	<0.50	RPD-NA	mg/L	N/A	50	02-AUG-19
Cadmium (Cd)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	02-AUG-19
Chromium (Cr)		<0.050	<0.050	RPD-NA	mg/L	N/A	50	02-AUG-19
Lead (Pb)		<0.050	<0.050	RPD-NA	mg/L	N/A	50	02-AUG-19
Selenium (Se)		<0.025	<0.025	RPD-NA	mg/L	N/A	50	02-AUG-19
Uranium (U)		<0.25	<0.25	RPD-NA	mg/L	N/A	50	02-AUG-19
WG3122710-2 LCS								
Silver (Ag)			103.1		%		70-130	02-AUG-19
Arsenic (As)			99.4		%		70-130	02-AUG-19
Boron (B)			95.1		%		70-130	02-AUG-19
Barium (Ba)			99.4		%		70-130	02-AUG-19
Cadmium (Cd)			98.3		%		70-130	02-AUG-19
Chromium (Cr)			99.6		%		70-130	02-AUG-19
Lead (Pb)			98.5		%		70-130	02-AUG-19
Selenium (Se)			99.9		%		70-130	02-AUG-19
Uranium (U)			101.4		%		70-130	02-AUG-19
WG3122710-1 MB								
Silver (Ag)			<0.0050		mg/L		0.005	02-AUG-19
Arsenic (As)			<0.050		mg/L		0.05	02-AUG-19
Boron (B)			<2.5		mg/L		2.5	02-AUG-19
Barium (Ba)			<0.50		mg/L		0.5	02-AUG-19
Cadmium (Cd)			<0.0050		mg/L		0.005	02-AUG-19
Chromium (Cr)			<0.050		mg/L		0.05	02-AUG-19
Lead (Pb)			<0.050		mg/L		0.05	02-AUG-19
Selenium (Se)			<0.025		mg/L		0.025	02-AUG-19
Uranium (U)			<0.25		mg/L		0.25	02-AUG-19
WG3122710-5 MS		**WG3122710-3**						
Silver (Ag)			106.1		%		50-140	02-AUG-19
Arsenic (As)			96.8		%		50-140	02-AUG-19
Boron (B)			93.8		%		50-140	02-AUG-19
Barium (Ba)			101.2		%		50-140	02-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-WT	**Waste**							
Batch R4738918								
WG3122710-5 MS		**WG3122710-3**						
Cadmium (Cd)			101.6		%		50-140	02-AUG-19
Chromium (Cr)			99.1		%		50-140	02-AUG-19
Lead (Pb)			96.8		%		50-140	02-AUG-19
Selenium (Se)			99.6		%		50-140	02-AUG-19
Uranium (U)			96.2		%		50-140	02-AUG-19
N2N3-TCLP-WT	**Waste**							
Batch R4740025								
WG3122765-3 DUP		**L2317397-1**						
Nitrate-N		<2.0	<2.0	RPD-NA	mg/L	N/A	25	02-AUG-19
Nitrite-N		<2.0	<2.0	RPD-NA	mg/L	N/A	25	02-AUG-19
WG3122765-2 LCS								
Nitrate-N			102.9		%		70-130	02-AUG-19
Nitrite-N			103.5		%		70-130	02-AUG-19
WG3122765-1 MB								
Nitrate-N			<2.0		mg/L		2	02-AUG-19
Nitrite-N			<2.0		mg/L		2	02-AUG-19
WG3122765-4 MS		**L2317397-1**						
Nitrate-N			105.3		%		50-150	02-AUG-19
Nitrite-N			105.4		%		50-150	02-AUG-19
PAH-TCLP-WT	**Waste**							
Batch R4739688								
WG3122493-6 DUP		**WG3122493-4**						
Acenaphthene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Acenaphthylene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Anthracene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Benzo(a)anthracene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Benzo(a)pyrene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	50	06-AUG-19
Benzo(b)fluoranthene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Benzo(g,h,i)perylene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Benzo(k)fluoranthene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Chrysene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Dibenzo(ah)anthracene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Fluoranthene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Fluorene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TCLP-WT	**Waste**							
Batch R4739688								
WG3122493-6 DUP		**WG3122493-4**						
Indeno(1,2,3-cd)pyrene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Naphthalene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Phenanthrene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Pyrene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
Quinoline		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	06-AUG-19
WG3122493-2 LCS								
Acenaphthene			101.5		%		50-130	06-AUG-19
Acenaphthylene			102.7		%		50-130	06-AUG-19
Anthracene			105.0		%		50-130	06-AUG-19
Benzo(a)anthracene			112.2		%		50-140	06-AUG-19
Benzo(a)pyrene			102.0		%		60-140	06-AUG-19
Benzo(b)fluoranthene			104.9		%		50-140	06-AUG-19
Benzo(g,h,i)perylene			99.3		%		50-140	06-AUG-19
Benzo(k)fluoranthene			100.1		%		50-150	06-AUG-19
Chrysene			111.9		%		50-140	06-AUG-19
Dibenzo(ah)anthracene			102.8		%		50-140	06-AUG-19
Fluoranthene			103.1		%		50-150	06-AUG-19
Fluorene			99.0		%		50-150	06-AUG-19
Indeno(1,2,3-cd)pyrene			108.8		%		50-140	06-AUG-19
Naphthalene			104.7		%		50-130	06-AUG-19
Phenanthrene			105.8		%		50-130	06-AUG-19
Pyrene			104.5		%		50-140	06-AUG-19
Quinoline			103.4		%		50-150	06-AUG-19
WG3122493-1 MB								
Acenaphthene			<0.0050		mg/L		0.005	06-AUG-19
Acenaphthylene			<0.0050		mg/L		0.005	06-AUG-19
Anthracene			<0.0050		mg/L		0.005	06-AUG-19
Benzo(a)anthracene			<0.0050		mg/L		0.005	06-AUG-19
Benzo(a)pyrene			<0.0010		mg/L		0.001	06-AUG-19
Benzo(b)fluoranthene			<0.0050		mg/L		0.005	06-AUG-19
Benzo(g,h,i)perylene			<0.0050		mg/L		0.005	06-AUG-19
Benzo(k)fluoranthene			<0.0050		mg/L		0.005	06-AUG-19
Chrysene			<0.0050		mg/L		0.005	06-AUG-19
Dibenzo(ah)anthracene			<0.0050		mg/L		0.005	06-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TCLP-WT	**Waste**							
Batch R4739688								
WG3122493-1 MB								
Fluoranthene			<0.0050		mg/L		0.005	06-AUG-19
Fluorene			<0.0050		mg/L		0.005	06-AUG-19
Indeno(1,2,3-cd)pyrene			<0.0050		mg/L		0.005	06-AUG-19
Naphthalene			<0.0050		mg/L		0.005	06-AUG-19
Phenanthrene			<0.0050		mg/L		0.005	06-AUG-19
Pyrene			<0.0050		mg/L		0.005	06-AUG-19
Quinoline			<0.0050		mg/L		0.005	06-AUG-19
Surrogate: d8-Naphthalene			104.1		%		50-150	06-AUG-19
Surrogate: d10-Phenanthrene			104.1		%		50-150	06-AUG-19
Surrogate: d12-Chrysene			113.0		%		50-150	06-AUG-19
Surrogate: d10-Acenaphthene			100.6		%		50-150	06-AUG-19
WG3122493-3 MB								
Acenaphthene			<0.0050		mg/L		0.005	06-AUG-19
Acenaphthylene			<0.0050		mg/L		0.005	06-AUG-19
Anthracene			<0.0050		mg/L		0.005	06-AUG-19
Benzo(a)anthracene			<0.0050		mg/L		0.005	06-AUG-19
Benzo(a)pyrene			<0.0010		mg/L		0.001	06-AUG-19
Benzo(b)fluoranthene			<0.0050		mg/L		0.005	06-AUG-19
Benzo(g,h,i)perylene			<0.0050		mg/L		0.005	06-AUG-19
Benzo(k)fluoranthene			<0.0050		mg/L		0.005	06-AUG-19
Chrysene			<0.0050		mg/L		0.005	06-AUG-19
Dibenzo(ah)anthracene			<0.0050		mg/L		0.005	06-AUG-19
Fluoranthene			<0.0050		mg/L		0.005	06-AUG-19
Fluorene			<0.0050		mg/L		0.005	06-AUG-19
Indeno(1,2,3-cd)pyrene			<0.0050		mg/L		0.005	06-AUG-19
Naphthalene			<0.0050		mg/L		0.005	06-AUG-19
Phenanthrene			<0.0050		mg/L		0.005	06-AUG-19
Pyrene			<0.0050		mg/L		0.005	06-AUG-19
Quinoline			<0.0050		mg/L		0.005	06-AUG-19
Surrogate: d8-Naphthalene			102.1		%		50-150	06-AUG-19
Surrogate: d10-Phenanthrene			101.8		%		50-150	06-AUG-19
Surrogate: d12-Chrysene			111.3		%		50-150	06-AUG-19
Surrogate: d10-Acenaphthene			99.9		%		50-150	06-AUG-19
WG3122493-5 MS		**WG3122493-4**						

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TCLP-WT	**Waste**							
Batch R4739688								
WG3122493-5 MS		**WG3122493-4**						
Acenaphthene			100.1		%		50-150	06-AUG-19
Acenaphthylene			100.9		%		50-150	06-AUG-19
Anthracene			102.5		%		50-150	06-AUG-19
Benzo(a)anthracene			101.2		%		50-150	06-AUG-19
Benzo(a)pyrene			84.1		%		50-150	06-AUG-19
Benzo(b)fluoranthene			82.2		%		50-150	06-AUG-19
Benzo(g,h,i)perylene			78.3		%		50-150	06-AUG-19
Benzo(k)fluoranthene			82.6		%		50-150	06-AUG-19
Chrysene			96.0		%		50-150	06-AUG-19
Dibenzo(ah)anthracene			82.0		%		50-150	06-AUG-19
Fluoranthene			97.9		%		50-150	06-AUG-19
Fluorene			100.6		%		50-150	06-AUG-19
Indeno(1,2,3-cd)pyrene			87.2		%		50-150	06-AUG-19
Naphthalene			112.0		%		50-150	06-AUG-19
Phenanthrene			104.0		%		50-150	06-AUG-19
Pyrene			99.7		%		50-150	06-AUG-19
Quinoline			100.7		%		50-150	06-AUG-19
PYR-TCLP-WT	**Waste**							
Batch R4740062								
WG3124804-4 DUP		**L2319220-5**						
Pyridine		<2.0	<2.0	RPD-NA	mg/L	N/A	30	06-AUG-19
WG3124804-2 LCS								
Pyridine			100.0		%		70-130	06-AUG-19
WG3124804-3 MB								
Pyridine			<2.0		mg/L		2	06-AUG-19
WG3124804-5 MS		**L2319526-1**						
Pyridine			104.0		%		50-150	06-AUG-19
VOC-TCLP-WT	**Waste**							
Batch R4741573								
WG3124175-6 LCS								
1,1-Dichloroethylene			93.1		%		70-130	06-AUG-19
1,2-Dichlorobenzene			103.4		%		70-130	06-AUG-19
1,2-Dichloroethane			105.6		%		70-130	06-AUG-19
1,4-Dichlorobenzene			102.5		%		70-130	06-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-TCLP-WT	**Waste**							
Batch R4741573								
WG3124175-6 LCS								
Benzene			103.2		%		70-130	06-AUG-19
Carbon tetrachloride			96.7		%		60-140	06-AUG-19
Chlorobenzene			101.5		%		70-130	06-AUG-19
Chloroform			102.9		%		70-130	06-AUG-19
Dichloromethane			101.5		%		70-130	06-AUG-19
Methyl Ethyl Ketone			110.2		%		50-150	06-AUG-19
Tetrachloroethylene			98.6		%		70-130	06-AUG-19
Trichloroethylene			99.3		%		70-130	06-AUG-19
Vinyl chloride			112.3		%		60-130	06-AUG-19
WG3124175-10 MB								
1,1-Dichloroethylene			<0.025		mg/L		0.025	07-AUG-19
1,2-Dichlorobenzene			<0.025		mg/L		0.025	07-AUG-19
1,2-Dichloroethane			<0.025		mg/L		0.025	07-AUG-19
1,4-Dichlorobenzene			<0.025		mg/L		0.025	07-AUG-19
Benzene			<0.025		mg/L		0.025	07-AUG-19
Carbon tetrachloride			<0.025		mg/L		0.025	07-AUG-19
Chlorobenzene			<0.025		mg/L		0.025	07-AUG-19
Chloroform			<0.10		mg/L		0.1	07-AUG-19
Dichloromethane			<0.50		mg/L		0.5	07-AUG-19
Methyl Ethyl Ketone			<1.0		mg/L		1	07-AUG-19
Tetrachloroethylene			<0.025		mg/L		0.025	07-AUG-19
Trichloroethylene			<0.025		mg/L		0.025	07-AUG-19
Vinyl chloride			<0.050		mg/L		0.05	07-AUG-19
Surrogate: 1,4-Difluorobenzene			98.3		%		70-130	07-AUG-19
Surrogate: 4-Bromofluorobenzene			97.6		%		70-130	07-AUG-19
WG3124175-7 MB								
1,1-Dichloroethylene			<0.025		mg/L		0.025	07-AUG-19
1,2-Dichlorobenzene			<0.025		mg/L		0.025	07-AUG-19
1,2-Dichloroethane			<0.025		mg/L		0.025	07-AUG-19
1,4-Dichlorobenzene			<0.025		mg/L		0.025	07-AUG-19
Benzene			<0.025		mg/L		0.025	07-AUG-19
Carbon tetrachloride			<0.025		mg/L		0.025	07-AUG-19
Chlorobenzene			<0.025		mg/L		0.025	07-AUG-19
Chloroform			<0.10		mg/L		0.1	07-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-TCLP-WT	**Waste**							
Batch R4741573								
WG3124175-7 MB								
Dichloromethane			<0.50		mg/L		0.5	07-AUG-19
Methyl Ethyl Ketone			<1.0		mg/L		1	07-AUG-19
Tetrachloroethylene			<0.025		mg/L		0.025	07-AUG-19
Trichloroethylene			<0.025		mg/L		0.025	07-AUG-19
Vinyl chloride			<0.050		mg/L		0.05	07-AUG-19
Surrogate: 1,4-Difluorobenzene			98.4		%		70-130	07-AUG-19
Surrogate: 4-Bromofluorobenzene			97.2		%		70-130	07-AUG-19
WG3124175-9 MS		**WG3124175-8**						
1,1-Dichloroethylene			88.7		%		50-140	07-AUG-19
1,2-Dichlorobenzene			102.7		%		50-140	07-AUG-19
1,2-Dichloroethane			114.3		%		50-140	07-AUG-19
1,4-Dichlorobenzene			99.6		%		50-140	07-AUG-19
Benzene			103.7		%		50-140	07-AUG-19
Carbon tetrachloride			92.8		%		50-140	07-AUG-19
Chlorobenzene			100.8		%		50-140	07-AUG-19
Chloroform			104.9		%		50-140	07-AUG-19
Dichloromethane			103.8		%		50-140	07-AUG-19
Methyl Ethyl Ketone			132.1		%		50-140	07-AUG-19
Tetrachloroethylene			91.4		%		50-140	07-AUG-19
Trichloroethylene			98.2		%		50-140	07-AUG-19
Vinyl chloride			107.7		%		50-140	07-AUG-19

Quality Control Report

Workorder: L2319997 Report Date: 07-AUG-19

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

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
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.

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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2319997-COFC

COC Number 17 - 3107 2019

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	CH2M Hill/ Jacobs
Contact:	Victoria Peters
Phone:	519-579-3500 x73252
	Company address below will appear on the final report
Street:	72 Victoria Street South, Suite 300
City/Province:	Kitchener, Ontario
Postal Code:	N2G 4Y9
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	CH2M HILL
Contact:	Victoria Peters

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	as per quote
Email 2	
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Accounts Payable
Email 2	

Project Information	
ALS Account # / Quote #:	Q71421
Job #:	CE751900.A CS EV.19 19-01
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2319997

ALS Contact: | Sampler: V. Peters

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply	
Priority (Business Days): 4 day [P4-20%] ☐	Emergency: 1 Business day [E1 - 100%] ☐
3 day [P3-25%] ☐	Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
2 day [P2-50%] ☐	
Date and Time Required for all E&P TATs:	
For tests that can not be performed according to the service level selected, you will be contacted.	

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals (O. Reg. 153/04)	Inorganics (Free Cyanide, pH, EC and SAR)	PHCs F1-F4 inc. BTEX	PAHs	VOCs	Dioxins/Furans	PCBs	ABNs	HOC	Grain Size Analysis	TCLP				SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	TCLP COMP-O-6'6	30-07-19	17:30	soil											X						6
				soil																	
				soil																	
				soil																	
				soil																	
				soil																	
				soil																	
				soil																	
				soil																	
				soil																	
				soil																	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	Ontario Regulation 153/04 - April 15, 2011 Standards
Are samples for human consumption/ use? ☐ YES ☑ NO	TCLP Parameters Perfins Contact Michael Shirey

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☑ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6.2			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Vicki Peters	Date: 2019/7/31	Time: 10:15	Received by:	Date:	Time:	Received by:	Date: 31 July 19	Time: 10:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

CH2M HILL Canada Ltd.
ATTN: VICTORIA PETERS
245 CONSUMERS ROAD
SUITE 400
TORONTO ON M2J 1R3

Date Received: 31-JUL-19
Report Date: 26-SEP-19 11:36 (MT)
Version: DRAFT REV. 2

Client Phone: 416-499-9000

Certificate of Analysis

Lab Work Order #: L2320007

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV.19. 19-01
C of C Numbers: 17-20190731
Legal Site Desc:

Comments: ADDITIONAL 09-AUG-19 09:52

Mathy Mahadeva
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2320007-1 BH204 - 2.5-3.5'							
Sampled By: CLIENT on 30-JUL-19 @ 11:00							
Matrix: SOIL							
Physical Tests							
Conductivity	0.610		0.0040	mS/cm		08-AUG-19	R4743528
% Moisture	16.4		0.10	%	01-AUG-19	02-AUG-19	R4737126
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	02-AUG-19	06-AUG-19	R4739965
Organic / Inorganic Carbon							
Fraction Organic Carbon	0.0086		0.0010		07-AUG-19	07-AUG-19	R4742737
Fraction Organic Carbon	0.0086		0.0010		07-AUG-19	07-AUG-19	R4742737
Fraction Organic Carbon	0.0089		0.0010		07-AUG-19	07-AUG-19	R4742737
Average Fraction Organic Carbon	0.0087		0.0010		07-AUG-19	07-AUG-19	R4742737
Total Organic Carbon	0.86		0.10	%	07-AUG-19	07-AUG-19	R4742737
Total Organic Carbon	0.86		0.10	%	07-AUG-19	07-AUG-19	R4742737
Total Organic Carbon	0.89		0.10	%	07-AUG-19	07-AUG-19	R4742737
Saturated Paste Extractables							
SAR	11.1		0.10	SAR		08-AUG-19	R4743431
Calcium (Ca)	7.86		0.50	mg/L		08-AUG-19	R4743431
Magnesium (Mg)	1.82		0.50	mg/L		08-AUG-19	R4743431
Sodium (Na)	133		0.50	mg/L		08-AUG-19	R4743431
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Arsenic (As)	3.3		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Barium (Ba)	54.3		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Beryllium (Be)	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4743729
Boron (B)	<5.0		5.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Boron (B), Hot Water Ext.	0.46		0.10	ug/g	08-AUG-19	08-AUG-19	R4743351
Cadmium (Cd)	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4743729
Chromium (Cr)	15.2		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Cobalt (Co)	4.8		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Copper (Cu)	9.7		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Lead (Pb)	25.3		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Mercury (Hg)	0.0848		0.0050	ug/g	07-AUG-19	08-AUG-19	R4743675
Molybdenum (Mo)	<1.0		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Nickel (Ni)	8.6		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Selenium (Se)	<1.0		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Silver (Ag)	<0.20		0.20	ug/g	07-AUG-19	08-AUG-19	R4743729
Thallium (Tl)	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4743729
Uranium (U)	<1.0		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Vanadium (V)	32.8		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Zinc (Zn)	73.6		5.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Speciated Metals							
Chromium, Hexavalent	0.36		0.20	ug/g	01-AUG-19	06-AUG-19	R4739767
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4742707
Benzene	<0.0068		0.0068	ug/g	07-AUG-19	08-AUG-19	R4742707

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2320007-1 BH204 - 2.5-3.5'							
Sampled By: CLIENT on 30-JUL-19 @ 11:00							
Matrix: SOIL							
Volatile Organic Compounds							
Bromodichloromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Bromoform	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Bromomethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Carbon tetrachloride	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Chlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Dibromochloromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Chloroform	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dibromoethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dichlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,3-Dichlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,4-Dichlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Dichlorodifluoromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1-Dichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1-Dichloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Methylene Chloride	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dichloropropane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	07-AUG-19	08-AUG-19	R4742707
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	07-AUG-19	08-AUG-19	R4742707
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		08-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	07-AUG-19	08-AUG-19	R4742707
n-Hexane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Methyl Ethyl Ketone	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4742707
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4742707
MTBE	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Styrene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Tetrachloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Toluene	<0.080		0.080	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,1-Trichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,2-Trichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Trichloroethylene	<0.010		0.010	ug/g	07-AUG-19	08-AUG-19	R4742707
Trichlorofluoromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Vinyl chloride	<0.020		0.020	ug/g	07-AUG-19	08-AUG-19	R4742707
o-Xylene	<0.020		0.020	ug/g	07-AUG-19	08-AUG-19	R4742707
m+p-Xylenes	<0.030		0.030	ug/g	07-AUG-19	08-AUG-19	R4742707
Xylenes (Total)	<0.050		0.050	ug/g		08-AUG-19	
Surrogate: 4-Bromofluorobenzene	90.1		50-140	%	07-AUG-19	08-AUG-19	R4742707

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2320007-1 BH204 - 2.5-3.5'							
Sampled By: CLIENT on 30-JUL-19 @ 11:00							
Matrix: SOIL							
Volatile Organic Compounds							
Surrogate: 1,4-Difluorobenzene	100.1		50-140	%	07-AUG-19	08-AUG-19	R4742707
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	07-AUG-19	08-AUG-19	R4742707
F1-BTEX	<5.0		5.0	ug/g		08-AUG-19	
F2 (C10-C16)	<10		10	ug/g	03-AUG-19	06-AUG-19	R4742615
F2-Naphth	<10		10	ug/g		08-AUG-19	
F3 (C16-C34)	<50		50	ug/g	03-AUG-19	06-AUG-19	R4742615
F3-PAH	<50		50	ug/g		08-AUG-19	
F4 (C34-C50)	<50		50	ug/g	03-AUG-19	06-AUG-19	R4742615
Total Hydrocarbons (C6-C50)	<72		72	ug/g		08-AUG-19	
Chrom. to baseline at nC50	YES				03-AUG-19	06-AUG-19	R4742615
Surrogate: 2-Bromobenzotrifluoride	92.8		60-140	%	03-AUG-19	06-AUG-19	R4742615
Surrogate: 3,4-Dichlorotoluene	84.6		60-140	%	07-AUG-19	08-AUG-19	R4742707
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Acenaphthylene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Anthracene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(a)anthracene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(a)pyrene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(b)fluoranthene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(k)fluoranthene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Chrysene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Fluoranthene	0.063		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Fluorene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		07-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	03-AUG-19	07-AUG-19	R4742241
2-Methylnaphthalene	<0.030		0.030	ug/g	03-AUG-19	07-AUG-19	R4742241
Naphthalene	<0.013		0.013	ug/g	03-AUG-19	07-AUG-19	R4742241
Phenanthrene	<0.046		0.046	ug/g	03-AUG-19	07-AUG-19	R4742241
Pyrene	0.057		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Surrogate: 2-Fluorobiphenyl	101.9		50-140	%	03-AUG-19	07-AUG-19	R4742241
Surrogate: p-Terphenyl d14	87.8		50-140	%	03-AUG-19	07-AUG-19	R4742241
L2320007-2 MW106 -0.5-1.5'							
Sampled By: CLIENT on 30-JUL-19 @ 15:30							
Matrix: SOIL							
Physical Tests							
Conductivity	0.615		0.0040	mS/cm		08-AUG-19	R4743528
% Moisture	10.3		0.10	%	01-AUG-19	02-AUG-19	R4737126
Moisture	9.26		0.25	%		12-AUG-19	R4749089

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2320007-2 MW106 -0.5-1.5'							
Sampled By: CLIENT on 30-JUL-19 @ 15:30							
Matrix: SOIL							
Physical Tests							
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	02-AUG-19	06-AUG-19	R4739965
Saturated Paste Extractables							
SAR	13.9		0.10	SAR		08-AUG-19	R4743431
Calcium (Ca)	5.09		0.50	mg/L		08-AUG-19	R4743431
Magnesium (Mg)	0.67		0.50	mg/L		08-AUG-19	R4743431
Sodium (Na)	126		0.50	mg/L		08-AUG-19	R4743431
Metals							
Antimony (Sb)	2.7		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Arsenic (As)	7.6		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Barium (Ba)	118		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Beryllium (Be)	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4743729
Boron (B)	5.6		5.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Boron (B), Hot Water Ext.	0.34		0.10	ug/g	08-AUG-19	08-AUG-19	R4743351
Cadmium (Cd)	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4743729
Chromium (Cr)	17.5		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Cobalt (Co)	4.8		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Copper (Cu)	81.5		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Lead (Pb)	383		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Mercury (Hg)	18.5	DLHC	5.0	ug/g	07-AUG-19	08-AUG-19	R4743675
Molybdenum (Mo)	<1.0		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Nickel (Ni)	12.4		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Selenium (Se)	<1.0		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Silver (Ag)	14.1		0.20	ug/g	07-AUG-19	08-AUG-19	R4743729
Thallium (Tl)	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4743729
Uranium (U)	<1.0		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Vanadium (V)	22.9		1.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Zinc (Zn)	215		5.0	ug/g	07-AUG-19	08-AUG-19	R4743729
Speciated Metals							
Chromium, Hexavalent	0.23		0.20	ug/g	02-AUG-19	06-AUG-19	R4739772
Methylmercury (as MeHg)	0.00261		0.00050	mg/kg	19-AUG-19	27-AUG-19	R4767684
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4742707
Benzene	<0.0068		0.0068	ug/g	07-AUG-19	08-AUG-19	R4742707
Bromodichloromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Bromoform	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Bromomethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Carbon tetrachloride	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Chlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Dibromochloromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Chloroform	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dibromoethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2320007-2 MW106 -0.5-1.5'							
Sampled By: CLIENT on 30-JUL-19 @ 15:30							
Matrix: SOIL							
Volatile Organic Compounds							
1,2-Dichlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,3-Dichlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,4-Dichlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Dichlorodifluoromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1-Dichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1-Dichloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Methylene Chloride	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dichloropropane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	07-AUG-19	08-AUG-19	R4742707
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	07-AUG-19	08-AUG-19	R4742707
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		08-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	07-AUG-19	08-AUG-19	R4742707
n-Hexane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Methyl Ethyl Ketone	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4742707
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4742707
MTBE	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Styrene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Tetrachloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Toluene	<0.080		0.080	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,1-Trichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,2-Trichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Trichloroethylene	<0.010		0.010	ug/g	07-AUG-19	08-AUG-19	R4742707
Trichlorofluoromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Vinyl chloride	<0.020		0.020	ug/g	07-AUG-19	08-AUG-19	R4742707
o-Xylene	0.024		0.020	ug/g	07-AUG-19	08-AUG-19	R4742707
m+p-Xylenes	<0.030		0.030	ug/g	07-AUG-19	08-AUG-19	R4742707
Xylenes (Total)	<0.050		0.050	ug/g		08-AUG-19	
Surrogate: 4-Bromofluorobenzene	90.0		50-140	%	07-AUG-19	08-AUG-19	R4742707
Surrogate: 1,4-Difluorobenzene	104.9		50-140	%	07-AUG-19	08-AUG-19	R4742707
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	07-AUG-19	08-AUG-19	R4742707
F1-BTEX	<5.0		5.0	ug/g		08-AUG-19	
F2 (C10-C16)	21	DLM	20	ug/g	03-AUG-19	06-AUG-19	R4742615
F2-Naphth	21		20	ug/g		08-AUG-19	
F3 (C16-C34)	1380	DLM	100	ug/g	03-AUG-19	06-AUG-19	R4742615
F3-PAH	1340		100	ug/g		08-AUG-19	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2320007-2 MW106 -0.5-1.5'							
Sampled By: CLIENT on 30-JUL-19 @ 15:30							
Matrix: SOIL							
Hydrocarbons							
F4 (C34-C50)	560	DLM	100	ug/g	03-AUG-19	06-AUG-19	R4742615
F4G-SG (GHH-Silica)	1360		250	ug/g	05-AUG-19	05-AUG-19	R4743277
Total Hydrocarbons (C6-C50)	1960		140	ug/g		08-AUG-19	
Chrom. to baseline at nC50	NO				03-AUG-19	06-AUG-19	R4742615
Surrogate: 2-Bromobenzotrifluoride	79.3		60-140	%	03-AUG-19	06-AUG-19	R4742615
Surrogate: 3,4-Dichlorotoluene	62.9		60-140	%	07-AUG-19	08-AUG-19	R4742707
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Acenaphthylene	2.00		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Anthracene	0.666		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(a)anthracene	3.32	R	0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(a)pyrene	7.70		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(b)fluoranthene	10.1		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(g,h,i)perylene	11.1		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Benzo(k)fluoranthene	2.98		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Chrysene	3.54		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Dibenzo(ah)anthracene	2.02		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Fluoranthene	4.73		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Fluorene	0.101		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Indeno(1,2,3-cd)pyrene	8.67		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
1+2-Methylnaphthalenes	0.146		0.042	ug/g		07-AUG-19	
1-Methylnaphthalene	0.068		0.030	ug/g	03-AUG-19	07-AUG-19	R4742241
2-Methylnaphthalene	0.078		0.030	ug/g	03-AUG-19	07-AUG-19	R4742241
Naphthalene	0.104		0.013	ug/g	03-AUG-19	07-AUG-19	R4742241
Phenanthrene	1.25		0.046	ug/g	03-AUG-19	07-AUG-19	R4742241
Pyrene	4.50		0.050	ug/g	03-AUG-19	07-AUG-19	R4742241
Surrogate: 2-Fluorobiphenyl	101.8		50-140	%	03-AUG-19	07-AUG-19	R4742241
Surrogate: p-Terphenyl d14	92.0		50-140	%	03-AUG-19	07-AUG-19	R4742241
L2320007-3 MW106 - 2-3'							
Sampled By: CLIENT on 30-JUL-19 @ 15:45							
Matrix: SOIL							
Physical Tests							
% Moisture	7.91		0.10	%	10-AUG-19	10-AUG-19	R4746045
Moisture	8.23		0.25	%		12-AUG-19	R4749089
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Arsenic (As)	2.7		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Barium (Ba)	21.1		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Beryllium (Be)	<0.50		0.50	ug/g	15-AUG-19	16-AUG-19	R4757782
Boron (B)	5.1		5.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Boron (B), Hot Water Ext.	0.11		0.10	ug/g	15-AUG-19	16-AUG-19	R4757452
Cadmium (Cd)	<0.50		0.50	ug/g	15-AUG-19	16-AUG-19	R4757782

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2320007-3 MW106 - 2-3'							
Sampled By: CLIENT on 30-JUL-19 @ 15:45							
Matrix: SOIL							
Metals							
Chromium (Cr)	10.5		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Cobalt (Co)	3.6		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Copper (Cu)	9.0		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Lead (Pb)	49.5		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Mercury (Hg)	0.187		0.0050	ug/g	15-AUG-19	16-AUG-19	R4757522
Molybdenum (Mo)	<1.0		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Nickel (Ni)	7.6		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Selenium (Se)	<1.0		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Silver (Ag)	<0.20		0.20	ug/g	15-AUG-19	16-AUG-19	R4757782
Thallium (Tl)	<0.50		0.50	ug/g	15-AUG-19	16-AUG-19	R4757782
Uranium (U)	<1.0		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Vanadium (V)	22.9		1.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Zinc (Zn)	151		5.0	ug/g	15-AUG-19	16-AUG-19	R4757782
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	12-AUG-19	14-AUG-19	R4754470
Methylmercury (as MeHg)	<0.000050		0.000050	mg/kg	19-AUG-19	27-AUG-19	R4767684
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	13-AUG-19	14-AUG-19	R4753120
F2 (C10-C16)	<10		10	ug/g	10-AUG-19	12-AUG-19	R4749570
F2-Naphth	<10		10	ug/g		14-AUG-19	
F3 (C16-C34)	<50		50	ug/g	10-AUG-19	12-AUG-19	R4749570
F3-PAH	<50		50	ug/g		14-AUG-19	
F4 (C34-C50)	<50		50	ug/g	10-AUG-19	12-AUG-19	R4749570
Total Hydrocarbons (C6-C50)	<72		72	ug/g		14-AUG-19	
Chrom. to baseline at nC50	YES			ppm	10-AUG-19	12-AUG-19	R4749570
Surrogate: 2-Bromobenzotrifluoride	82.6		60-140	%	10-AUG-19	12-AUG-19	R4749570
Surrogate: 3,4-Dichlorotoluene	95.0		60-140	%	13-AUG-19	14-AUG-19	R4753120
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Acenaphthylene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Anthracene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Benzo(a)anthracene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Benzo(a)pyrene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Benzo(b)fluoranthene	0.061	R	0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Benzo(k)fluoranthene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Chrysene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Fluoranthene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Fluorene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		13-AUG-19	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2320007-3 MW106 - 2-3' Sampled By: CLIENT on 30-JUL-19 @ 15:45 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
1-Methylnaphthalene	<0.030		0.030	ug/g	10-AUG-19	13-AUG-19	R4751191
2-Methylnaphthalene	<0.030		0.030	ug/g	10-AUG-19	13-AUG-19	R4751191
Naphthalene	<0.013		0.013	ug/g	10-AUG-19	13-AUG-19	R4751191
Phenanthrene	<0.046		0.046	ug/g	10-AUG-19	13-AUG-19	R4751191
Pyrene	<0.050		0.050	ug/g	10-AUG-19	13-AUG-19	R4751191
Surrogate: 2-Fluorobiphenyl	94.6		50-140	%	10-AUG-19	13-AUG-19	R4751191
Surrogate: p-Terphenyl d14	80.3		50-140	%	10-AUG-19	13-AUG-19	R4751191
L2320007-4 TB-002 Sampled By: CLIENT on 30-JUL-19 Matrix: SOIL							
Physical Tests							
% Moisture	<0.10		0.10	%	01-AUG-19	02-AUG-19	R4737126
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4742707
Benzene	<0.0068		0.0068	ug/g	07-AUG-19	08-AUG-19	R4742707
Bromodichloromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Bromoform	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Bromomethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Carbon tetrachloride	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Chlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Dibromochloromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Chloroform	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dibromoethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dichlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,3-Dichlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,4-Dichlorobenzene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Dichlorodifluoromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1-Dichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1-Dichloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Methylene Chloride	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,2-Dichloropropane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	07-AUG-19	08-AUG-19	R4742707
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	07-AUG-19	08-AUG-19	R4742707
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		08-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	07-AUG-19	08-AUG-19	R4742707
n-Hexane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Methyl Ethyl Ketone	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4742707
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	07-AUG-19	08-AUG-19	R4742707
MTBE	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2320007-4 TB-002 Sampled By: CLIENT on 30-JUL-19 Matrix: SOIL							
Volatile Organic Compounds							
Styrene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Tetrachloroethylene	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Toluene	<0.080		0.080	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,1-Trichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
1,1,2-Trichloroethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Trichloroethylene	<0.010		0.010	ug/g	07-AUG-19	08-AUG-19	R4742707
Trichlorofluoromethane	<0.050		0.050	ug/g	07-AUG-19	08-AUG-19	R4742707
Vinyl chloride	<0.020		0.020	ug/g	07-AUG-19	08-AUG-19	R4742707
o-Xylene	<0.020		0.020	ug/g	07-AUG-19	08-AUG-19	R4742707
m+p-Xylenes	<0.030		0.030	ug/g	07-AUG-19	08-AUG-19	R4742707
Xylenes (Total)	<0.050		0.050	ug/g		08-AUG-19	
Surrogate: 4-Bromofluorobenzene	100.4		50-140	%	07-AUG-19	08-AUG-19	R4742707
Surrogate: 1,4-Difluorobenzene	113.0		50-140	%	07-AUG-19	08-AUG-19	R4742707

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Laboratory Control Sample	Dichlorodifluoromethane	LCS-L	L2320007-1, -2, -4

Sample Parameter Qualifier key listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
R	The ion abundance ratio(s) did not meet the acceptance criteria. Value is an estimated maximum.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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.

Reference Information

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).

MEHG-GCAF-VA Soil Methylmercury in Soil by GCAFS DeWild et al. (2004)
This method follows procedures published by DeWild, Olund, Olsen and Tate (2004) for the US Geological Survey (Techniques and Methods 5A-7). Samples are leached with an acidic copper sulphate solution to solubilize methylmercury for inorganic complexes. The methylmercury is then extracted into dichloromethane and then an aliquot is back extracted into ultra-pure water. The extract is analyzed by aqueous phase ethylation, purge and trap, desorption and GC separation. The separated species are then pyrolized to elemental Hg and quantified by cold vapour atomic flourescence spectroscopy. Results are reported "as MeHg".

MET-200.2-CCMS-WT Soil Metals in Soil by CRC ICPMS EPA 200.2/6020A (mod)
Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT Soil ABN-Calculated Parameters SW846 8270

MOISTURE-VA Soil Moisture content CCME PHC in Soil - Tier 1 (mod)
This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of two hours.

MOISTURE-WT Soil % Moisture CCME PHC in Soil - Tier 1 (mod)

PAH-511-WT Soil PAH-O.Reg 153/04 (July 2011) SW846 3510/8270
A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample

Reference Information

with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

SAR-R511-WT	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 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).

TOC-R511-WT	Soil	TOC & FOC-O.Reg 153/04 (July 2011)	CARTER 21.3.2

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).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

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.

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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-20190731

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 weight of sample
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.

Quality Control Report

Workorder: L2320007 Report Date: 26-SEP-19

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4743351								
WG3126447-4 DUP		**L2321544-1**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	08-AUG-19
WG3126447-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			103.0		%		70-130	08-AUG-19
WG3126447-3 LCS								
Boron (B), Hot Water Ext.			97.6		%		70-130	08-AUG-19
WG3126447-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	08-AUG-19
Batch R4757452								
WG3133979-4 DUP		**L2325961-9**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	16-AUG-19
WG3133979-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			81.3		%		70-130	16-AUG-19
WG3133979-3 LCS								
Boron (B), Hot Water Ext.			93.4		%		70-130	16-AUG-19
WG3133979-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	16-AUG-19
CN-WAD-R511-WT	**Soil**							
Batch R4739965								
WG3122950-3 DUP		**L2319795-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	06-AUG-19
WG3122950-2 LCS								
Cyanide, Weak Acid Diss			97.6		%		80-120	06-AUG-19
WG3122950-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	06-AUG-19
WG3122950-4 MS		**L2319795-1**						
Cyanide, Weak Acid Diss			105.5		%		70-130	06-AUG-19
CR-CR6-IC-WT	**Soil**							
Batch R4739767								
WG3122095-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			88.1		%		70-130	06-AUG-19
WG3122095-3 DUP		**L2319795-1**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	06-AUG-19
WG3122095-2 LCS								
Chromium, Hexavalent			97.8		%		80-120	06-AUG-19
WG3122095-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	06-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT	**Soil**							
Batch R4739772								
WG3122358-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			108.8		%		70-130	06-AUG-19
WG3122358-3 DUP		**L2315407-11**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	06-AUG-19
WG3122358-2 LCS								
Chromium, Hexavalent			91.6		%		80-120	06-AUG-19
WG3122358-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	06-AUG-19
Batch R4754470								
WG3129667-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			87.6		%		70-130	14-AUG-19
WG3129667-3 DUP		**L2325466-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	14-AUG-19
WG3129667-2 LCS								
Chromium, Hexavalent			91.5		%		80-120	14-AUG-19
WG3129667-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	14-AUG-19
EC-WT	**Soil**							
Batch R4743528								
WG3126453-4 DUP		**WG3126453-3**						
Conductivity		0.0771	0.0807		mS/cm	4.6	20	08-AUG-19
WG3126453-2 IRM		**WT SAR3**						
Conductivity			86.0		%		70-130	08-AUG-19
WG3126846-1 LCS								
Conductivity			97.3		%		90-110	08-AUG-19
WG3126453-1 MB								
Conductivity			<0.0040		mS/cm		0.004	08-AUG-19
F1-HS-511-WT	**Soil**							
Batch R4742707								
WG3125362-4 DUP		**WG3125362-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	08-AUG-19
WG3125362-2 LCS								
F1 (C6-C10)			109.6		%		80-120	07-AUG-19
WG3125362-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	07-AUG-19
Surrogate: 3,4-Dichlorotoluene			90.1		%		60-140	07-AUG-19
WG3125362-6 MS		**L2320007-2**						

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4742707								
WG3125362-6 MS		**L2320007-2**						
F1 (C6-C10)			95.1		%		60-140	08-AUG-19
Batch R4753120								
WG3130953-4 DUP		**WG3130953-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	14-AUG-19
WG3130953-2 LCS								
F1 (C6-C10)			118.4		%		80-120	14-AUG-19
WG3130953-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	14-AUG-19
Surrogate: 3,4-Dichlorotoluene			107.6		%		60-140	14-AUG-19
WG3130953-6 MS		**L2325599-2**						
F1 (C6-C10)			96.1		%		60-140	14-AUG-19
F2-F4-511-WT	**Soil**							
Batch R4742615								
WG3123553-3 DUP		**WG3123553-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	06-AUG-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	06-AUG-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	06-AUG-19
WG3123553-2 LCS								
F2 (C10-C16)			106.4		%		80-120	06-AUG-19
F3 (C16-C34)			103.2		%		80-120	06-AUG-19
F4 (C34-C50)			109.8		%		80-120	06-AUG-19
WG3123553-1 MB								
F2 (C10-C16)			<10		ug/g		10	06-AUG-19
F3 (C16-C34)			<50		ug/g		50	06-AUG-19
F4 (C34-C50)			<50		ug/g		50	06-AUG-19
Surrogate: 2-Bromobenzotrifluoride			94.4		%		60-140	06-AUG-19
WG3123553-4 MS		**WG3123553-5**						
F2 (C10-C16)			103.2		%		60-140	06-AUG-19
F3 (C16-C34)			105.5		%		60-140	06-AUG-19
F4 (C34-C50)			104.4		%		60-140	06-AUG-19
Batch R4749570								
WG3129174-3 DUP		**WG3129174-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	12-AUG-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	12-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4749570								
WG3129174-3 DUP		**WG3129174-5**						
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	12-AUG-19
WG3129174-2 LCS								
F2 (C10-C16)			102.8		%		80-120	12-AUG-19
F3 (C16-C34)			104.7		%		80-120	12-AUG-19
F4 (C34-C50)			99.8		%		80-120	12-AUG-19
WG3129174-1 MB								
F2 (C10-C16)			<10		ug/g		10	12-AUG-19
F3 (C16-C34)			<50		ug/g		50	12-AUG-19
F4 (C34-C50)			<50		ug/g		50	12-AUG-19
Surrogate: 2-Bromobenzotrifluoride			76.6		%		60-140	12-AUG-19
WG3129174-4 MS		**WG3129174-5**						
F2 (C10-C16)			113.0		%		60-140	12-AUG-19
F3 (C16-C34)			120.4		%		60-140	12-AUG-19
F4 (C34-C50)			114.1		%		60-140	12-AUG-19
F4G-ADD-511-WT	**Soil**							
Batch R4743277								
WG3126806-2 LCS								
F4G-SG (GHH-Silica)			79.3		%		60-140	05-AUG-19
WG3126806-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	05-AUG-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4743675								
WG3126195-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			94.4		%		70-130	08-AUG-19
WG3126195-6 DUP		**WG3126195-5**						
Mercury (Hg)		0.0065	0.0063		ug/g	2.0	40	08-AUG-19
WG3126195-3 LCS								
Mercury (Hg)			104.5		%		80-120	08-AUG-19
WG3126195-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	08-AUG-19
Batch R4757522								
WG3134180-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			95.6		%		70-130	16-AUG-19
WG3134180-6 DUP		**WG3134180-5**						
Mercury (Hg)		0.0267	0.0258		ug/g	3.3	40	16-AUG-19
WG3134180-3 LCS								

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R4757522								
WG3134180-3 LCS								
Mercury (Hg)			117.5		%		80-120	16-AUG-19
WG3134180-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	16-AUG-19
MEHG-GCAF-VA	**Soil**							
Batch R4767684								
WG3136906-2 CRM		**SQC-MEHG-RM**						
Methylmercury (as MeHg)			89.4		%		70-130	29-AUG-19
WG3136906-4 DUP		**L2320007-3**						
Methylmercury (as MeHg)		<0.000050	<0.000050	RPD-NA	mg/kg	N/A	30	27-AUG-19
WG3136906-3 LCS								
Methylmercury (as MeHg)			87.1		%		70-130	23-AUG-19
WG3136906-1 MB								
Methylmercury (as MeHg)			<0.000050		mg/kg wwt		0.00005	23-AUG-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4743729								
WG3126195-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			99.6		%		70-130	08-AUG-19
Arsenic (As)			98.6		%		70-130	08-AUG-19
Barium (Ba)			92.5		%		70-130	08-AUG-19
Beryllium (Be)			102.6		%		70-130	08-AUG-19
Boron (B)			3.1		mg/kg		0-8.2	08-AUG-19
Cadmium (Cd)			97.6		%		70-130	08-AUG-19
Chromium (Cr)			99.3		%		70-130	08-AUG-19
Cobalt (Co)			98.2		%		70-130	08-AUG-19
Copper (Cu)			99.5		%		70-130	08-AUG-19
Lead (Pb)			96.7		%		70-130	08-AUG-19
Molybdenum (Mo)			101.3		%		70-130	08-AUG-19
Nickel (Ni)			98.2		%		70-130	08-AUG-19
Selenium (Se)			0.30		mg/kg		0.11-0.51	08-AUG-19
Silver (Ag)			0.23		mg/kg		0.13-0.33	08-AUG-19
Thallium (Tl)			0.118		mg/kg		0.077-0.18	08-AUG-19
Uranium (U)			97.6		%		70-130	08-AUG-19
Vanadium (V)			99.0		%		70-130	08-AUG-19
Zinc (Zn)			96.0		%		70-130	08-AUG-19
WG3126195-6 DUP		**WG3126195-5**						

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4743729								
WG3126195-6 DUP		**WG3126195-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	08-AUG-19
Arsenic (As)		1.70	1.62		ug/g	5.2	30	08-AUG-19
Barium (Ba)		23.9	23.4		ug/g	2.3	40	08-AUG-19
Beryllium (Be)		0.17	0.19		ug/g	8.1	30	08-AUG-19
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	08-AUG-19
Cadmium (Cd)		0.060	0.065		ug/g	8.0	30	08-AUG-19
Chromium (Cr)		6.88	7.56		ug/g	9.4	30	08-AUG-19
Cobalt (Co)		3.12	3.13		ug/g	0.1	30	08-AUG-19
Copper (Cu)		7.01	6.98		ug/g	0.4	30	08-AUG-19
Lead (Pb)		4.94	4.60		ug/g	7.1	40	08-AUG-19
Molybdenum (Mo)		0.23	0.22		ug/g	5.6	40	08-AUG-19
Nickel (Ni)		6.12	6.20		ug/g	1.2	30	08-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	08-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	08-AUG-19
Thallium (Tl)		<0.050	<0.050	RPD-NA	ug/g	N/A	30	08-AUG-19
Uranium (U)		0.313	0.317		ug/g	1.3	30	08-AUG-19
Vanadium (V)		13.8	16.0		ug/g	15	30	08-AUG-19
Zinc (Zn)		20.5	21.5		ug/g	5.0	30	08-AUG-19
WG3126195-4 LCS								
Antimony (Sb)			97.9		%		80-120	08-AUG-19
Arsenic (As)			95.1		%		80-120	08-AUG-19
Barium (Ba)			97.2		%		80-120	08-AUG-19
Beryllium (Be)			94.2		%		80-120	08-AUG-19
Boron (B)			84.0		%		80-120	08-AUG-19
Cadmium (Cd)			95.4		%		80-120	08-AUG-19
Chromium (Cr)			92.6		%		80-120	08-AUG-19
Cobalt (Co)			93.4		%		80-120	08-AUG-19
Copper (Cu)			92.8		%		80-120	08-AUG-19
Lead (Pb)			92.4		%		80-120	08-AUG-19
Molybdenum (Mo)			96.8		%		80-120	08-AUG-19
Nickel (Ni)			92.1		%		80-120	08-AUG-19
Selenium (Se)			95.8		%		80-120	08-AUG-19
Silver (Ag)			94.9		%		80-120	08-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4743729								
WG3126195-4 LCS								
Thallium (Tl)			90.7		%		80-120	08-AUG-19
Uranium (U)			94.3		%		80-120	08-AUG-19
Vanadium (V)			95.5		%		80-120	08-AUG-19
Zinc (Zn)			90.8		%		80-120	08-AUG-19
WG3126195-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	08-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	08-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	08-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	08-AUG-19
Boron (B)			<5.0		mg/kg		5	08-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	08-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	08-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	08-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	08-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	08-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	08-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	08-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	08-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	08-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	08-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	08-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	08-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	08-AUG-19
Batch R4757782								
WG3134180-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			92.9		%		70-130	16-AUG-19
Arsenic (As)			96.4		%		70-130	16-AUG-19
Barium (Ba)			95.1		%		70-130	16-AUG-19
Beryllium (Be)			91.4		%		70-130	16-AUG-19
Boron (B)			2.9		mg/kg		0-8.2	16-AUG-19
Cadmium (Cd)			99.6		%		70-130	16-AUG-19
Chromium (Cr)			101.2		%		70-130	16-AUG-19
Cobalt (Co)			99.1		%		70-130	16-AUG-19
Copper (Cu)			99.6		%		70-130	16-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4757782								
WG3134180-2 CRM		**WT-CANMET-TILL1**						
Lead (Pb)			92.5		%		70-130	16-AUG-19
Molybdenum (Mo)			97.3		%		70-130	16-AUG-19
Nickel (Ni)			99.2		%		70-130	16-AUG-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	16-AUG-19
Silver (Ag)			0.21		mg/kg		0.13-0.33	16-AUG-19
Thallium (Tl)			0.115		mg/kg		0.077-0.18	16-AUG-19
Uranium (U)			92.4		%		70-130	16-AUG-19
Vanadium (V)			100.4		%		70-130	16-AUG-19
Zinc (Zn)			91.7		%		70-130	16-AUG-19
WG3134180-6 DUP		**WG3134180-5**						
Antimony (Sb)		0.11	0.10		ug/g	11	30	16-AUG-19
Arsenic (As)		3.03	2.71		ug/g	11	30	16-AUG-19
Barium (Ba)		88.5	79.0		ug/g	11	40	16-AUG-19
Beryllium (Be)		0.56	0.50		ug/g	11	30	16-AUG-19
Boron (B)		9.2	8.2		ug/g	11	30	16-AUG-19
Cadmium (Cd)		0.099	0.089		ug/g	11	30	16-AUG-19
Chromium (Cr)		23.3	20.8		ug/g	11	30	16-AUG-19
Cobalt (Co)		13.6	12.2		ug/g	11	30	16-AUG-19
Copper (Cu)		16.1	14.4		ug/g	11	30	16-AUG-19
Lead (Pb)		9.60	8.57		ug/g	11	40	16-AUG-19
Molybdenum (Mo)		0.30	0.27		ug/g	11	40	16-AUG-19
Nickel (Ni)		17.1	15.3		ug/g	11	30	16-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	16-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	16-AUG-19
Thallium (Tl)		0.128	0.114		ug/g	11	30	16-AUG-19
Uranium (U)		0.503	0.449		ug/g	11	30	16-AUG-19
Vanadium (V)		35.1	31.3		ug/g	11	30	16-AUG-19
Zinc (Zn)		43.3	38.6		ug/g	11	30	16-AUG-19
WG3134180-4 LCS								
Antimony (Sb)			102.0		%		80-120	16-AUG-19
Arsenic (As)			99.8		%		80-120	16-AUG-19
Barium (Ba)			98.3		%		80-120	16-AUG-19
Beryllium (Be)			98.0		%		80-120	16-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4757782								
WG3134180-4 LCS								
Boron (B)			92.2		%		80-120	16-AUG-19
Cadmium (Cd)			98.9		%		80-120	16-AUG-19
Chromium (Cr)			98.5		%		80-120	16-AUG-19
Cobalt (Co)			96.3		%		80-120	16-AUG-19
Copper (Cu)			96.8		%		80-120	16-AUG-19
Lead (Pb)			96.2		%		80-120	16-AUG-19
Molybdenum (Mo)			98.6		%		80-120	16-AUG-19
Nickel (Ni)			96.5		%		80-120	16-AUG-19
Selenium (Se)			104.3		%		80-120	16-AUG-19
Silver (Ag)			83.3		%		80-120	16-AUG-19
Thallium (Tl)			97.6		%		80-120	16-AUG-19
Uranium (U)			92.9		%		80-120	16-AUG-19
Vanadium (V)			99.6		%		80-120	16-AUG-19
Zinc (Zn)			95.0		%		80-120	16-AUG-19
WG3134180-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	16-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	16-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	16-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	16-AUG-19
Boron (B)			<5.0		mg/kg		5	16-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	16-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	16-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	16-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	16-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	16-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	16-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	16-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	16-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	16-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	16-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	16-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	16-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	16-AUG-19
MOISTURE-VA	**Soil**							

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-VA	**Soil**							
Batch R4749089								
WG3130688-3 DUP		**L2320007-2**						
Moisture		9.26	9.07		%	2.1	20	12-AUG-19
WG3130688-2 LCS								
Moisture			101.3		%		90-110	12-AUG-19
WG3130688-1 MB								
Moisture			<0.25		%		0.25	12-AUG-19
MOISTURE-WT	**Soil**							
Batch R4737126								
WG3122283-3 DUP		**L2321698-2**						
% Moisture		2.96	3.10		%	4.6	20	02-AUG-19
WG3122283-2 LCS								
% Moisture			100.8		%		90-110	02-AUG-19
WG3122283-1 MB								
% Moisture			<0.10		%		0.1	02-AUG-19
Batch R4746045								
WG3129085-3 DUP		**L2320007-3**						
% Moisture		7.91	8.02		%	1.3	20	10-AUG-19
WG3129085-2 LCS								
% Moisture			100.8		%		90-110	10-AUG-19
WG3129085-1 MB								
% Moisture			<0.10		%		0.1	10-AUG-19
PAH-511-WT	**Soil**							
Batch R4742241								
WG3123534-3 DUP		**WG3123534-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	07-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	07-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4742241								
WG3123534-3 DUP		**WG3123534-5**						
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	07-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	07-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
WG3123534-2 LCS								
1-Methylnaphthalene			98.2		%		50-140	07-AUG-19
2-Methylnaphthalene			93.1		%		50-140	07-AUG-19
Acenaphthene			99.0		%		50-140	07-AUG-19
Acenaphthylene			99.3		%		50-140	07-AUG-19
Anthracene			96.9		%		50-140	07-AUG-19
Benzo(a)anthracene			97.2		%		50-140	07-AUG-19
Benzo(a)pyrene			95.4		%		50-140	07-AUG-19
Benzo(b)fluoranthene			104.8		%		50-140	07-AUG-19
Benzo(g,h,i)perylene			100.8		%		50-140	07-AUG-19
Benzo(k)fluoranthene			88.9		%		50-140	07-AUG-19
Chrysene			100.3		%		50-140	07-AUG-19
Dibenzo(ah)anthracene			101.9		%		50-140	07-AUG-19
Fluoranthene			95.9		%		50-140	07-AUG-19
Fluorene			97.1		%		50-140	07-AUG-19
Indeno(1,2,3-cd)pyrene			98.0		%		50-140	07-AUG-19
Naphthalene			96.3		%		50-140	07-AUG-19
Phenanthrene			98.4		%		50-140	07-AUG-19
Pyrene			95.3		%		50-140	07-AUG-19
WG3123534-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	07-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	07-AUG-19
Acenaphthene			<0.050		ug/g		0.05	07-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	07-AUG-19
Anthracene			<0.050		ug/g		0.05	07-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	07-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	07-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	07-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4742241								
WG3123534-1 MB								
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	07-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	07-AUG-19
Chrysene			<0.050		ug/g		0.05	07-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	07-AUG-19
Fluoranthene			<0.050		ug/g		0.05	07-AUG-19
Fluorene			<0.050		ug/g		0.05	07-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	07-AUG-19
Naphthalene			<0.013		ug/g		0.013	07-AUG-19
Phenanthrene			<0.046		ug/g		0.046	07-AUG-19
Pyrene			<0.050		ug/g		0.05	07-AUG-19
Surrogate: 2-Fluorobiphenyl			96.0		%		50-140	07-AUG-19
Surrogate: p-Terphenyl d14			81.6		%		50-140	07-AUG-19
WG3123534-4 MS		**WG3123534-5**						
1-Methylnaphthalene			94.4		%		50-140	07-AUG-19
2-Methylnaphthalene			89.6		%		50-140	07-AUG-19
Acenaphthene			94.7		%		50-140	07-AUG-19
Acenaphthylene			94.0		%		50-140	07-AUG-19
Anthracene			93.2		%		50-140	07-AUG-19
Benzo(a)anthracene			92.2		%		50-140	07-AUG-19
Benzo(a)pyrene			91.2		%		50-140	07-AUG-19
Benzo(b)fluoranthene			96.5		%		50-140	07-AUG-19
Benzo(g,h,i)perylene			92.6		%		50-140	07-AUG-19
Benzo(k)fluoranthene			90.9		%		50-140	07-AUG-19
Chrysene			97.3		%		50-140	07-AUG-19
Dibenzo(ah)anthracene			93.9		%		50-140	07-AUG-19
Fluoranthene			91.6		%		50-140	07-AUG-19
Fluorene			92.1		%		50-140	07-AUG-19
Indeno(1,2,3-cd)pyrene			92.0		%		50-140	07-AUG-19
Naphthalene			93.2		%		50-140	07-AUG-19
Phenanthrene			95.4		%		50-140	07-AUG-19
Pyrene			91.1		%		50-140	07-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4751191								
WG3129231-33 DUP		**WG3129231-35**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	13-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	13-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Benzo(b)fluoranthene		0.061	0.055		ug/g	10	40	13-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	13-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	13-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	13-AUG-19
WG3129231-32 LCS								
1-Methylnaphthalene			103.8		%		50-140	13-AUG-19
2-Methylnaphthalene			97.8		%		50-140	13-AUG-19
Acenaphthene			104.9		%		50-140	13-AUG-19
Acenaphthylene			106.3		%		50-140	13-AUG-19
Anthracene			102.0		%		50-140	13-AUG-19
Benzo(a)anthracene			103.6		%		50-140	13-AUG-19
Benzo(a)pyrene			101.9		%		50-140	13-AUG-19
Benzo(b)fluoranthene			101.2		%		50-140	13-AUG-19
Benzo(g,h,i)perylene			81.8		%		50-140	13-AUG-19
Benzo(k)fluoranthene			110.3		%		50-140	13-AUG-19
Chrysene			111.9		%		50-140	13-AUG-19
Dibenzo(ah)anthracene			83.1		%		50-140	13-AUG-19
Fluoranthene			102.5		%		50-140	13-AUG-19
Fluorene			102.5		%		50-140	13-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4751191								
WG3129231-32 LCS								
Indeno(1,2,3-cd)pyrene			83.2		%		50-140	13-AUG-19
Naphthalene			101.3		%		50-140	13-AUG-19
Phenanthrene			105.9		%		50-140	13-AUG-19
Pyrene			102.5		%		50-140	13-AUG-19
WG3129231-31 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	13-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	13-AUG-19
Acenaphthene			<0.050		ug/g		0.05	13-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	13-AUG-19
Anthracene			<0.050		ug/g		0.05	13-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	13-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	13-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	13-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	13-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	13-AUG-19
Chrysene			<0.050		ug/g		0.05	13-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	13-AUG-19
Fluoranthene			<0.050		ug/g		0.05	13-AUG-19
Fluorene			<0.050		ug/g		0.05	13-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	13-AUG-19
Naphthalene			<0.013		ug/g		0.013	13-AUG-19
Phenanthrene			<0.046		ug/g		0.046	13-AUG-19
Pyrene			<0.050		ug/g		0.05	13-AUG-19
Surrogate: 2-Fluorobiphenyl			99.0		%		50-140	13-AUG-19
Surrogate: p-Terphenyl d14			83.9		%		50-140	13-AUG-19
WG3129231-34 MS		**WG3129231-35**						
1-Methylnaphthalene			99.4		%		50-140	13-AUG-19
2-Methylnaphthalene			93.9		%		50-140	13-AUG-19
Acenaphthene			101.1		%		50-140	13-AUG-19
Acenaphthylene			101.9		%		50-140	13-AUG-19
Anthracene			97.3		%		50-140	13-AUG-19
Benzo(a)anthracene			99.1		%		50-140	13-AUG-19
Benzo(a)pyrene			99.98		%		50-140	13-AUG-19
Benzo(b)fluoranthene			100.3		%		50-140	13-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4751191								
WG3129231-34 MS		**WG3129231-35**						
Benzo(g,h,i)perylene			81.9		%		50-140	13-AUG-19
Benzo(k)fluoranthene			106.2		%		50-140	13-AUG-19
Chrysene			106.2		%		50-140	13-AUG-19
Dibenzo(ah)anthracene			81.5		%		50-140	13-AUG-19
Fluoranthene			98.9		%		50-140	13-AUG-19
Fluorene			98.7		%		50-140	13-AUG-19
Indeno(1,2,3-cd)pyrene			87.1		%		50-140	13-AUG-19
Naphthalene			96.7		%		50-140	13-AUG-19
Phenanthrene			101.8		%		50-140	13-AUG-19
Pyrene			99.2		%		50-140	13-AUG-19
SAR-R511-WT	**Soil**							
Batch R4743431								
WG3126453-4 DUP		**WG3126453-3**						
Calcium (Ca)		7.00	6.80		mg/L	2.9	30	08-AUG-19
Sodium (Na)		4.43	4.24		mg/L	4.4	30	08-AUG-19
Magnesium (Mg)		<0.50	<0.50	RPD-NA	mg/L	N/A	30	08-AUG-19
WG3126453-2 IRM		**WT SAR3**						
Calcium (Ca)			81.5		%		70-130	08-AUG-19
Sodium (Na)			90.8		%		70-130	08-AUG-19
Magnesium (Mg)			83.9		%		70-130	08-AUG-19
WG3126453-5 LCS								
Calcium (Ca)			107.3		%		70-130	08-AUG-19
Sodium (Na)			100.8		%		70-130	08-AUG-19
Magnesium (Mg)			102.0		%		70-130	08-AUG-19
WG3126453-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	08-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	08-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	08-AUG-19
TOC-R511-WT	**Soil**							
Batch R4742737								
WG3125536-3 CRM		**WT-TOC-CRM**						
Total Organic Carbon			98.4		%		70-130	07-AUG-19
WG3125536-4 DUP		**L2320007-1**						
Total Organic Carbon		0.86	0.88		%	1.6	35	07-AUG-19
WG3125536-2 LCS								

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TOC-R511-WT	**Soil**							
Batch R4742737								
WG3125536-2 LCS								
Total Organic Carbon			102.1		%		80-120	07-AUG-19
Total Organic Carbon			102.1		%		80-120	07-AUG-19
Total Organic Carbon			102.1		%		80-120	07-AUG-19
WG3125536-1 MB								
Total Organic Carbon			<0.10		%		0.1	07-AUG-19
VOC-511-HS-WT	**Soil**							
Batch R4742707								
WG3125362-4 DUP		**WG3125362-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	08-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	08-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	08-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	08-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4742707								
WG3125362-4 DUP		**WG3125362-3**						
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	08-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	08-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	08-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	08-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	08-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	08-AUG-19
Trichloroethylene		0.019	0.018		ug/g	2.8	40	08-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	08-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	08-AUG-19
WG3125362-2 LCS								
1,1,1,2-Tetrachloroethane			101.5		%		60-130	07-AUG-19
1,1,2,2-Tetrachloroethane			104.6		%		60-130	07-AUG-19
1,1,1-Trichloroethane			88.2		%		60-130	07-AUG-19
1,1,2-Trichloroethane			99.95		%		60-130	07-AUG-19
1,1-Dichloroethane			88.1		%		60-130	07-AUG-19
1,1-Dichloroethylene			80.7		%		60-130	07-AUG-19
1,2-Dibromoethane			103.3		%		70-130	07-AUG-19
1,2-Dichlorobenzene			98.4		%		70-130	07-AUG-19
1,2-Dichloroethane			86.1		%		60-130	07-AUG-19
1,2-Dichloropropane			96.3		%		70-130	07-AUG-19
1,3-Dichlorobenzene			99.3		%		70-130	07-AUG-19
1,4-Dichlorobenzene			96.7		%		70-130	07-AUG-19
Acetone			99.7		%		60-140	07-AUG-19
Benzene			96.0		%		70-130	07-AUG-19
Bromodichloromethane			89.3		%		50-140	07-AUG-19
Bromoform			107.9		%		70-130	07-AUG-19
Bromomethane			75.2		%		50-140	07-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4742707								
WG3125362-2 LCS								
Carbon tetrachloride			92.2		%		70-130	07-AUG-19
Chlorobenzene			94.5		%		70-130	07-AUG-19
Chloroform			89.3		%		70-130	07-AUG-19
cis-1,2-Dichloroethylene			91.6		%		70-130	07-AUG-19
cis-1,3-Dichloropropene			97.2		%		70-130	07-AUG-19
Dibromochloromethane			104.0		%		60-130	07-AUG-19
Dichlorodifluoromethane			49.0	LCS-L	%		50-140	07-AUG-19
Ethylbenzene			100.1		%		70-130	07-AUG-19
n-Hexane			74.0		%		70-130	07-AUG-19
Methylene Chloride			86.3		%		70-130	07-AUG-19
MTBE			95.0		%		70-130	07-AUG-19
m+p-Xylenes			96.9		%		70-130	07-AUG-19
Methyl Ethyl Ketone			106.9		%		60-140	07-AUG-19
Methyl Isobutyl Ketone			115.0		%		60-140	07-AUG-19
o-Xylene			101.2		%		70-130	07-AUG-19
Styrene			107.2		%		70-130	07-AUG-19
Tetrachloroethylene			95.0		%		60-130	07-AUG-19
Toluene			98.6		%		70-130	07-AUG-19
trans-1,2-Dichloroethylene			84.5		%		60-130	07-AUG-19
trans-1,3-Dichloropropene			105.3		%		70-130	07-AUG-19
Trichloroethylene			94.8		%		60-130	07-AUG-19
Trichlorofluoromethane			78.6		%		50-140	07-AUG-19
Vinyl chloride			85.3		%		60-140	07-AUG-19
WG3125362-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	07-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	07-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	07-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	07-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	07-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	07-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	07-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	07-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	07-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	07-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4742707								
WG3125362-1 MB								
1,3-Dichlorobenzene			<0.050		ug/g		0.05	07-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	07-AUG-19
Acetone			<0.50		ug/g		0.5	07-AUG-19
Benzene			<0.0068		ug/g		0.0068	07-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	07-AUG-19
Bromoform			<0.050		ug/g		0.05	07-AUG-19
Bromomethane			<0.050		ug/g		0.05	07-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	07-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	07-AUG-19
Chloroform			<0.050		ug/g		0.05	07-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	07-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	07-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	07-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	07-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	07-AUG-19
n-Hexane			<0.050		ug/g		0.05	07-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	07-AUG-19
MTBE			<0.050		ug/g		0.05	07-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	07-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	07-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	07-AUG-19
o-Xylene			<0.020		ug/g		0.02	07-AUG-19
Styrene			<0.050		ug/g		0.05	07-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	07-AUG-19
Toluene			<0.080		ug/g		0.08	07-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	07-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	07-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	07-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	07-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	07-AUG-19
Surrogate: 1,4-Difluorobenzene			101.4		%		50-140	07-AUG-19
Surrogate: 4-Bromofluorobenzene			89.0		%		50-140	07-AUG-19
WG3125362-5 MS		**L2321698-2**						
1,1,1,2-Tetrachloroethane			105.8		%		50-140	08-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4742707								
WG3125362-5 MS		**L2321698-2**						
1,1,2,2-Tetrachloroethane			98.0		%		50-140	08-AUG-19
1,1,1-Trichloroethane			94.6		%		50-140	08-AUG-19
1,1,2-Trichloroethane			100.8		%		50-140	08-AUG-19
1,1-Dichloroethane			85.3		%		50-140	08-AUG-19
1,1-Dichloroethylene			86.4		%		50-140	08-AUG-19
1,2-Dibromoethane			102.6		%		50-140	08-AUG-19
1,2-Dichlorobenzene			101.7		%		50-140	08-AUG-19
1,2-Dichloroethane			87.4		%		50-140	08-AUG-19
1,2-Dichloropropane			99.6		%		50-140	08-AUG-19
1,3-Dichlorobenzene			101.8		%		50-140	08-AUG-19
1,4-Dichlorobenzene			101.8		%		50-140	08-AUG-19
Acetone			105.4		%		50-140	08-AUG-19
Benzene			100.0		%		50-140	08-AUG-19
Bromodichloromethane			92.5		%		50-140	08-AUG-19
Bromoform			103.0		%		50-140	08-AUG-19
Bromomethane			75.7		%		50-140	08-AUG-19
Carbon tetrachloride			99.5		%		50-140	08-AUG-19
Chlorobenzene			98.2		%		50-140	08-AUG-19
Chloroform			93.7		%		50-140	08-AUG-19
cis-1,2-Dichloroethylene			94.9		%		50-140	08-AUG-19
cis-1,3-Dichloropropene			87.9		%		50-140	08-AUG-19
Dibromochloromethane			104.7		%		50-140	08-AUG-19
Dichlorodifluoromethane			59.9		%		50-140	08-AUG-19
Ethylbenzene			103.7		%		50-140	08-AUG-19
n-Hexane			80.3		%		50-140	08-AUG-19
Methylene Chloride			88.1		%		50-140	08-AUG-19
MTBE			98.0		%		50-140	08-AUG-19
m+p-Xylenes			101.5		%		50-140	08-AUG-19
Methyl Ethyl Ketone			99.2		%		50-140	08-AUG-19
Methyl Isobutyl Ketone			110.6		%		50-140	08-AUG-19
o-Xylene			104.4		%		50-140	08-AUG-19
Styrene			107.5		%		50-140	08-AUG-19
Tetrachloroethylene			98.7		%		50-140	08-AUG-19

Quality Control Report

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4742707								
WG3125362-5 MS		**L2321698-2**						
Toluene			102.7		%		50-140	08-AUG-19
trans-1,2-Dichloroethylene			86.5		%		50-140	08-AUG-19
trans-1,3-Dichloropropene			92.1		%		50-140	08-AUG-19
Trichloroethylene			100.7		%		50-140	08-AUG-19
Trichlorofluoromethane			87.4		%		50-140	08-AUG-19
Vinyl chloride			92.1		%		50-140	08-AUG-19

Quality Control Report

Workorder: L2320007 Report Date: 26-SEP-19

Client: CH2M HILL Canada Ltd.
245 CONSUMERS ROAD SUITE 400
TORONTO ON M2J 1R3
Contact: VICTORIA PETERS

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
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. 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.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

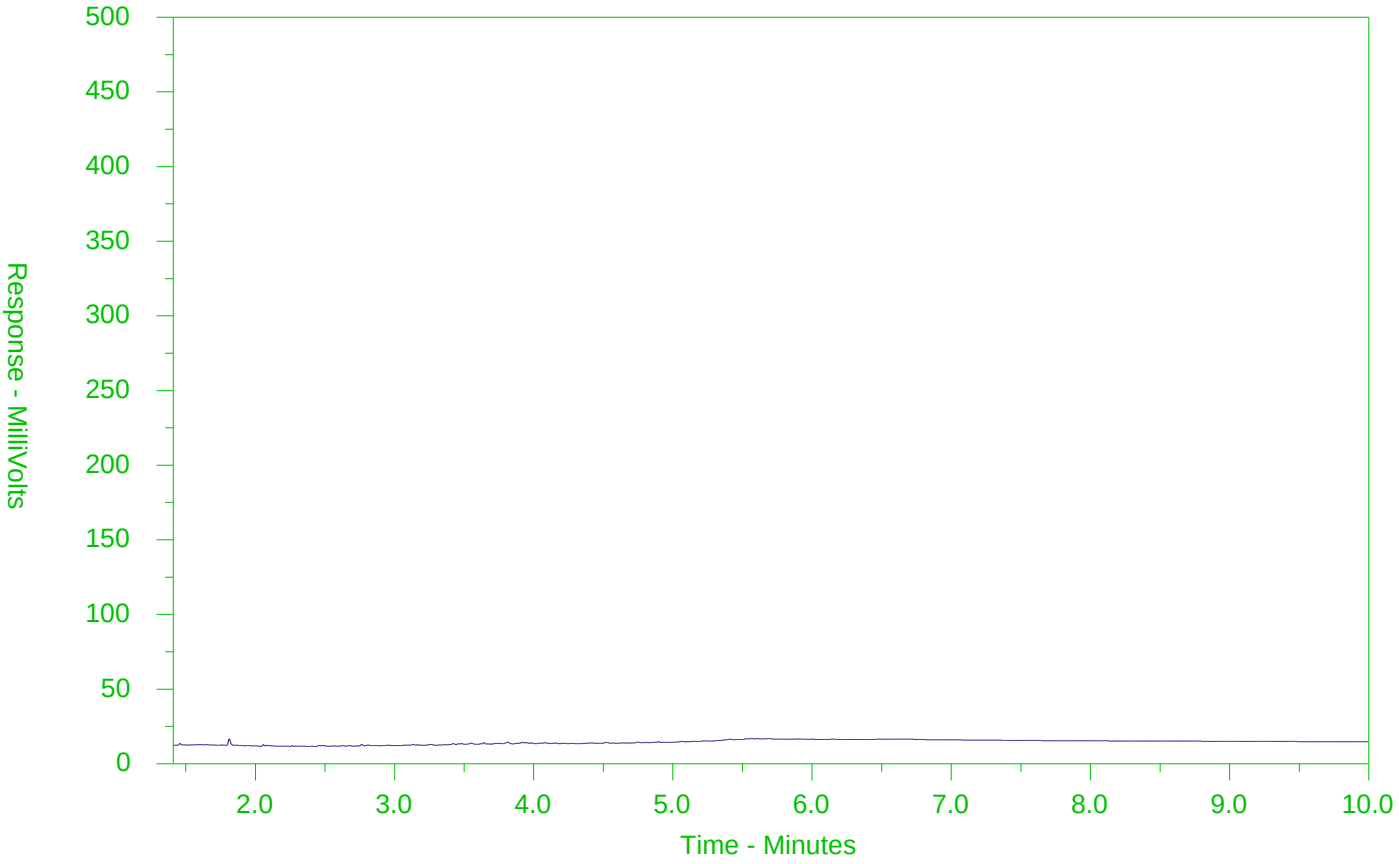
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2320007-1
Client Sample ID: BH204 - 2.5-3.5'



←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.

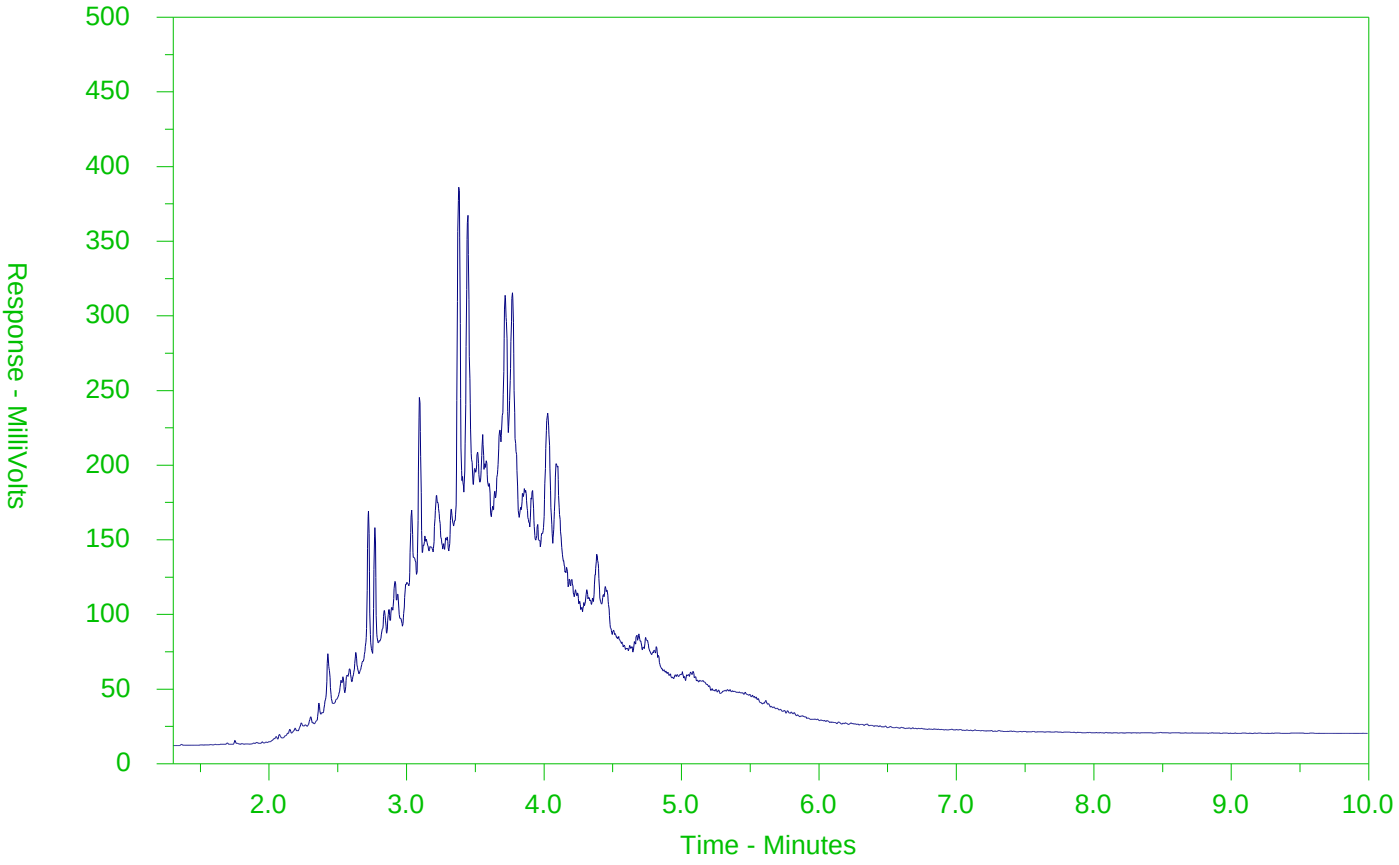
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2320007-2
Client Sample ID: MW106 -0.5-1.5'



←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.

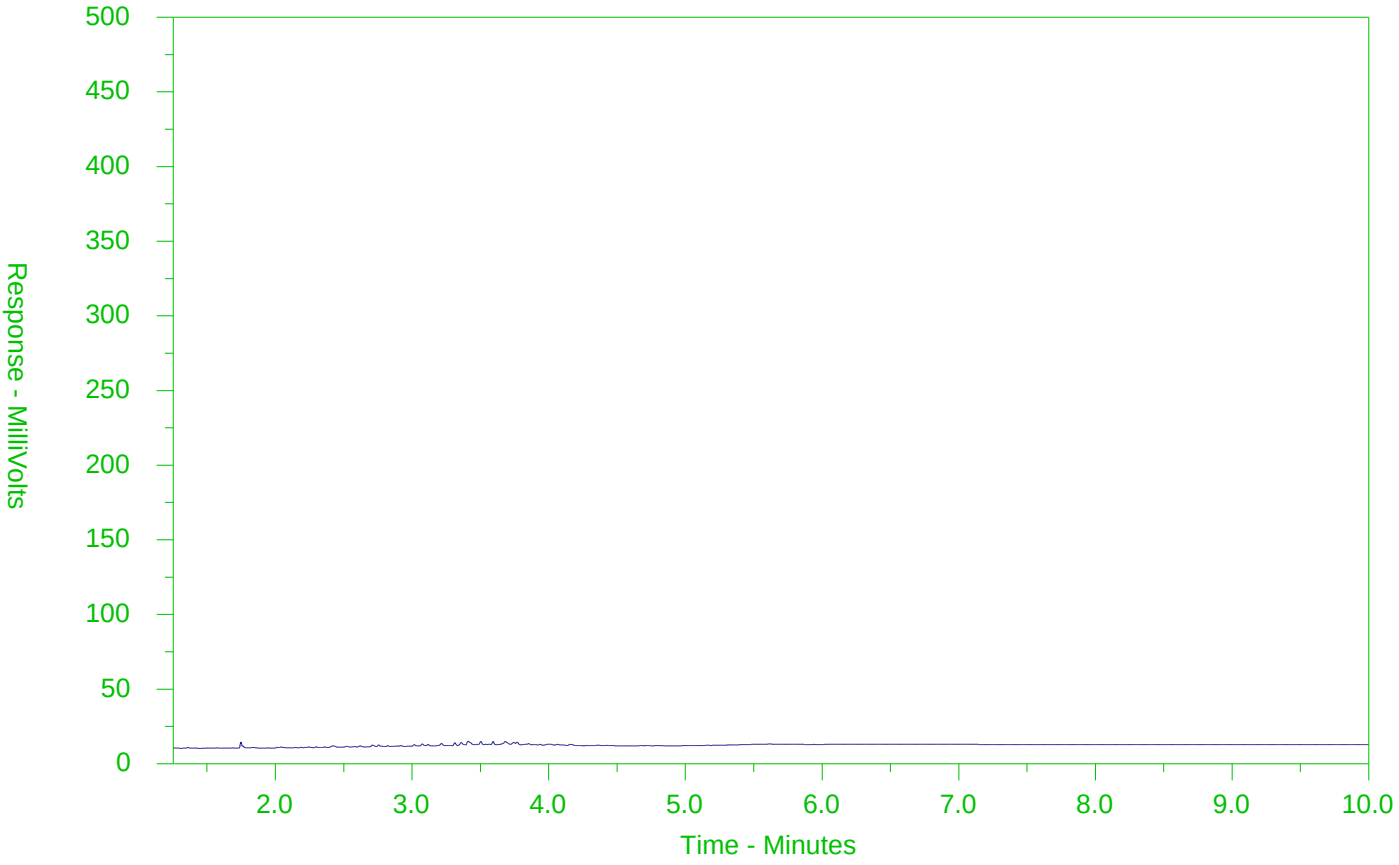
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2320007-3
Client Sample ID: MW106 - 2-3'



←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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2320007-COFC

COC Number: 17 - 20190731

Report To	Contact and company name below will appear on the final report
Company:	CH2M Hill/ Jacobs
Contact:	Victoria Peters
Phone:	519-579-3500 x73252
	Company address below will appear on the final report
Street:	72 Victoria Street South, Suite 300
City/Province:	Kitchener, Ontario
Postal Code:	N2G 4Y9
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	CH2M HILL
Contact:	Victoria Peters

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☑ YES ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: as per quote
Email 2
Email 3

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: Accounts Payable
Email 2

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐; 3 day [P3-25%] ☐; 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E1 - 100%] ☐; Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: Q71421
Job #: CE751900 A CS FV 19 19-01
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#:
Major/Minor Code: | Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only): L2320007MY

ALS Contact:

Sampler: V. Peters

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metal (O. Reg 153/04)	Inorganics (Free Cyanide, EC and SAR)	PHCs F1-F4 incl BTEX	PAHs	VOCs	Dioxins/Furans	PCBs	ABNs	FOC	Grain Size Analysis						SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	BH204-2.5-3.5'	30-07-19	11:00	soil	X	X	X	X	X				X									5
2	MW106-0.5-1.5'	30-07-19	15:30	soil	X	X	X	X	X													4
3	MW106-2-3'	30-07-19	15:45	soil	X	X	X	X	X											X		4
4	TB-002	—	—	soil					X													1
				soil																		
				soil																		
				soil																		
				soil																		
				soil																		
				soil																		
				soil																		
				soil																		
				soil																		

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Ontario Regulation 153/04 - April 15, 2011 Standards

No pH on all samples

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☑ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C:
FINAL COOLER TEMPERATURES °C: 6.2°

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Vicki Peters	Date: 2019/7/31	Time: 10:15	Received by:	Date:	Time:	Received by: RH	Date: 31 Jul 19	Time: 1015

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: ANDREW VERMEERSCH
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 13-AUG-19
Report Date: 05-SEP-19 13:15 (MT)
Version: FINAL REV. 2

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2328062

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV.A2
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 28-AUG-19 06:27

Emily Hansen
Account Manager

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use						
L2328062-2	BH200-7.5-9.5	Saturated Paste Extractables	SAR	5.12	2.4	SAR
L2328062-4	BH200-15-17	Saturated Paste Extractables	SAR	10.2	2.4	SAR
L2328062-5	BH202-10-12	Physical Tests	Conductivity	1.97	0.57	mS/cm
		Saturated Paste Extractables	SAR	70.3	2.4	SAR
L2328062-7	BH202-15-16.5	Physical Tests	Conductivity	1.80	0.57	mS/cm
		Saturated Paste Extractables	SAR	36.9	2.4	SAR
L2328062-8	BH205-0.5-2	Saturated Paste Extractables	SAR	10.1	2.4	SAR
L2328062-12	BH205-10-12	Saturated Paste Extractables	SAR	23.3	2.4	SAR
L2328062-14	BH205-12.5-15	Saturated Paste Extractables	SAR	7.18	2.4	SAR
L2328062-16	DUP11	Physical Tests	Conductivity	1.86	0.57	mS/cm
		Saturated Paste Extractables	SAR	43.5	2.4	SAR
L2328062-17	MW105-5-6	Saturated Paste Extractables	SAR	29.9	2.4	SAR
		Hydrocarbons	F4 (C34-C50)	250	120	ug/g
			F4G-SG (GHH-Silica)	610	120	ug/g
L2328062-19	MW105-10-12	Physical Tests	Conductivity	1.27	0.57	mS/cm
		Saturated Paste Extractables	SAR	79.8	2.4	SAR
L2328062-21	MW105-15-17	Physical Tests	Conductivity	0.859	0.57	mS/cm
L2328062-23	MW105-21.5-22	Physical Tests	Conductivity	1.01	0.57	mS/cm
		Saturated Paste Extractables	SAR	23.8	2.4	SAR
L2328062-24	DUP12	Physical Tests	Conductivity	0.841	0.57	mS/cm
		Saturated Paste Extractables	SAR	60.0	2.4	SAR
L2328062-26	MW104-7-9	Physical Tests	Conductivity	1.13	0.57	mS/cm
		Saturated Paste Extractables	SAR	69.3	2.4	SAR
L2328062-28	MW104-15-17	Physical Tests	Conductivity	1.11	0.57	mS/cm
		Saturated Paste Extractables	SAR	10.3	2.4	SAR
L2328062-31	DUP13	Physical Tests	Conductivity	0.911	0.57	mS/cm
		Saturated Paste Extractables	SAR	60.2	2.4	SAR
L2328062-33	MW104-22-23	Physical Tests	Conductivity	1.00	0.57	mS/cm
		Saturated Paste Extractables	SAR	5.77	2.4	SAR

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

ANALYTICAL REPORT

Physical Tests - SOIL

		Guide Limits									
Lab ID				L2328062-2	L2328062-5	L2328062-7	L2328062-8	L2328062-10	L2328062-11	L2328062-12	L2328062-15	L2328062-16
Sample Date				12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19
Sample ID				BH200-7.5-9.5	BH202-10-12	BH202-15-16.5	BH205-0.5-2	BH205-2.5-4.5	BH205-7.5-9.5	BH205-10-12	DUP10	DUP11
Analyte	**Unit**	**#1**	**#2**									
Conductivity	mS/cm	0.57	-	0.373	1.97	1.80	0.445			0.530		1.86
% Moisture	%	-	-	4.42	6.27		5.69	4.77	5.25	8.11	5.43	7.33
pH	pH units	-	-	8.19	8.18		8.06			8.30		8.31

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

Physical Tests - SOIL

			Lab ID	L2328062-17	L2328062-19	L2328062-21	L2328062-23	L2328062-24	L2328062-26	L2328062-28	L2328062-31	L2328062-32
			Sample Date	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
			Sample ID	MW105-5-6	MW105-10-12	MW105-15-17	MW105-21.5-22	DUP12	MW104-7-9	MW104-15-17	DUP13	TRIP BLANK - 20180813
Analyte	Unit	Guide Limits #1	#2									
Conductivity	mS/cm	0.57	-	0.520	1.27	0.859	1.01	0.841	1.13	1.11	0.911	
% Moisture	%	-	-	3.46	7.46	9.30		8.54	8.77	8.62	7.19	<0.10
pH	pH units	-	-	9.46	8.26	8.08		8.09	8.04	7.87	8.04	

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

Physical Tests - SOIL

			Lab ID	L2328062-33
			Sample Date	13-AUG-19
			Sample ID	MW104-22-23
Analyte	**Unit**	**Guide Limits #1**	**#2**	
Conductivity	mS/cm	0.57	-	1.00
% Moisture	%	-	-	
pH	pH units	-	-	

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

Cyanides - SOIL

		Lab ID	L2328062-2	L2328062-5	L2328062-8	L2328062-12	L2328062-16	L2328062-17	L2328062-19	L2328062-21	L2328062-24
		Sample Date	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
		Sample ID	BH200-7.5-9.5	BH202-10-12	BH205-0.5-2	BH205-10-12	DUP11	MW105-5-6	MW105-10-12	MW105-15-17	DUP12
Analyte	Unit	Guide Limits #1	#2								
Cyanide, Weak Acid Diss	ug/g	0.051	-	<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

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

		Guide Limits				
				Lab ID	L2328062-26	L2328062-28	L2328062-31
				Sample Date	13-AUG-19	13-AUG-19	13-AUG-19
				Sample ID	MW104-7-9	MW104-15-17	DUP13
Analyte	Unit	#1	#2			
Cyanide, Weak Acid Diss	ug/g	0.051	-	<0.050	<0.050	<0.050

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

Saturated Paste Extractables - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2328062-2	L2328062-4	L2328062-5	L2328062-7	L2328062-8	L2328062-12	L2328062-14	L2328062-16	L2328062-17
				Sample Date	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	13-AUG-19
				Sample ID	BH200-7.5-9.5	BH200-15-17	BH202-10-12	BH202-15-16.5	BH205-0.5-2	BH205-10-12	BH205-12.5-15	DUP11	MW105-5-6
SAR	SAR	2.4	-		5.12	10.2	70.3 SAR:M	36.9	10.1	23.3 SAR:M	7.18	43.5	29.9 SAR:M
Calcium (Ca)	mg/L	-	-		6.47	8.55	2.10	3.34	3.58	1.38	13.4	4.04	0.75
Magnesium (Mg)	mg/L	-	-		2.06	1.84	<0.50	1.60	1.74	<0.50	11.4	0.54	<0.50
Sodium (Na)	mg/L	-	-		58.4	126	370	328	92.7	99.3	148	351	94.1

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

Saturated Paste Extractables - SOIL

		Guide Limits								
Lab ID				L2328062-19	L2328062-21	L2328062-23	L2328062-24	L2328062-26	L2328062-28	L2328062-31	L2328062-33
Sample Date				13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
Sample ID				MW105-10-12	MW105-15-17	MW105-21.5-22	DUP12	MW104-7-9	MW104-15-17	DUP13	MW104-22-23
Analyte	**Unit**	**#1**	**#2**								
SAR	SAR	2.4	-	79.8 SAR:M	>40. SAR:L	23.8	60.0 SAR:M	69.3 SAR:M	10.3	60.2 SAR:M	5.77
Calcium (Ca)	mg/L	-	-	0.68	<0.50	3.16	0.66	0.73	19.4	0.74	28.1
Magnesium (Mg)	mg/L	-	-	<0.50	<0.50	0.90	<0.50	<0.50	3.97	<0.50	9.26
Sodium (Na)	mg/L	-	-	239	168	186	177	215	191	188	138

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

Metals - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2328062-2	L2328062-5	L2328062-8	L2328062-12	L2328062-16	L2328062-17	L2328062-19	L2328062-21	L2328062-24
				Sample Date	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
				Sample ID	BH200-7.5-9.5	BH202-10-12	BH205-0.5-2	BH205-10-12	DUP11	MW105-5-6	MW105-10-12	MW105-15-17	DUP12
Antimony (Sb)	ug/g	1.3	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	-		1.8	<1.0	3.2	1.3	<1.0	2.1	1.7	2.2	2.3
Barium (Ba)	ug/g	220	-		9.4	9.1	37.3	8.6	8.4	11.8	16.2	42.1	45.6
Beryllium (Be)	ug/g	2.5	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Boron (B)	ug/g	36	-		<5.0	<5.0	5.0	<5.0	<5.0	5.6	5.5	7.0	7.4
Boron (B), Hot Water Ext.	ug/g	36	-		<0.10	<0.10	0.14	<0.10	<0.10	0.12	<0.10	0.13	0.13
Cadmium (Cd)	ug/g	1.2	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	70	-		5.6	5.2	8.8	5.1	4.9	6.1	7.5	15.4	16.1
Cobalt (Co)	ug/g	21	-		1.7	1.4	2.5	1.5	1.4	2.0	2.5	5.9	6.2
Copper (Cu)	ug/g	92	-		10.2	3.9	11.4	5.1	3.4	10.3	7.0	12.3	13.1
Lead (Pb)	ug/g	120	-		6.3	5.0	34.7	5.9	4.0	34.6	10.1	9.0	9.0
Mercury (Hg)	ug/g	0.27	-		<0.0050	<0.0050	0.0809	<0.0050	<0.0050	0.0082	<0.0050	0.0090	0.0099
Molybdenum (Mo)	ug/g	2	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	82	-		3.4	3.1	6.0	3.3	2.7	5.0	5.3	12.9	14.1
Selenium (Se)	ug/g	1.5	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.5	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	2.5	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	-		10.8	9.9	16.1	10.4	10.1	12.4	14.1	24.1	24.8
Zinc (Zn)	ug/g	290	-		41.9	36.9	124	51.1	32.4	216	78.2	50.7	51.9

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

Metals - SOIL

				Lab ID	L2328062-26	L2328062-28	L2328062-31
				Sample Date	13-AUG-19	13-AUG-19	13-AUG-19
				Sample ID	MW104-7-9	MW104-15-17	DUP13
		Guide Limits					
Analyte	Unit	#1	#2				
Antimony (Sb)	ug/g	1.3	-	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	-	1.5	2.1	1.9
Barium (Ba)	ug/g	220	-	14.6	67.1	24.5
Beryllium (Be)	ug/g	2.5	-	<0.50	<0.50	<0.50
Boron (B)	ug/g	36	-	<5.0	7.6	5.5
Boron (B), Hot Water Ext.	ug/g	36	-	<0.10	<0.10	<0.10
Cadmium (Cd)	ug/g	1.2	-	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	70	-	8.2	18.6	9.6
Cobalt (Co)	ug/g	21	-	2.7	6.6	3.7
Copper (Cu)	ug/g	92	-	6.4	14.3	8.0
Lead (Pb)	ug/g	120	-	9.0	7.5	9.5
Mercury (Hg)	ug/g	0.27	-	0.0060	0.0110	0.0058
Molybdenum (Mo)	ug/g	2	-	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	82	-	5.3	14.8	7.9
Selenium (Se)	ug/g	1.5	-	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.5	-	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	-	<0.50	<0.50	<0.50
Uranium (U)	ug/g	2.5	-	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	-	16.2	27.6	16.1
Zinc (Zn)	ug/g	290	-	41.4	64.0	64.5

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

Speciated Metals - SOIL

		Guide Limits									
Lab ID				L2328062-2	L2328062-5	L2328062-8	L2328062-12	L2328062-16	L2328062-17	L2328062-19	L2328062-21	L2328062-24
Sample Date				12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
Sample ID				BH200-7.5-9.5	BH202-10-12	BH205-0.5-2	BH205-10-12	DUP11	MW105-5-6	MW105-10-12	MW105-15-17	DUP12
Analyte	**Unit**	**#1**	**#2**									
Chromium, Hexavalent	ug/g	0.66	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

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

Speciated Metals - SOIL

		Guide Limits				
Lab ID				L2328062-26	L2328062-28	L2328062-31
Sample Date				13-AUG-19	13-AUG-19	13-AUG-19
Sample ID				MW104-7-9	MW104-15-17	DUP13
Analyte	**Unit**	**#1**	**#2**			
Chromium, Hexavalent	ug/g	0.66	-	<0.20	<0.20	<0.20

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

				Lab ID	L2328062-2	L2328062-5	L2328062-11	L2328062-12	L2328062-15	L2328062-16	L2328062-17	L2328062-19	L2328062-21
				Sample Date	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
				Sample ID	BH200-7.5-9.5	BH202-10-12	BH205-7.5-9.5	BH205-10-12	DUP10	DUP11	MW105-5-6	MW105-10-12	MW105-15-17
		Guide Limits											
Analyte	Unit	#1	#2										
Acetone	ug/g	0.5	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	-		<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	ug/g	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	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	ug/g	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	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	0.05	-		<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	-		<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	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	ug/g	0.05	-		<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	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	ug/g	0.05	-		<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	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	ug/g	0.05	-		<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	-		<0.050	<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	-		<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042
Ethylbenzene	ug/g	0.05	-		<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
n-Hexane	ug/g	0.05	-		<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	-		<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	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
MTBE	ug/g	0.05	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	ug/g	0.05	-		<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

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

Volatile Organic Compounds - SOIL

			Lab ID	L2328062-24	L2328062-26	L2328062-28	L2328062-32
			Sample Date	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
			Sample ID	DUP12	MW104-7-9	MW104-15-17	TRIP BLANK - 20180813
		Guide Limits					
Analyte	Unit	#1	#2				
Acetone	ug/g	0.5	-	<0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	-	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Bromoform	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Bromomethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Carbon tetrachloride	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Chloroform	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,2-Dibromoethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
trans-1,2-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
cis-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030
trans-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030
1,3-Dichloropropene (cis & trans)	ug/g	0.05	-	<0.042	<0.042	<0.042	<0.042
Ethylbenzene	ug/g	0.05	-	<0.018	<0.018	<0.018	<0.018
n-Hexane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	ug/g	0.5	-	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	-	<0.50	<0.50	<0.50	<0.50
MTBE	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Styrene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050

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

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

Volatile Organic Compounds - SOIL

		Guide Limits									
Lab ID				L2328062-2	L2328062-5	L2328062-11	L2328062-12	L2328062-15	L2328062-16	L2328062-17	L2328062-19	L2328062-21
Sample Date				12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
Sample ID				BH200-7.5-9.5	BH202-10-12	BH205-7.5-9.5	BH205-10-12	DUP10	DUP11	MW105-5-6	MW105-10-12	MW105-15-17
Analyte	**Unit**	**#1**	**#2**									
1,1,1,2-Tetrachloroethane	ug/g	0.05	-	<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	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	0.2	-	<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	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	ug/g	0.05	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	ug/g	0.25	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	ug/g	0.02	-	<0.020	<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
m+p-Xylenes	ug/g	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	80.3	80.3	82.0	74.3	82.9	86.0	96.9	77.6	80.3
Surrogate: 1,4-Difluorobenzene	%	-	-	109.8	108.8	111.5	100.7	112.0	118.0	113.1	105.2	108.1

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

		Guide Limits					
Lab ID				L2328062-24	L2328062-26	L2328062-28	L2328062-32
Sample Date				13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
Sample ID				DUP12	MW104-7-9	MW104-15-17	TRIP BLANK - 20180813
Analyte	**Unit**	**#1**	**#2**				
1,1,1,2-Tetrachloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	0.2	-	<0.080	<0.080	<0.080	<0.080
1,1,1-Trichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	ug/g	0.05	-	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	ug/g	0.25	-	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	ug/g	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	-	-	<0.030	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	0.05	-	<0.050	<0.050	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	75.4	82.8	81.6	97.4
Surrogate: 1,4-Difluorobenzene	%	-	-	101.5	111.5	110.0	110.7

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

Hydrocarbons - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2328062-2	L2328062-5	L2328062-11	L2328062-12	L2328062-15	L2328062-16	L2328062-17	L2328062-19	L2328062-21
				Sample Date	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
				Sample ID	BH200-7.5-9.5	BH202-10-12	BH205-7.5-9.5	BH205-10-12	DUP10	DUP11	MW105-5-6	MW105-10-12	MW105-15-17
F1 (C6-C10)	ug/g	25	-		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	ug/g	25	-		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	ug/g	10	-		<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-Naphth	ug/g	-	-		<10	<10		<10		<10	<10	<10	<10
F3 (C16-C34)	ug/g	240	-		<50	<50	<50	<50	<50	<50	124	<50	<50
F3-PAH	ug/g	-	-		<50	<50		<50		<50	123	<50	<50
F4 (C34-C50)	ug/g	120	-		<50	<50	<50	<50	<50	<50	250	<50	<50
F4G-SG (GHH-Silica)	ug/g	120	-								610		
Total Hydrocarbons (C6-C50)	ug/g	-	-		<72	<72	<72	<72	<72	<72	374	<72	<72
Chrom. to baseline at nC50		-	-		YES	YES	YES	YES	YES	YES	NO	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-		86.8	90.5	85.1	86.0	79.6	85.1	86.1	86.0	82.5
Surrogate: 3,4-Dichlorotoluene	%	-	-		89.5	90.9	91.0	91.6	93.1	92.0	86.0	93.5	93.8

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

				Lab ID	L2328062-24	L2328062-26	L2328062-28
				Sample Date	13-AUG-19	13-AUG-19	13-AUG-19
				Sample ID	DUP12	MW104-7-9	MW104-15-17
		Guide Limits					
Analyte	Unit	#1	#2				
F1 (C6-C10)	ug/g	25	-		<5.0	<5.0	<5.0
F1-BTEX	ug/g	25	-		<5.0	<5.0	<5.0
F2 (C10-C16)	ug/g	10	-		<10	<10	<10
F2-Naphth	ug/g	-	-		<10	<10	<10
F3 (C16-C34)	ug/g	240	-		<50	<50	<50
F3-PAH	ug/g	-	-		<50	<50	<50
F4 (C34-C50)	ug/g	120	-		<50	<50	<50
F4G-SG (GHH-Silica)	ug/g	120	-				
Total Hydrocarbons (C6-C50)	ug/g	-	-		<72	<72	<72
Chrom. to baseline at nC50		-	-		YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-		87.4	82.9	86.4
Surrogate: 3,4-Dichlorotoluene	%	-	-		90.0	95.7	97.1

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

Polycyclic Aromatic Hydrocarbons - SOIL

		Guide Limits									
Lab ID				L2328062-2	L2328062-5	L2328062-10	L2328062-12	L2328062-16	L2328062-17	L2328062-19	L2328062-21	L2328062-24
Sample Date				12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	12-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19	13-AUG-19
Sample ID				BH200-7.5-9.5	BH202-10-12	BH205-2.5-4.5	BH205-10-12	DUP11	MW105-5-6	MW105-10-12	MW105-15-17	DUP12
Analyte	**Unit**	**#1**	**#2**									
Acenaphthene	ug/g	0.072	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	ug/g	0.093	-	<0.050	<0.050	<0.050	<0.050	<0.050	0.054	<0.050	<0.050	<0.050
Anthracene	ug/g	0.16	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	ug/g	0.36	-	<0.050	<0.050	0.098	<0.050	<0.050	0.086 R	<0.050	<0.050	<0.050
Benzo(a)pyrene	ug/g	0.3	-	<0.050	<0.050	0.134	<0.050	<0.050	0.143	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	ug/g	0.47	-	<0.050	<0.050	0.178	<0.050	<0.050	0.167	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	ug/g	0.68	-	<0.050	<0.050	0.208	<0.050	<0.050	0.162	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	ug/g	0.48	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	ug/g	2.8	-	<0.050	<0.050	0.145	<0.050	<0.050	0.090	<0.050	<0.050	<0.050
Dibenzo(ah)anthracene	ug/g	0.1	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	ug/g	0.56	-	<0.050	<0.050	0.133	<0.050	<0.050	0.125	<0.050	<0.050	<0.050
Fluorene	ug/g	0.12	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	-	<0.050	<0.050	0.111	<0.050	<0.050	0.133	<0.050	<0.050	<0.050
1+2-Methylnaphthalenes	ug/g	0.59	-	<0.042	<0.042	<0.085	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042
1-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.060 DLM	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
2-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.060 DLM	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Naphthalene	ug/g	0.09	-	<0.013	<0.013	<0.065 DLM	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Phenanthrene	ug/g	0.69	-	<0.046	<0.046	0.123	<0.046	<0.046	0.063	<0.046	<0.046	<0.046
Pyrene	ug/g	1	-	<0.050	<0.050	0.134	<0.050	<0.050	0.118	<0.050	<0.050	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	95.7	96.0	98.0	94.6	93.0	97.1	95.2	101.8	100.4
Surrogate: p-Terphenyl d14	%	-	-	90.9	90.7	89.9	90.8	89.0	93.6	91.0	90.9	90.8

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

Polycyclic Aromatic Hydrocarbons - SOIL

		Guide Limits				
Lab ID				L2328062-26	L2328062-28	L2328062-31
Sample Date				13-AUG-19	13-AUG-19	13-AUG-19
Sample ID				MW104-7-9	MW104-15-17	DUP13
Analyte	**Unit**	**#1**	**#2**			
Acenaphthene	ug/g	0.072	-	<0.050	<0.050	<0.050
Acenaphthylene	ug/g	0.093	-	<0.050	<0.050	<0.050
Anthracene	ug/g	0.16	-	<0.050	<0.050	<0.050
Benzo(a)anthracene	ug/g	0.36	-	<0.050	<0.050	<0.050
Benzo(a)pyrene	ug/g	0.3	-	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	ug/g	0.47	-	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	ug/g	0.68	-	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	ug/g	0.48	-	<0.050	<0.050	<0.050
Chrysene	ug/g	2.8	-	<0.050	<0.050	<0.050
Dibenzo(ah)anthracene	ug/g	0.1	-	<0.050	<0.050	<0.050
Fluoranthene	ug/g	0.56	-	<0.050	<0.050	<0.050
Fluorene	ug/g	0.12	-	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	-	<0.050	<0.050	<0.050
1+2-Methylnaphthalenes	ug/g	0.59	-	<0.042	<0.042	<0.042
1-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.030
2-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.030
Naphthalene	ug/g	0.09	-	<0.013	<0.013	<0.013
Phenanthrene	ug/g	0.69	-	<0.046	<0.046	<0.046
Pyrene	ug/g	1	-	<0.050	<0.050	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	101.7	102.2	100.1
Surrogate: p-Terphenyl d14	%	-	-	90.9	92.9	88.9

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

Semi-Volatile Organics - SOIL

				Lab ID	L2328062-26	L2328062-28	L2328062-31
				Sample Date	13-AUG-19	13-AUG-19	13-AUG-19
				Sample ID	MW104-7-9	MW104-15-17	DUP13
		Guide Limits					
Analyte	Unit	#1	#2				
Biphenyl	ug/g	0.05	-	<0.050	<0.050	<0.050
4-Chloroaniline	ug/g	0.5	-	<0.10	<0.10	<0.10
Bis(2-chloroethyl)ether	ug/g	0.5	-	<0.10	<0.10	<0.10
Bis(2-chloroisopropyl)ether	ug/g	0.5	-	<0.10	<0.10	<0.10
3,3'-Dichlorobenzidine	ug/g	1	-	<0.10	<0.10	<0.10
Diethylphthalate	ug/g	0.5	-	<0.10	<0.10	<0.10
Dimethylphthalate	ug/g	0.5	-	<0.10	<0.10	<0.10
2,4-Dimethylphenol	ug/g	0.2	-	<0.10	<0.10	<0.10
2,4-Dinitrophenol	ug/g	2	-	<1.0	<1.0	<1.0
2,4-Dinitrotoluene	ug/g	-	-	<0.10	<0.10	<0.10
2,6-Dinitrotoluene	ug/g	-	-	<0.10	<0.10	<0.10
2,4+2,6-Dinitrotoluene	ug/g	0.5	-	<0.14	<0.14	<0.14
Bis(2-ethylhexyl)phthalate	ug/g	5	-	<0.10	<0.10	<0.10
Phenol	ug/g	0.5	-	<0.10	<0.10	<0.10
1,2,4-Trichlorobenzene	ug/g	0.05	-	<0.050	<0.050	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	100.9	92.0	92.6
Surrogate: Nitrobenzene d5	%	-	-	85.0	75.2	87.0
Surrogate: Phenol d5	%	-	-	100.6	91.7	91.0
Surrogate: p-Terphenyl d14	%	-	-	104.5	103.4	100.4
Surrogate: 2,4,6-Tribromophenol	%	-	-	90.2	82.6	84.6

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu 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
R	The ion abundance ratio(s) did not meet the acceptance criteria. Value is an estimated maximum.
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.
SAR:L	SAR is incalculable due to Ca and Mg below DL (with Na above DL). Lowest possible SAR is reported as minimum value.
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**
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

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-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).

DINITROTOL-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
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.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

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.

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.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

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)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	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.

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).

SAR-R511-WT	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 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).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

XYLENES-SUM-CALC-WT	Soil	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:

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

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4762122								
WG3136344-3 DUP		**WG3136344-5**						
1,2,4-Trichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
2,4-Dimethylphenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
2,4-Dinitrophenol		<1.0	<1.0	RPD-NA	ug/g	N/A	40	22-AUG-19
2,4-Dinitrotoluene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
2,6-Dinitrotoluene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
3,3'-Dichlorobenzidine		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
4-Chloroaniline		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
Biphenyl		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Bis(2-chloroethyl)ether		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
Bis(2-chloroisopropyl)ether		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
Bis(2-ethylhexyl)phthalate		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
Diethylphthalate		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
Dimethylphthalate		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
Phenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
WG3136344-2 LCS								
1,2,4-Trichlorobenzene			82.9		%		50-140	21-AUG-19
2,4-Dimethylphenol			96.1		%		30-130	21-AUG-19
2,4-Dinitrophenol			118.5		%		30-130	21-AUG-19
2,4-Dinitrotoluene			121.9		%		50-140	21-AUG-19
2,6-Dinitrotoluene			112.4		%		50-140	21-AUG-19
3,3'-Dichlorobenzidine			84.5		%		30-130	21-AUG-19
4-Chloroaniline			84.1		%		30-130	21-AUG-19
Biphenyl			93.8		%		50-140	21-AUG-19
Bis(2-chloroethyl)ether			95.7		%		50-140	21-AUG-19
Bis(2-chloroisopropyl)ether			92.6		%		50-140	21-AUG-19
Bis(2-ethylhexyl)phthalate			103.7		%		50-140	21-AUG-19
Diethylphthalate			99.1		%		50-140	21-AUG-19
Dimethylphthalate			97.6		%		50-140	21-AUG-19
Phenol			99.2		%		30-130	21-AUG-19
WG3136344-1 MB								
1,2,4-Trichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
2,4-Dimethylphenol			<0.10		ug/g		0.1	21-AUG-19
2,4-Dinitrophenol			<1.0		ug/g		1	21-AUG-19
							0.1	

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4762122								
WG3136344-1 MB								
2,4-Dinitrotoluene			<0.10		ug/g		0.1	21-AUG-19
2,6-Dinitrotoluene			<0.10		ug/g		0.1	21-AUG-19
3,3'-Dichlorobenzidine			<0.10		ug/g		0.1	21-AUG-19
4-Chloroaniline			<0.10		ug/g		0.1	21-AUG-19
Biphenyl			<0.050		ug/g		0.05	21-AUG-19
Bis(2-chloroethyl)ether			<0.10		ug/g		0.1	21-AUG-19
Bis(2-chloroisopropyl)ether			<0.10		ug/g		0.1	21-AUG-19
Bis(2-ethylhexyl)phthalate			<0.10		ug/g		0.1	21-AUG-19
Diethylphthalate			<0.10		ug/g		0.1	21-AUG-19
Dimethylphthalate			<0.10		ug/g		0.1	21-AUG-19
Phenol			<0.10		ug/g		0.1	21-AUG-19
Surrogate: 2-Fluorobiphenyl			78.1		%		50-140	21-AUG-19
Surrogate: 2,4,6-Tribromophenol			80.7		%		50-140	21-AUG-19
Surrogate: Nitrobenzene d5			101.4		%		50-140	21-AUG-19
Surrogate: p-Terphenyl d14			115.4		%		50-140	21-AUG-19
Surrogate: Phenol d5			96.0		%		30-130	21-AUG-19
WG3136344-4 MS		**WG3136344-5**						
1,2,4-Trichlorobenzene			94.1		%		50-140	22-AUG-19
2,4-Dimethylphenol			106.8		%		30-150	22-AUG-19
2,4-Dinitrophenol			88.7		%		30-150	22-AUG-19
2,4-Dinitrotoluene			108.0		%		50-140	22-AUG-19
2,6-Dinitrotoluene			96.9		%		50-140	22-AUG-19
3,3'-Dichlorobenzidine			98.7		%		30-130	22-AUG-19
4-Chloroaniline			92.8		%		30-130	22-AUG-19
Biphenyl			100.4		%		50-140	22-AUG-19
Bis(2-chloroethyl)ether			95.5		%		50-140	22-AUG-19
Bis(2-chloroisopropyl)ether			96.4		%		50-140	22-AUG-19
Bis(2-ethylhexyl)phthalate			116.9		%		50-140	22-AUG-19
Diethylphthalate			105.2		%		50-140	22-AUG-19
Dimethylphthalate			101.5		%		50-140	22-AUG-19
Phenol			101.8		%		30-130	22-AUG-19
B-HWS-R511-WT	**Soil**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4765073								
WG3139701-4 DUP		**L2328062-24**						
Boron (B), Hot Water Ext.		0.13	0.13		ug/g	1.1	30	22-AUG-19
WG3139701-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			92.1		%		70-130	22-AUG-19
WG3139701-3 LCS								
Boron (B), Hot Water Ext.			93.8		%		70-130	22-AUG-19
WG3139701-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	22-AUG-19
CN-WAD-R511-WT	**Soil**							
Batch R4759035								
WG3134892-3 DUP		**L2328062-2**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	19-AUG-19
WG3134892-2 LCS								
Cyanide, Weak Acid Diss			98.3		%		80-120	19-AUG-19
WG3134892-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	19-AUG-19
WG3134892-4 MS		**L2328062-2**						
Cyanide, Weak Acid Diss			101.4		%		70-130	19-AUG-19
Batch R4762294								
WG3136416-3 DUP		**L2328062-5**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	20-AUG-19
WG3136416-2 LCS								
Cyanide, Weak Acid Diss			95.5		%		80-120	20-AUG-19
WG3136416-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	20-AUG-19
WG3136416-4 MS		**L2328062-5**						
Cyanide, Weak Acid Diss			103.7		%		70-130	20-AUG-19
CR-CR6-IC-WT	**Soil**							
Batch R4759899								
WG3135364-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			98.5		%		70-130	20-AUG-19
WG3135364-3 DUP		**L2328105-6**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	20-AUG-19
WG3135364-2 LCS								
Chromium, Hexavalent			89.2		%		80-120	20-AUG-19
WG3135364-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT	**Soil**							
Batch R4759911								
WG3136179-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			94.5		%		70-130	20-AUG-19
WG3136179-3 DUP		**L2329068-3**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	20-AUG-19
WG3136179-2 LCS								
Chromium, Hexavalent			87.6		%		80-120	20-AUG-19
WG3136179-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	20-AUG-19
EC-WT	**Soil**							
Batch R4764320								
WG3139781-4 DUP		**WG3139781-3**						
Conductivity		0.384	0.383		mS/cm	0.3	20	22-AUG-19
WG3139781-2 IRM		**WT SAR3**						
Conductivity			95.5		%		70-130	22-AUG-19
WG3140016-1 LCS								
Conductivity			97.4		%		90-110	22-AUG-19
WG3139781-1 MB								
Conductivity			<0.0040		mS/cm		0.004	22-AUG-19
Batch R4764325								
WG3139782-4 DUP		**WG3139782-3**						
Conductivity		1.11	1.11		mS/cm	0.7	20	22-AUG-19
WG3139782-2 IRM		**WT SAR3**						
Conductivity			95.1		%		70-130	22-AUG-19
WG3140018-1 LCS								
Conductivity			97.2		%		90-110	22-AUG-19
WG3139782-1 MB								
Conductivity			<0.0040		mS/cm		0.004	22-AUG-19
Batch R4767541								
WG3140439-4 DUP		**WG3140439-3**						
Conductivity		0.201	0.203		mS/cm	1.0	20	23-AUG-19
WG3140439-2 IRM		**WT SAR3**						
Conductivity			98.6		%		70-130	23-AUG-19
WG3141386-1 LCS								
Conductivity			101.0		%		90-110	23-AUG-19
WG3140439-1 MB								
Conductivity			<0.0040		mS/cm		0.004	23-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4782690								
WG3150996-4 DUP		**WG3150996-3**						
Conductivity		0.167	0.175		mS/cm	4.7	20	04-SEP-19
WG3150996-2 IRM		**WT SAR3**						
Conductivity			88.8		%		70-130	04-SEP-19
WG3151264-1 LCS								
Conductivity			99.4		%		90-110	04-SEP-19
WG3150996-1 MB								
Conductivity			<0.0040		mS/cm		0.004	04-SEP-19
Batch R4783616								
WG3151001-4 DUP		**L2328158-6**						
Conductivity		0.795	0.782		mS/cm	1.6	20	05-SEP-19
WG3151001-2 IRM		**WT SAR3**						
Conductivity			98.1		%		70-130	05-SEP-19
WG3151266-1 LCS								
Conductivity			97.7		%		90-110	05-SEP-19
WG3151001-1 MB								
Conductivity			<0.0040		mS/cm		0.004	05-SEP-19
F1-HS-511-WT	**Soil**							
Batch R4759541								
WG3136345-4 DUP		**WG3136345-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	20-AUG-19
WG3136345-2 LCS								
F1 (C6-C10)			110.0		%		80-120	20-AUG-19
WG3136345-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	20-AUG-19
Surrogate: 3,4-Dichlorotoluene			96.4		%		60-140	20-AUG-19
WG3136345-6 MS		**L2328062-2**						
F1 (C6-C10)			99.5		%		60-140	20-AUG-19
Batch R4759545								
WG3136405-4 DUP		**WG3136405-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	20-AUG-19
WG3136405-2 LCS								
F1 (C6-C10)			107.9		%		80-120	20-AUG-19
WG3136405-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	20-AUG-19
Surrogate: 3,4-Dichlorotoluene			92.6		%		60-140	20-AUG-19
WG3136405-6 MS		**L2328062-15**						
F1 (C6-C10)			102.2				60-140	

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4759545								
WG3136405-6 MS		**L2328062-15**						
F1 (C6-C10)			102.2		%		60-140	20-AUG-19
Batch R4759637								
WG3136428-4 DUP		**WG3136428-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	20-AUG-19
WG3136428-2 LCS								
F1 (C6-C10)			109.5		%		80-120	20-AUG-19
WG3136428-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	20-AUG-19
Surrogate: 3,4-Dichlorotoluene			91.5		%		60-140	20-AUG-19
WG3136428-6 MS		**L2329656-1**						
F1 (C6-C10)			104.1		%		60-140	20-AUG-19
Batch R4761934								
WG3136529-4 DUP		**WG3136529-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	21-AUG-19
WG3136529-2 LCS								
F1 (C6-C10)			113.7		%		80-120	21-AUG-19
WG3136529-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	21-AUG-19
Surrogate: 3,4-Dichlorotoluene			94.1		%		60-140	21-AUG-19
WG3136529-6 MS		**L2328062-21**						
F1 (C6-C10)			107.3		%		60-140	21-AUG-19
F2-F4-511-WT	**Soil**							
Batch R4757418								
WG3132600-6 DUP		**WG3132600-8**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	15-AUG-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	15-AUG-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	15-AUG-19
WG3132600-5 LCS								
F2 (C10-C16)			98.0		%		80-120	15-AUG-19
F3 (C16-C34)			93.4		%		80-120	15-AUG-19
F4 (C34-C50)			102.6		%		80-120	15-AUG-19
WG3132600-4 MB								
F2 (C10-C16)			<10		ug/g		10	15-AUG-19
F3 (C16-C34)			<50		ug/g		50	15-AUG-19
F4 (C34-C50)			<50		ug/g		50	15-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4757418								
WG3132600-4 MB								
Surrogate: 2-Bromobenzotrifluoride			84.5		%		60-140	15-AUG-19
WG3132600-7 MS		**WG3132600-8**						
F2 (C10-C16)			99.5		%		60-140	15-AUG-19
F3 (C16-C34)			95.1		%		60-140	15-AUG-19
F4 (C34-C50)			104.6		%		60-140	15-AUG-19
Batch R4759700								
WG3135426-8 DUP		**WG3135426-10**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	19-AUG-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	19-AUG-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	19-AUG-19
WG3135426-7 LCS								
F2 (C10-C16)			89.6		%		80-120	19-AUG-19
F3 (C16-C34)			88.6		%		80-120	19-AUG-19
F4 (C34-C50)			89.4		%		80-120	19-AUG-19
WG3135426-6 MB								
F2 (C10-C16)			<10		ug/g		10	19-AUG-19
F3 (C16-C34)			<50		ug/g		50	19-AUG-19
F4 (C34-C50)			<50		ug/g		50	19-AUG-19
Surrogate: 2-Bromobenzotrifluoride			72.2		%		60-140	19-AUG-19
WG3135426-9 MS		**WG3135426-10**						
F2 (C10-C16)			100.5		%		60-140	19-AUG-19
F3 (C16-C34)			101.7		%		60-140	19-AUG-19
F4 (C34-C50)			101.7		%		60-140	19-AUG-19
F4G-ADD-511-WT	**Soil**							
Batch R4761880								
WG3138702-2 LCS								
F4G-SG (GHH-Silica)			68.3		%		60-140	19-AUG-19
WG3138702-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	19-AUG-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4763934								
WG3139671-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			95.1		%		70-130	22-AUG-19
WG3139671-6 DUP		**WG3139671-5**						
Mercury (Hg)		0.0058	0.0071		ug/g	21	40	22-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R4763934								
WG3139671-3 LCS								
Mercury (Hg)			104.0		%		80-120	22-AUG-19
WG3139671-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	22-AUG-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4764841								
WG3139671-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			86.1		%		70-130	22-AUG-19
Arsenic (As)			87.5		%		70-130	22-AUG-19
Barium (Ba)			86.1		%		70-130	22-AUG-19
Beryllium (Be)			90.5		%		70-130	22-AUG-19
Boron (B)			3.1		mg/kg		0-8.2	22-AUG-19
Cadmium (Cd)			93.7		%		70-130	22-AUG-19
Chromium (Cr)			93.7		%		70-130	22-AUG-19
Cobalt (Co)			90.4		%		70-130	22-AUG-19
Copper (Cu)			91.5		%		70-130	22-AUG-19
Lead (Pb)			90.4		%		70-130	22-AUG-19
Molybdenum (Mo)			90.5		%		70-130	22-AUG-19
Nickel (Ni)			92.1		%		70-130	22-AUG-19
Selenium (Se)			0.28		mg/kg		0.11-0.51	22-AUG-19
Silver (Ag)			0.20		mg/kg		0.13-0.33	22-AUG-19
Thallium (Tl)			0.113		mg/kg		0.077-0.18	22-AUG-19
Uranium (U)			91.5		%		70-130	22-AUG-19
Vanadium (V)			93.3		%		70-130	22-AUG-19
Zinc (Zn)			87.2		%		70-130	22-AUG-19
WG3139671-6 DUP		**WG3139671-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	22-AUG-19
Arsenic (As)		1.85	2.08		ug/g	12	30	22-AUG-19
Barium (Ba)		24.5	26.4		ug/g	7.3	40	22-AUG-19
Beryllium (Be)		0.23	0.26		ug/g	9.2	30	22-AUG-19
Boron (B)		5.5	6.4		ug/g	15	30	22-AUG-19
Cadmium (Cd)		0.156	0.157		ug/g	0.7	30	22-AUG-19
Chromium (Cr)		9.60	10.6		ug/g	10	30	22-AUG-19
Cobalt (Co)		3.67	4.02		ug/g	9.0	30	22-AUG-19
Copper (Cu)		8.02	8.66		ug/g	7.7	30	22-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4764841								
WG3139671-6 DUP		**WG3139671-5**						
Lead (Pb)		9.51	10.4		ug/g	8.5	40	22-AUG-19
Molybdenum (Mo)		0.19	0.22		ug/g	11	40	22-AUG-19
Nickel (Ni)		7.90	8.59		ug/g	8.3	30	22-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	22-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	22-AUG-19
Thallium (Tl)		0.063	0.068		ug/g	7.2	30	22-AUG-19
Uranium (U)		0.369	0.384		ug/g	4.0	30	22-AUG-19
Vanadium (V)		16.1	17.6		ug/g	8.9	30	22-AUG-19
Zinc (Zn)		64.5	69.8		ug/g	7.8	30	22-AUG-19
WG3139671-4 LCS								
Antimony (Sb)			99.9		%		80-120	22-AUG-19
Arsenic (As)			94.7		%		80-120	22-AUG-19
Barium (Ba)			91.5		%		80-120	22-AUG-19
Beryllium (Be)			91.4		%		80-120	22-AUG-19
Boron (B)			90.2		%		80-120	22-AUG-19
Cadmium (Cd)			95.3		%		80-120	22-AUG-19
Chromium (Cr)			94.8		%		80-120	22-AUG-19
Cobalt (Co)			93.7		%		80-120	22-AUG-19
Copper (Cu)			91.8		%		80-120	22-AUG-19
Lead (Pb)			91.4		%		80-120	22-AUG-19
Molybdenum (Mo)			98.7		%		80-120	22-AUG-19
Nickel (Ni)			93.1		%		80-120	22-AUG-19
Selenium (Se)			94.4		%		80-120	22-AUG-19
Silver (Ag)			97.0		%		80-120	22-AUG-19
Thallium (Tl)			94.2		%		80-120	22-AUG-19
Uranium (U)			91.7		%		80-120	22-AUG-19
Vanadium (V)			96.6		%		80-120	22-AUG-19
Zinc (Zn)			88.7		%		80-120	22-AUG-19
WG3139671-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	22-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	22-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	22-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	22-AUG-19
Boron (B)			<5.0		mg/kg		5	22-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4764841								
WG3139671-1 MB								
Cadmium (Cd)			<0.020		mg/kg		0.02	22-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	22-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	22-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	22-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	22-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	22-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	22-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	22-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	22-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	22-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	22-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	22-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	22-AUG-19
MOISTURE-WT	**Soil**							
Batch R4754412								
WG3132183-3 DUP		**L2326144-1**						
% Moisture		11.6	11.0		%	5.4	20	14-AUG-19
WG3132183-2 LCS								
% Moisture			101.0		%		90-110	14-AUG-19
WG3132183-1 MB								
% Moisture			<0.10		%		0.1	14-AUG-19
Batch R4757741								
WG3134554-3 DUP		**L2328062-2**						
% Moisture		4.42	3.87		%	13	20	16-AUG-19
WG3134554-2 LCS								
% Moisture			98.3		%		90-110	16-AUG-19
WG3134554-1 MB								
% Moisture			<0.10		%		0.1	16-AUG-19
PAH-511-WT	**Soil**							
Batch R4758960								
WG3132662-3 DUP		**WG3132662-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	19-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	19-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4758960								
WG3132662-3 DUP		**WG3132662-5**						
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	19-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	19-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-AUG-19
WG3132662-2 LCS								
1-Methylnaphthalene			98.2		%		50-140	19-AUG-19
2-Methylnaphthalene			93.4		%		50-140	19-AUG-19
Acenaphthene			99.6		%		50-140	19-AUG-19
Acenaphthylene			101.9		%		50-140	19-AUG-19
Anthracene			97.9		%		50-140	19-AUG-19
Benzo(a)anthracene			97.9		%		50-140	19-AUG-19
Benzo(a)pyrene			94.9		%		50-140	19-AUG-19
Benzo(b)fluoranthene			85.7		%		50-140	19-AUG-19
Benzo(g,h,i)perylene			99.0		%		50-140	19-AUG-19
Benzo(k)fluoranthene			103.7		%		50-140	19-AUG-19
Chrysene			101.9		%		50-140	19-AUG-19
Dibenzo(ah)anthracene			99.3		%		50-140	19-AUG-19
Fluoranthene			95.9		%		50-140	19-AUG-19
Fluorene			97.5		%		50-140	19-AUG-19
Indeno(1,2,3-cd)pyrene			100.0		%		50-140	19-AUG-19
Naphthalene			96.1		%		50-140	19-AUG-19
Phenanthrene			98.2		%		50-140	19-AUG-19
Pyrene			96.0		%		50-140	19-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4758960								
WG3132662-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	19-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	19-AUG-19
Acenaphthene			<0.050		ug/g		0.05	19-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	19-AUG-19
Anthracene			<0.050		ug/g		0.05	19-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	19-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	19-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	19-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	19-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	19-AUG-19
Chrysene			<0.050		ug/g		0.05	19-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	19-AUG-19
Fluoranthene			<0.050		ug/g		0.05	19-AUG-19
Fluorene			<0.050		ug/g		0.05	19-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	19-AUG-19
Naphthalene			<0.013		ug/g		0.013	19-AUG-19
Phenanthrene			<0.046		ug/g		0.046	19-AUG-19
Pyrene			<0.050		ug/g		0.05	19-AUG-19
Surrogate: 2-Fluorobiphenyl			94.8		%		50-140	19-AUG-19
Surrogate: p-Terphenyl d14			87.5		%		50-140	19-AUG-19
WG3132662-4 MS		**WG3132662-5**						
1-Methylnaphthalene			95.2		%		50-140	19-AUG-19
2-Methylnaphthalene			90.7		%		50-140	19-AUG-19
Acenaphthene			96.9		%		50-140	19-AUG-19
Acenaphthylene			100.1		%		50-140	19-AUG-19
Anthracene			95.9		%		50-140	19-AUG-19
Benzo(a)anthracene			97.4		%		50-140	19-AUG-19
Benzo(a)pyrene			93.0		%		50-140	19-AUG-19
Benzo(b)fluoranthene			83.7		%		50-140	19-AUG-19
Benzo(g,h,i)perylene			91.3		%		50-140	19-AUG-19
Benzo(k)fluoranthene			100.2		%		50-140	19-AUG-19
Chrysene			99.2		%		50-140	19-AUG-19
Dibenzo(ah)anthracene			92.6		%		50-140	19-AUG-19
Fluoranthene			94.8		%		50-140	19-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4758960								
WG3132662-4 MS		**WG3132662-5**						
Fluorene			94.8		%		50-140	19-AUG-19
Indeno(1,2,3-cd)pyrene			101.3		%		50-140	19-AUG-19
Naphthalene			93.2		%		50-140	19-AUG-19
Phenanthrene			94.7		%		50-140	19-AUG-19
Pyrene			95.7		%		50-140	19-AUG-19
Batch R4759630								
WG3134770-3 DUP		**WG3134770-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	20-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	20-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
WG3134770-2 LCS								
1-Methylnaphthalene			100.6		%		50-140	20-AUG-19
2-Methylnaphthalene			96.4		%		50-140	20-AUG-19
Acenaphthene			102.9		%		50-140	20-AUG-19
Acenaphthylene			107.9		%		50-140	20-AUG-19
Anthracene			101.9		%		50-140	20-AUG-19
Benzo(a)anthracene			106.0		%		50-140	20-AUG-19
Benzo(a)pyrene			101.6		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4759630								
WG3134770-2 LCS								
Benzo(b)fluoranthene			99.6		%		50-140	20-AUG-19
Benzo(g,h,i)perylene			99.9		%		50-140	20-AUG-19
Benzo(k)fluoranthene			100.5		%		50-140	20-AUG-19
Chrysene			106.3		%		50-140	20-AUG-19
Dibenzo(ah)anthracene			100.8		%		50-140	20-AUG-19
Fluoranthene			101.1		%		50-140	20-AUG-19
Fluorene			101.7		%		50-140	20-AUG-19
Indeno(1,2,3-cd)pyrene			103.0		%		50-140	20-AUG-19
Naphthalene			98.1		%		50-140	20-AUG-19
Phenanthrene			101.8		%		50-140	20-AUG-19
Pyrene			102.5		%		50-140	20-AUG-19
WG3134770-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	20-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	20-AUG-19
Acenaphthene			<0.050		ug/g		0.05	20-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	20-AUG-19
Anthracene			<0.050		ug/g		0.05	20-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	20-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	20-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	20-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	20-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	20-AUG-19
Chrysene			<0.050		ug/g		0.05	20-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	20-AUG-19
Fluoranthene			<0.050		ug/g		0.05	20-AUG-19
Fluorene			<0.050		ug/g		0.05	20-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	20-AUG-19
Naphthalene			<0.013		ug/g		0.013	20-AUG-19
Phenanthrene			<0.046		ug/g		0.046	20-AUG-19
Pyrene			<0.050		ug/g		0.05	20-AUG-19
Surrogate: 2-Fluorobiphenyl			104.1		%		50-140	20-AUG-19
Surrogate: p-Terphenyl d14			90.2		%		50-140	20-AUG-19
WG3134770-4 MS		**WG3134770-5**						
1-Methylnaphthalene			100.8		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4759630								
WG3134770-4 MS		**WG3134770-5**						
2-Methylnaphthalene			96.2		%		50-140	20-AUG-19
Acenaphthene			102.7		%		50-140	20-AUG-19
Acenaphthylene			105.9		%		50-140	20-AUG-19
Anthracene			102.1		%		50-140	20-AUG-19
Benzo(a)anthracene			105.7		%		50-140	20-AUG-19
Benzo(a)pyrene			101.6		%		50-140	20-AUG-19
Benzo(b)fluoranthene			105.3		%		50-140	20-AUG-19
Benzo(g,h,i)perylene			99.6		%		50-140	20-AUG-19
Benzo(k)fluoranthene			98.8		%		50-140	20-AUG-19
Chrysene			107.4		%		50-140	20-AUG-19
Dibenzo(ah)anthracene			101.3		%		50-140	20-AUG-19
Fluoranthene			100.7		%		50-140	20-AUG-19
Fluorene			100.9		%		50-140	20-AUG-19
Indeno(1,2,3-cd)pyrene			104.6		%		50-140	20-AUG-19
Naphthalene			98.6		%		50-140	20-AUG-19
Phenanthrene			102.3		%		50-140	20-AUG-19
Pyrene			102.2		%		50-140	20-AUG-19
PH-WT	**Soil**							
Batch R4761648								
WG3136112-1 DUP		**L2328868-11**						
pH		8.03	8.19	J	pH units	0.16	0.3	20-AUG-19
WG3137812-1 LCS								
pH			6.94		pH units		6.9-7.1	20-AUG-19
SAR-R511-WT	**Soil**							
Batch R4764550								
WG3139782-4 DUP		**WG3139782-3**						
Calcium (Ca)		19.9	19.4		mg/L	2.5	30	22-AUG-19
Sodium (Na)		192	191		mg/L	0.5	30	22-AUG-19
Magnesium (Mg)		4.09	3.97		mg/L	3.0	30	22-AUG-19
WG3139782-2 IRM		**WT SAR3**						
Calcium (Ca)			92.7		%		70-130	22-AUG-19
Sodium (Na)			100.9		%		70-130	22-AUG-19
Magnesium (Mg)			95.7		%		70-130	22-AUG-19
WG3139782-5 LCS								

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4764550								
WG3139782-5 LCS								
Calcium (Ca)			102.3		%		70-130	22-AUG-19
Sodium (Na)			100.6		%		70-130	22-AUG-19
Magnesium (Mg)			97.8		%		70-130	22-AUG-19
WG3139782-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	22-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	22-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	22-AUG-19
Batch R4764840								
WG3139781-4 DUP		**WG3139781-3**						
Calcium (Ca)		31.9	31.9		mg/L	0.0	30	22-AUG-19
Sodium (Na)		35.4	35.0		mg/L	1.1	30	22-AUG-19
Magnesium (Mg)		4.34	4.31		mg/L	0.7	30	22-AUG-19
WG3139781-2 IRM		**WT SAR3**						
Calcium (Ca)			92.5		%		70-130	22-AUG-19
Sodium (Na)			101.6		%		70-130	22-AUG-19
Magnesium (Mg)			96.2		%		70-130	22-AUG-19
WG3139781-5 LCS								
Calcium (Ca)			102.7		%		70-130	22-AUG-19
Sodium (Na)			100.8		%		70-130	22-AUG-19
Magnesium (Mg)			98.2		%		70-130	22-AUG-19
WG3139781-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	22-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	22-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	22-AUG-19
Batch R4765241								
WG3140439-4 DUP		**WG3140439-3**						
Calcium (Ca)		20.7	20.7		mg/L	0.0	30	22-AUG-19
Sodium (Na)		6.63	6.48		mg/L	2.3	30	22-AUG-19
Magnesium (Mg)		2.14	2.14		mg/L	0.0	30	22-AUG-19
WG3140439-2 IRM		**WT SAR3**						
Calcium (Ca)			80.4		%		70-130	22-AUG-19
Sodium (Na)			98.5		%		70-130	22-AUG-19
Magnesium (Mg)			85.5		%		70-130	22-AUG-19
WG3140439-5 LCS								
Calcium (Ca)			101.3		%		70-130	22-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4765241								
WG3140439-5 LCS								
Sodium (Na)			100.0		%		70-130	22-AUG-19
Magnesium (Mg)			97.0		%		70-130	22-AUG-19
WG3140439-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	22-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	22-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	22-AUG-19
Batch R4782565								
WG3150996-4 DUP		**WG3150996-3**						
Calcium (Ca)		5.01	4.72		mg/L	6.0	30	04-SEP-19
Sodium (Na)		28.9	34.2		mg/L	17	30	04-SEP-19
Magnesium (Mg)		0.87	1.01		mg/L	15	30	04-SEP-19
WG3150996-2 IRM		**WT SAR3**						
Calcium (Ca)			90.2		%		70-130	04-SEP-19
Sodium (Na)			95.4		%		70-130	04-SEP-19
Magnesium (Mg)			96.2		%		70-130	04-SEP-19
WG3150996-5 LCS								
Calcium (Ca)			106.7		%		70-130	04-SEP-19
Sodium (Na)			101.0		%		70-130	04-SEP-19
Magnesium (Mg)			104.2		%		70-130	04-SEP-19
WG3150996-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	04-SEP-19
Sodium (Na)			<0.50		mg/L		0.5	04-SEP-19
Magnesium (Mg)			<0.50		mg/L		0.5	04-SEP-19
Batch R4782730								
WG3151001-4 DUP		**L2328158-6**						
Calcium (Ca)		54.0	54.0		mg/L	0.0	30	04-SEP-19
Sodium (Na)		87.1	87.1		mg/L	0.0	30	04-SEP-19
Magnesium (Mg)		4.57	4.57		mg/L	0.0	30	04-SEP-19
WG3151001-2 IRM		**WT SAR3**						
Calcium (Ca)			87.6		%		70-130	04-SEP-19
Sodium (Na)			95.4		%		70-130	04-SEP-19
Magnesium (Mg)			93.0		%		70-130	04-SEP-19
WG3151001-5 LCS								
Calcium (Ca)			107.0		%		70-130	04-SEP-19
Sodium (Na)			101.8		%		70-130	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4782730								
WG3151001-5 LCS								
Magnesium (Mg)			104.4		%		70-130	04-SEP-19
WG3151001-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	04-SEP-19
Sodium (Na)			<0.50		mg/L		0.5	04-SEP-19
Magnesium (Mg)			<0.50		mg/L		0.5	04-SEP-19
VOC-511-HS-WT	**Soil**							
Batch R4759541								
WG3136345-4 DUP		**WG3136345-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	20-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	20-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	20-AUG-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759541								
WG3136345-4 DUP		**WG3136345-3**						
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	20-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	20-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	20-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-AUG-19
WG3136345-2 LCS								
1,1,1,2-Tetrachloroethane			103.1		%		60-130	20-AUG-19
1,1,2,2-Tetrachloroethane			99.1		%		60-130	20-AUG-19
1,1,1-Trichloroethane			109.3		%		60-130	20-AUG-19
1,1,2-Trichloroethane			98.9		%		60-130	20-AUG-19
1,1-Dichloroethane			93.5		%		60-130	20-AUG-19
1,1-Dichloroethylene			106.9		%		60-130	20-AUG-19
1,2-Dibromoethane			90.2		%		70-130	20-AUG-19
1,2-Dichlorobenzene			101.9		%		70-130	20-AUG-19
1,2-Dichloroethane			105.1		%		60-130	20-AUG-19
1,2-Dichloropropane			108.0		%		70-130	20-AUG-19
1,3-Dichlorobenzene			105.3		%		70-130	20-AUG-19
1,4-Dichlorobenzene			101.7		%		70-130	20-AUG-19
Acetone			99.8		%		60-140	20-AUG-19
Benzene			111.3		%		70-130	20-AUG-19
Bromodichloromethane			102.2		%		50-140	20-AUG-19
Bromoform			90.9		%		70-130	20-AUG-19
Bromomethane			86.6		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759541								
WG3136345-2 LCS								
Carbon tetrachloride			108.3		%		70-130	20-AUG-19
Chlorobenzene			104.0		%		70-130	20-AUG-19
Chloroform			102.1		%		70-130	20-AUG-19
cis-1,2-Dichloroethylene			97.6		%		70-130	20-AUG-19
cis-1,3-Dichloropropene			97.8		%		70-130	20-AUG-19
Dibromochloromethane			94.8		%		60-130	20-AUG-19
Dichlorodifluoromethane			70.5		%		50-140	20-AUG-19
Ethylbenzene			105.8		%		70-130	20-AUG-19
n-Hexane			97.8		%		70-130	20-AUG-19
Methylene Chloride			90.0		%		70-130	20-AUG-19
MTBE			100.8		%		70-130	20-AUG-19
m+p-Xylenes			112.8		%		70-130	20-AUG-19
Methyl Ethyl Ketone			82.3		%		60-140	20-AUG-19
Methyl Isobutyl Ketone			91.3		%		60-140	20-AUG-19
o-Xylene			104.2		%		70-130	20-AUG-19
Styrene			100.8		%		70-130	20-AUG-19
Tetrachloroethylene			104.1		%		60-130	20-AUG-19
Toluene			106.5		%		70-130	20-AUG-19
trans-1,2-Dichloroethylene			102.1		%		60-130	20-AUG-19
trans-1,3-Dichloropropene			92.4		%		70-130	20-AUG-19
Trichloroethylene			104.1		%		60-130	20-AUG-19
Trichlorofluoromethane			91.3		%		50-140	20-AUG-19
Vinyl chloride			109.6		%		60-140	20-AUG-19
WG3136345-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	20-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	20-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	20-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759541								
WG3136345-1 MB								
1,3-Dichlorobenzene			<0.050		ug/g		0.05	20-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	20-AUG-19
Acetone			<0.50		ug/g		0.5	20-AUG-19
Benzene			<0.0068		ug/g		0.0068	20-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	20-AUG-19
Bromoform			<0.050		ug/g		0.05	20-AUG-19
Bromomethane			<0.050		ug/g		0.05	20-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	20-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	20-AUG-19
Chloroform			<0.050		ug/g		0.05	20-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	20-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	20-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	20-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	20-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	20-AUG-19
n-Hexane			<0.050		ug/g		0.05	20-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	20-AUG-19
MTBE			<0.050		ug/g		0.05	20-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	20-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	20-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	20-AUG-19
o-Xylene			<0.020		ug/g		0.02	20-AUG-19
Styrene			<0.050		ug/g		0.05	20-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	20-AUG-19
Toluene			<0.080		ug/g		0.08	20-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	20-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	20-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	20-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	20-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	20-AUG-19
Surrogate: 1,4-Difluorobenzene			114.3		%		50-140	20-AUG-19
Surrogate: 4-Bromofluorobenzene			85.1		%		50-140	20-AUG-19
WG3136345-5 MS		**L2329664-1**						
1,1,1,2-Tetrachloroethane			98.9		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759541								
WG3136345-5 MS		**L2329664-1**						
1,1,2,2-Tetrachloroethane			95.4		%		50-140	20-AUG-19
1,1,1-Trichloroethane			103.8		%		50-140	20-AUG-19
1,1,2-Trichloroethane			96.1		%		50-140	20-AUG-19
1,1-Dichloroethane			89.2		%		50-140	20-AUG-19
1,1-Dichloroethylene			102.5		%		50-140	20-AUG-19
1,2-Dibromoethane			88.3		%		50-140	20-AUG-19
1,2-Dichlorobenzene			97.1		%		50-140	20-AUG-19
1,2-Dichloroethane			100.7		%		50-140	20-AUG-19
1,2-Dichloropropane			103.5		%		50-140	20-AUG-19
1,3-Dichlorobenzene			100.2		%		50-140	20-AUG-19
1,4-Dichlorobenzene			96.9		%		50-140	20-AUG-19
Acetone			99.9		%		50-140	20-AUG-19
Benzene			106.7		%		50-140	20-AUG-19
Bromodichloromethane			97.4		%		50-140	20-AUG-19
Bromoform			87.4		%		50-140	20-AUG-19
Bromomethane			82.5		%		50-140	20-AUG-19
Carbon tetrachloride			102.6		%		50-140	20-AUG-19
Chlorobenzene			99.3		%		50-140	20-AUG-19
Chloroform			97.0		%		50-140	20-AUG-19
cis-1,2-Dichloroethylene			93.7		%		50-140	20-AUG-19
cis-1,3-Dichloropropene			91.4		%		50-140	20-AUG-19
Dibromochloromethane			91.7		%		50-140	20-AUG-19
Dichlorodifluoromethane			73.0		%		50-140	20-AUG-19
Ethylbenzene			103.0		%		50-140	20-AUG-19
n-Hexane			95.5		%		50-140	20-AUG-19
Methylene Chloride			85.4		%		50-140	20-AUG-19
MTBE			96.4		%		50-140	20-AUG-19
m+p-Xylenes			107.6		%		50-140	20-AUG-19
Methyl Ethyl Ketone			79.5		%		50-140	20-AUG-19
Methyl Isobutyl Ketone			89.2		%		50-140	20-AUG-19
o-Xylene			102.3		%		50-140	20-AUG-19
Styrene			97.9		%		50-140	20-AUG-19
Tetrachloroethylene			99.5		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759541								
WG3136345-5 MS		**L2329664-1**						
Toluene			102.6		%		50-140	20-AUG-19
trans-1,2-Dichloroethylene			96.6		%		50-140	20-AUG-19
trans-1,3-Dichloropropene			86.9		%		50-140	20-AUG-19
Trichloroethylene			99.0		%		50-140	20-AUG-19
Trichlorofluoromethane			88.0		%		50-140	20-AUG-19
Vinyl chloride			109.5		%		50-140	20-AUG-19
Batch R4759545								
WG3136405-4 DUP		**WG3136405-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	20-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	20-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759545								
WG3136405-4 DUP		**WG3136405-3**						
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	20-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	20-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	20-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-AUG-19
WG3136405-2 LCS								
1,1,1,2-Tetrachloroethane			105.2		%		60-130	20-AUG-19
1,1,2,2-Tetrachloroethane			100.6		%		60-130	20-AUG-19
1,1,1-Trichloroethane			114.2		%		60-130	20-AUG-19
1,1,2-Trichloroethane			100.1		%		60-130	20-AUG-19
1,1-Dichloroethane			97.0		%		60-130	20-AUG-19
1,1-Dichloroethylene			112.1		%		60-130	20-AUG-19
1,2-Dibromoethane			89.9		%		70-130	20-AUG-19
1,2-Dichlorobenzene			103.5		%		70-130	20-AUG-19
1,2-Dichloroethane			107.5		%		60-130	20-AUG-19
1,2-Dichloropropane			110.4		%		70-130	20-AUG-19
1,3-Dichlorobenzene			106.9		%		70-130	20-AUG-19
1,4-Dichlorobenzene			103.6		%		70-130	20-AUG-19
Acetone			102.8		%		60-140	20-AUG-19
Benzene			115.3		%		70-130	20-AUG-19
Bromodichloromethane			104.8		%		50-140	20-AUG-19
Bromoform			91.7		%		70-130	20-AUG-19
Bromomethane			89.6		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759545								
WG3136405-2 LCS								
Carbon tetrachloride			113.4		%		70-130	20-AUG-19
Chlorobenzene			106.0		%		70-130	20-AUG-19
Chloroform			106.1		%		70-130	20-AUG-19
cis-1,2-Dichloroethylene			99.6		%		70-130	20-AUG-19
cis-1,3-Dichloropropene			96.3		%		70-130	20-AUG-19
Dibromochloromethane			95.8		%		60-130	20-AUG-19
Dichlorodifluoromethane			78.0		%		50-140	20-AUG-19
Ethylbenzene			106.1		%		70-130	20-AUG-19
n-Hexane			103.1		%		70-130	20-AUG-19
Methylene Chloride			93.8		%		70-130	20-AUG-19
MTBE			103.0		%		70-130	20-AUG-19
m+p-Xylenes			115.2		%		70-130	20-AUG-19
Methyl Ethyl Ketone			80.7		%		60-140	20-AUG-19
Methyl Isobutyl Ketone			89.8		%		60-140	20-AUG-19
o-Xylene			105.0		%		70-130	20-AUG-19
Styrene			100.8		%		70-130	20-AUG-19
Tetrachloroethylene			105.7		%		60-130	20-AUG-19
Toluene			108.0		%		70-130	20-AUG-19
trans-1,2-Dichloroethylene			106.0		%		60-130	20-AUG-19
trans-1,3-Dichloropropene			89.5		%		70-130	20-AUG-19
Trichloroethylene			106.5		%		60-130	20-AUG-19
Trichlorofluoromethane			96.7		%		50-140	20-AUG-19
Vinyl chloride			117.4		%		60-140	20-AUG-19
WG3136405-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	20-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	20-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	20-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759545								
WG3136405-1 MB								
1,3-Dichlorobenzene			<0.050		ug/g		0.05	20-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	20-AUG-19
Acetone			<0.50		ug/g		0.5	20-AUG-19
Benzene			0.0090	MB-LOR	ug/g		0.0068	20-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	20-AUG-19
Bromoform			<0.050		ug/g		0.05	20-AUG-19
Bromomethane			<0.050		ug/g		0.05	20-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	20-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	20-AUG-19
Chloroform			<0.050		ug/g		0.05	20-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	20-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	20-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	20-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	20-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	20-AUG-19
n-Hexane			<0.050		ug/g		0.05	20-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	20-AUG-19
MTBE			<0.050		ug/g		0.05	20-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	20-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	20-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	20-AUG-19
o-Xylene			<0.020		ug/g		0.02	20-AUG-19
Styrene			<0.050		ug/g		0.05	20-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	20-AUG-19
Toluene			<0.080		ug/g		0.08	20-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	20-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	20-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	20-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	20-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	20-AUG-19
Surrogate: 1,4-Difluorobenzene			106.7		%		50-140	20-AUG-19
Surrogate: 4-Bromofluorobenzene			78.9		%		50-140	20-AUG-19
WG3136405-5 MS		**L2328105-3**						
1,1,1,2-Tetrachloroethane			113.2		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759545								
WG3136405-5 MS		**L2328105-3**						
1,1,2,2-Tetrachloroethane			119.6		%		50-140	20-AUG-19
1,1,1-Trichloroethane			119.1		%		50-140	20-AUG-19
1,1,2-Trichloroethane			113.9		%		50-140	20-AUG-19
1,1-Dichloroethane			104.5		%		50-140	20-AUG-19
1,1-Dichloroethylene			114.4		%		50-140	20-AUG-19
1,2-Dibromoethane			102.9		%		50-140	20-AUG-19
1,2-Dichlorobenzene			108.5		%		50-140	20-AUG-19
1,2-Dichloroethane			122.6		%		50-140	20-AUG-19
1,2-Dichloropropane			122.3		%		50-140	20-AUG-19
1,3-Dichlorobenzene			107.7		%		50-140	20-AUG-19
1,4-Dichlorobenzene			104.2		%		50-140	20-AUG-19
Acetone			124.7		%		50-140	20-AUG-19
Benzene			123.3		%		50-140	20-AUG-19
Bromodichloromethane			117.4		%		50-140	20-AUG-19
Bromoform			106.3		%		50-140	20-AUG-19
Bromomethane			92.7		%		50-140	20-AUG-19
Carbon tetrachloride			117.3		%		50-140	20-AUG-19
Chlorobenzene			111.1		%		50-140	20-AUG-19
Chloroform			116.0		%		50-140	20-AUG-19
cis-1,2-Dichloroethylene			107.3		%		50-140	20-AUG-19
cis-1,3-Dichloropropene			104.2		%		50-140	20-AUG-19
Dibromochloromethane			108.1		%		50-140	20-AUG-19
Dichlorodifluoromethane			69.6		%		50-140	20-AUG-19
Ethylbenzene			106.5		%		50-140	20-AUG-19
n-Hexane			101.6		%		50-140	20-AUG-19
Methylene Chloride			102.4		%		50-140	20-AUG-19
MTBE			108.1		%		50-140	20-AUG-19
m+p-Xylenes			115.4		%		50-140	20-AUG-19
Methyl Ethyl Ketone			99.5		%		50-140	20-AUG-19
Methyl Isobutyl Ketone			112.8		%		50-140	20-AUG-19
o-Xylene			107.3		%		50-140	20-AUG-19
Styrene			104.4		%		50-140	20-AUG-19
Tetrachloroethylene			103.4		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759545								
WG3136405-5 MS		**L2328105-3**						
Toluene			110.7		%		50-140	20-AUG-19
trans-1,2-Dichloroethylene			108.8		%		50-140	20-AUG-19
trans-1,3-Dichloropropene			96.4		%		50-140	20-AUG-19
Trichloroethylene			109.9		%		50-140	20-AUG-19
Trichlorofluoromethane			96.9		%		50-140	20-AUG-19
Vinyl chloride			115.3		%		50-140	20-AUG-19
Batch R4759637								
WG3136428-4 DUP		**WG3136428-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	20-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	20-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759637								
WG3136428-4 DUP		**WG3136428-3**						
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	20-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	20-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	20-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-AUG-19
WG3136428-2 LCS								
1,1,1,2-Tetrachloroethane			97.4		%		60-130	20-AUG-19
1,1,2,2-Tetrachloroethane			76.4		%		60-130	20-AUG-19
1,1,1-Trichloroethane			97.7		%		60-130	20-AUG-19
1,1,2-Trichloroethane			89.6		%		60-130	20-AUG-19
1,1-Dichloroethane			91.3		%		60-130	20-AUG-19
1,1-Dichloroethylene			90.7		%		60-130	20-AUG-19
1,2-Dibromoethane			87.1		%		70-130	20-AUG-19
1,2-Dichlorobenzene			97.2		%		70-130	20-AUG-19
1,2-Dichloroethane			84.2		%		60-130	20-AUG-19
1,2-Dichloropropane			88.8		%		70-130	20-AUG-19
1,3-Dichlorobenzene			103.5		%		70-130	20-AUG-19
1,4-Dichlorobenzene			102.7		%		70-130	20-AUG-19
Acetone			73.5		%		60-140	20-AUG-19
Benzene			97.5		%		70-130	20-AUG-19
Bromodichloromethane			87.1		%		50-140	20-AUG-19
Bromoform			86.7		%		70-130	20-AUG-19
Bromomethane			85.6		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759637								
WG3136428-2 LCS								
Carbon tetrachloride			104.5		%		70-130	20-AUG-19
Chlorobenzene			93.6		%		70-130	20-AUG-19
Chloroform			93.8		%		70-130	20-AUG-19
cis-1,2-Dichloroethylene			96.1		%		70-130	20-AUG-19
cis-1,3-Dichloropropene			91.2		%		70-130	20-AUG-19
Dibromochloromethane			90.7		%		60-130	20-AUG-19
Dichlorodifluoromethane			68.3		%		50-140	20-AUG-19
Ethylbenzene			99.0		%		70-130	20-AUG-19
n-Hexane			88.2		%		70-130	20-AUG-19
Methylene Chloride			88.7		%		70-130	20-AUG-19
MTBE			96.5		%		70-130	20-AUG-19
m+p-Xylenes			97.5		%		70-130	20-AUG-19
Methyl Ethyl Ketone			72.7		%		60-140	20-AUG-19
Methyl Isobutyl Ketone			64.8		%		60-140	20-AUG-19
o-Xylene			96.4		%		70-130	20-AUG-19
Styrene			94.1		%		70-130	20-AUG-19
Tetrachloroethylene			108.4		%		60-130	20-AUG-19
Toluene			95.2		%		70-130	20-AUG-19
trans-1,2-Dichloroethylene			92.0		%		60-130	20-AUG-19
trans-1,3-Dichloropropene			91.8		%		70-130	20-AUG-19
Trichloroethylene			104.5		%		60-130	20-AUG-19
Trichlorofluoromethane			97.9		%		50-140	20-AUG-19
Vinyl chloride			96.4		%		60-140	20-AUG-19
WG3136428-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	20-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	20-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	20-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	20-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759637								
WG3136428-1 MB								
1,3-Dichlorobenzene			<0.050		ug/g		0.05	20-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	20-AUG-19
Acetone			<0.50		ug/g		0.5	20-AUG-19
Benzene			<0.0068		ug/g		0.0068	20-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	20-AUG-19
Bromoform			<0.050		ug/g		0.05	20-AUG-19
Bromomethane			<0.050		ug/g		0.05	20-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	20-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	20-AUG-19
Chloroform			<0.050		ug/g		0.05	20-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	20-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	20-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	20-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	20-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	20-AUG-19
n-Hexane			<0.050		ug/g		0.05	20-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	20-AUG-19
MTBE			<0.050		ug/g		0.05	20-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	20-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	20-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	20-AUG-19
o-Xylene			<0.020		ug/g		0.02	20-AUG-19
Styrene			<0.050		ug/g		0.05	20-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	20-AUG-19
Toluene			<0.080		ug/g		0.08	20-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	20-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	20-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	20-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	20-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	20-AUG-19
Surrogate: 1,4-Difluorobenzene			111.2		%		50-140	20-AUG-19
Surrogate: 4-Bromofluorobenzene			95.7		%		50-140	20-AUG-19
WG3136428-5 MS		**L2328062-17**						
1,1,1,2-Tetrachloroethane			99.3		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759637								
WG3136428-5 MS		**L2328062-17**						
1,1,2,2-Tetrachloroethane			95.6		%		50-140	20-AUG-19
1,1,1-Trichloroethane			89.9		%		50-140	20-AUG-19
1,1,2-Trichloroethane			106.9		%		50-140	20-AUG-19
1,1-Dichloroethane			92.1		%		50-140	20-AUG-19
1,1-Dichloroethylene			81.6		%		50-140	20-AUG-19
1,2-Dibromoethane			109.2		%		50-140	20-AUG-19
1,2-Dichlorobenzene			96.9		%		50-140	20-AUG-19
1,2-Dichloroethane			104.3		%		50-140	20-AUG-19
1,2-Dichloropropane			99.1		%		50-140	20-AUG-19
1,3-Dichlorobenzene			94.1		%		50-140	20-AUG-19
1,4-Dichlorobenzene			95.6		%		50-140	20-AUG-19
Acetone			101.6		%		50-140	20-AUG-19
Benzene			98.7		%		50-140	20-AUG-19
Bromodichloromethane			97.4		%		50-140	20-AUG-19
Bromoform			107.5		%		50-140	20-AUG-19
Bromomethane			86.3		%		50-140	20-AUG-19
Carbon tetrachloride			93.0		%		50-140	20-AUG-19
Chlorobenzene			92.1		%		50-140	20-AUG-19
Chloroform			96.7		%		50-140	20-AUG-19
cis-1,2-Dichloroethylene			99.5		%		50-140	20-AUG-19
cis-1,3-Dichloropropene			105.2		%		50-140	20-AUG-19
Dibromochloromethane			103.8		%		50-140	20-AUG-19
Dichlorodifluoromethane			65.3		%		50-140	20-AUG-19
Ethylbenzene			88.0		%		50-140	20-AUG-19
n-Hexane			76.7		%		50-140	20-AUG-19
Methylene Chloride			97.7		%		50-140	20-AUG-19
MTBE			95.3		%		50-140	20-AUG-19
m+p-Xylenes			86.4		%		50-140	20-AUG-19
Methyl Ethyl Ketone			112.0		%		50-140	20-AUG-19
Methyl Isobutyl Ketone			106.0		%		50-140	20-AUG-19
o-Xylene			90.0		%		50-140	20-AUG-19
Styrene			94.1		%		50-140	20-AUG-19
Tetrachloroethylene			90.8		%		50-140	20-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4759637								
WG3136428-5 MS		**L2328062-17**						
Toluene			87.7		%		50-140	20-AUG-19
trans-1,2-Dichloroethylene			86.8		%		50-140	20-AUG-19
trans-1,3-Dichloropropene			105.4		%		50-140	20-AUG-19
Trichloroethylene			100.8		%		50-140	20-AUG-19
Trichlorofluoromethane			86.5		%		50-140	20-AUG-19
Vinyl chloride			89.0		%		50-140	20-AUG-19
Batch R4761934								
WG3136529-4 DUP		**WG3136529-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	21-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4761934								
WG3136529-4 DUP		**WG3136529-3**						
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	21-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-AUG-19
WG3136529-2 LCS								
1,1,1,2-Tetrachloroethane			112.1		%		60-130	21-AUG-19
1,1,2,2-Tetrachloroethane			110.5		%		60-130	21-AUG-19
1,1,1-Trichloroethane			120.6		%		60-130	21-AUG-19
1,1,2-Trichloroethane			109.5		%		60-130	21-AUG-19
1,1-Dichloroethane			103.4		%		60-130	21-AUG-19
1,1-Dichloroethylene			118.5		%		60-130	21-AUG-19
1,2-Dibromoethane			99.5		%		70-130	21-AUG-19
1,2-Dichlorobenzene			109.1		%		70-130	21-AUG-19
1,2-Dichloroethane			118.5		%		60-130	21-AUG-19
1,2-Dichloropropane			120.4		%		70-130	21-AUG-19
1,3-Dichlorobenzene			113.6		%		70-130	21-AUG-19
1,4-Dichlorobenzene			109.0		%		70-130	21-AUG-19
Acetone			112.5		%		60-140	21-AUG-19
Benzene			123.6		%		70-130	21-AUG-19
Bromodichloromethane			114.2		%		50-140	21-AUG-19
Bromoform			100.8		%		70-130	21-AUG-19
Bromomethane			97.6		%		50-140	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4761934								
WG3136529-2 LCS								
Carbon tetrachloride			119.0		%		70-130	21-AUG-19
Chlorobenzene			113.2		%		70-130	21-AUG-19
Chloroform			114.3		%		70-130	21-AUG-19
cis-1,2-Dichloroethylene			108.2		%		70-130	21-AUG-19
cis-1,3-Dichloropropene			110.1		%		70-130	21-AUG-19
Dibromochloromethane			104.5		%		60-130	21-AUG-19
Dichlorodifluoromethane			78.1		%		50-140	21-AUG-19
Ethylbenzene			112.9		%		70-130	21-AUG-19
n-Hexane			108.1		%		70-130	21-AUG-19
Methylene Chloride			101.2		%		70-130	21-AUG-19
MTBE			107.0		%		70-130	21-AUG-19
m+p-Xylenes			121.5		%		70-130	21-AUG-19
Methyl Ethyl Ketone			93.2		%		60-140	21-AUG-19
Methyl Isobutyl Ketone			102.4		%		60-140	21-AUG-19
o-Xylene			111.7		%		70-130	21-AUG-19
Styrene			108.2		%		70-130	21-AUG-19
Tetrachloroethylene			112.0		%		60-130	21-AUG-19
Toluene			114.9		%		70-130	21-AUG-19
trans-1,2-Dichloroethylene			113.3		%		60-130	21-AUG-19
trans-1,3-Dichloropropene			103.3		%		70-130	21-AUG-19
Trichloroethylene			114.0		%		60-130	21-AUG-19
Trichlorofluoromethane			100.9		%		50-140	21-AUG-19
Vinyl chloride			121.5		%		60-140	21-AUG-19
WG3136529-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	21-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	21-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4761934								
WG3136529-1 MB								
1,3-Dichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
Acetone			<0.50		ug/g		0.5	21-AUG-19
Benzene			<0.0068		ug/g		0.0068	21-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	21-AUG-19
Bromoform			<0.050		ug/g		0.05	21-AUG-19
Bromomethane			<0.050		ug/g		0.05	21-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	21-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	21-AUG-19
Chloroform			<0.050		ug/g		0.05	21-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	21-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	21-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	21-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	21-AUG-19
n-Hexane			<0.050		ug/g		0.05	21-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	21-AUG-19
MTBE			<0.050		ug/g		0.05	21-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	21-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	21-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	21-AUG-19
o-Xylene			<0.020		ug/g		0.02	21-AUG-19
Styrene			<0.050		ug/g		0.05	21-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	21-AUG-19
Toluene			<0.080		ug/g		0.08	21-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	21-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	21-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	21-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	21-AUG-19
Surrogate: 1,4-Difluorobenzene			111.0		%		50-140	21-AUG-19
Surrogate: 4-Bromofluorobenzene			81.3		%		50-140	21-AUG-19
WG3136529-5 MS		**L2328062-16**						
1,1,1,2-Tetrachloroethane			103.8		%		50-140	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4761934								
WG3136529-5 MS		**L2328062-16**						
1,1,2,2-Tetrachloroethane			100.2		%		50-140	21-AUG-19
1,1,1-Trichloroethane			113.1		%		50-140	21-AUG-19
1,1,2-Trichloroethane			100.9		%		50-140	21-AUG-19
1,1-Dichloroethane			101.7		%		50-140	21-AUG-19
1,1-Dichloroethylene			112.3		%		50-140	21-AUG-19
1,2-Dibromoethane			91.5		%		50-140	21-AUG-19
1,2-Dichlorobenzene			101.2		%		50-140	21-AUG-19
1,2-Dichloroethane			109.7		%		50-140	21-AUG-19
1,2-Dichloropropane			111.3		%		50-140	21-AUG-19
1,3-Dichlorobenzene			105.3		%		50-140	21-AUG-19
1,4-Dichlorobenzene			100.7		%		50-140	21-AUG-19
Acetone			111.0		%		50-140	21-AUG-19
Benzene			114.3		%		50-140	21-AUG-19
Bromodichloromethane			105.0		%		50-140	21-AUG-19
Bromoform			91.2		%		50-140	21-AUG-19
Bromomethane			89.9		%		50-140	21-AUG-19
Carbon tetrachloride			111.9		%		50-140	21-AUG-19
Chlorobenzene			104.3		%		50-140	21-AUG-19
Chloroform			105.9		%		50-140	21-AUG-19
cis-1,2-Dichloroethylene			100.0		%		50-140	21-AUG-19
cis-1,3-Dichloropropene			96.1		%		50-140	21-AUG-19
Dibromochloromethane			95.9		%		50-140	21-AUG-19
Dichlorodifluoromethane			83.4		%		50-140	21-AUG-19
Ethylbenzene			102.7		%		50-140	21-AUG-19
n-Hexane			104.0		%		50-140	21-AUG-19
Methylene Chloride			93.9		%		50-140	21-AUG-19
MTBE			99.9		%		50-140	21-AUG-19
m+p-Xylenes			111.3		%		50-140	21-AUG-19
Methyl Ethyl Ketone			85.4		%		50-140	21-AUG-19
Methyl Isobutyl Ketone			92.1		%		50-140	21-AUG-19
o-Xylene			101.3		%		50-140	21-AUG-19
Styrene			97.5		%		50-140	21-AUG-19
Tetrachloroethylene			103.3		%		50-140	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4761934								
WG3136529-5 MS		**L2328062-16**						
Toluene			104.8		%		50-140	21-AUG-19
trans-1,2-Dichloroethylene			105.3		%		50-140	21-AUG-19
trans-1,3-Dichloropropene			89.9		%		50-140	21-AUG-19
Trichloroethylene			104.9		%		50-140	21-AUG-19
Trichlorofluoromethane			96.4		%		50-140	21-AUG-19
Vinyl chloride			118.0		%		50-140	21-AUG-19
Batch R4762112								
WG3137504-4 DUP		**WG3137504-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	21-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4762112								
WG3137504-4 DUP		**WG3137504-3**						
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	21-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-AUG-19
WG3137504-2 LCS								
1,1,1,2-Tetrachloroethane			102.4		%		60-130	21-AUG-19
1,1,2,2-Tetrachloroethane			112.6		%		60-130	21-AUG-19
1,1,1-Trichloroethane			99.5		%		60-130	21-AUG-19
1,1,2-Trichloroethane			108.2		%		60-130	21-AUG-19
1,1-Dichloroethane			99.7		%		60-130	21-AUG-19
1,1-Dichloroethylene			92.0		%		60-130	21-AUG-19
1,2-Dibromoethane			107.1		%		70-130	21-AUG-19
1,2-Dichlorobenzene			106.1		%		70-130	21-AUG-19
1,2-Dichloroethane			112.4		%		60-130	21-AUG-19
1,2-Dichloropropane			112.1		%		70-130	21-AUG-19
1,3-Dichlorobenzene			102.2		%		70-130	21-AUG-19
1,4-Dichlorobenzene			105.1		%		70-130	21-AUG-19
Acetone			120.8		%		60-140	21-AUG-19
Benzene			107.5		%		70-130	21-AUG-19
Bromodichloromethane			108.5		%		50-140	21-AUG-19
Bromoform			109.1		%		70-130	21-AUG-19
Bromomethane			87.1		%		50-140	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4762112								
WG3137504-2 LCS								
Carbon tetrachloride			96.7		%		70-130	21-AUG-19
Chlorobenzene			105.0		%		70-130	21-AUG-19
Chloroform			103.0		%		70-130	21-AUG-19
cis-1,2-Dichloroethylene			100.3		%		70-130	21-AUG-19
cis-1,3-Dichloropropene			111.4		%		70-130	21-AUG-19
Dibromochloromethane			101.1		%		60-130	21-AUG-19
Dichlorodifluoromethane			58.3		%		50-140	21-AUG-19
Ethylbenzene			100.6		%		70-130	21-AUG-19
n-Hexane			88.4		%		70-130	21-AUG-19
Methylene Chloride			100.0		%		70-130	21-AUG-19
MTBE			99.3		%		70-130	21-AUG-19
m+p-Xylenes			101.1		%		70-130	21-AUG-19
Methyl Ethyl Ketone			118.3		%		60-140	21-AUG-19
Methyl Isobutyl Ketone			116.9		%		60-140	21-AUG-19
o-Xylene			101.6		%		70-130	21-AUG-19
Styrene			103.5		%		70-130	21-AUG-19
Tetrachloroethylene			93.4		%		60-130	21-AUG-19
Toluene			98.9		%		70-130	21-AUG-19
trans-1,2-Dichloroethylene			95.2		%		60-130	21-AUG-19
trans-1,3-Dichloropropene			107.7		%		70-130	21-AUG-19
Trichloroethylene			102.0		%		60-130	21-AUG-19
Trichlorofluoromethane			91.2		%		50-140	21-AUG-19
Vinyl chloride			96.9		%		60-140	21-AUG-19
WG3137504-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	21-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	21-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4762112								
WG3137504-1 MB								
1,3-Dichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
Acetone			<0.50		ug/g		0.5	21-AUG-19
Benzene			<0.0068		ug/g		0.0068	21-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	21-AUG-19
Bromoform			<0.050		ug/g		0.05	21-AUG-19
Bromomethane			<0.050		ug/g		0.05	21-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	21-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	21-AUG-19
Chloroform			<0.050		ug/g		0.05	21-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	21-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	21-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	21-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	21-AUG-19
n-Hexane			<0.050		ug/g		0.05	21-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	21-AUG-19
MTBE			<0.050		ug/g		0.05	21-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	21-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	21-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	21-AUG-19
o-Xylene			<0.020		ug/g		0.02	21-AUG-19
Styrene			<0.050		ug/g		0.05	21-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	21-AUG-19
Toluene			<0.080		ug/g		0.08	21-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	21-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	21-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	21-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	21-AUG-19
Surrogate: 1,4-Difluorobenzene			102.4		%		50-140	21-AUG-19
Surrogate: 4-Bromofluorobenzene			90.6		%		50-140	21-AUG-19
WG3137504-5 MS		**L2328868-8**						
1,1,1,2-Tetrachloroethane			103.4		%		50-140	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4762112								
WG3137504-5 MS		**L2328868-8**						
1,1,2,2-Tetrachloroethane			121.2		%		50-140	21-AUG-19
1,1,1-Trichloroethane			98.0		%		50-140	21-AUG-19
1,1,2-Trichloroethane			113.6		%		50-140	21-AUG-19
1,1-Dichloroethane			99.95		%		50-140	21-AUG-19
1,1-Dichloroethylene			90.5		%		50-140	21-AUG-19
1,2-Dibromoethane			112.6		%		50-140	21-AUG-19
1,2-Dichlorobenzene			107.2		%		50-140	21-AUG-19
1,2-Dichloroethane			117.0		%		50-140	21-AUG-19
1,2-Dichloropropane			113.9		%		50-140	21-AUG-19
1,3-Dichlorobenzene			101.2		%		50-140	21-AUG-19
1,4-Dichlorobenzene			103.1		%		50-140	21-AUG-19
Acetone			134.6		%		50-140	21-AUG-19
Benzene			107.1		%		50-140	21-AUG-19
Bromodichloromethane			111.4		%		50-140	21-AUG-19
Bromoform			115.1		%		50-140	21-AUG-19
Bromomethane			87.0		%		50-140	21-AUG-19
Carbon tetrachloride			94.9		%		50-140	21-AUG-19
Chlorobenzene			104.7		%		50-140	21-AUG-19
Chloroform			103.6		%		50-140	21-AUG-19
cis-1,2-Dichloroethylene			100.3		%		50-140	21-AUG-19
cis-1,3-Dichloropropene			110.6		%		50-140	21-AUG-19
Dibromochloromethane			104.4		%		50-140	21-AUG-19
Dichlorodifluoromethane			61.0		%		50-140	21-AUG-19
Ethylbenzene			98.8		%		50-140	21-AUG-19
n-Hexane			87.3		%		50-140	21-AUG-19
Methylene Chloride			101.8		%		50-140	21-AUG-19
MTBE			99.4		%		50-140	21-AUG-19
m+p-Xylenes			98.5		%		50-140	21-AUG-19
Methyl Ethyl Ketone			126.7		%		50-140	21-AUG-19
Methyl Isobutyl Ketone			127.8		%		50-140	21-AUG-19
o-Xylene			100.4		%		50-140	21-AUG-19
Styrene			103.0		%		50-140	21-AUG-19
Tetrachloroethylene			90.8		%		50-140	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4762112								
WG3137504-5 MS		**L2328868-8**						
Toluene			97.4		%		50-140	21-AUG-19
trans-1,2-Dichloroethylene			93.5		%		50-140	21-AUG-19
trans-1,3-Dichloropropene			107.7		%		50-140	21-AUG-19
Trichloroethylene			100.5		%		50-140	21-AUG-19
Trichlorofluoromethane			90.5		%		50-140	21-AUG-19
Vinyl chloride			96.7		%		50-140	21-AUG-19

Quality Control Report

Workorder: L2328062 Report Date: 05-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: ANDREW VERMEERSCH

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.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
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.

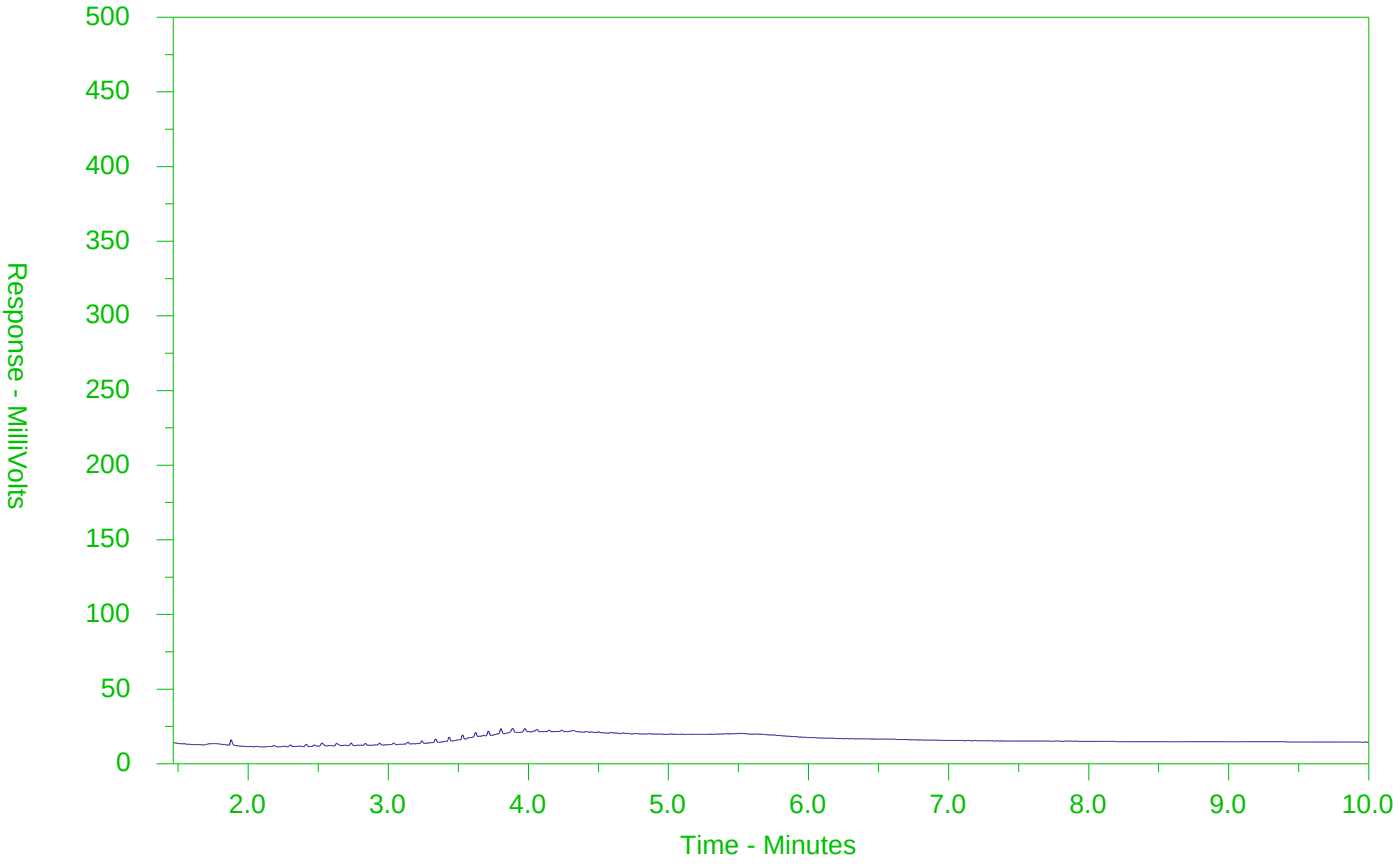
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2328062-2
Client Sample ID: BH200-7.5-9.5



←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.

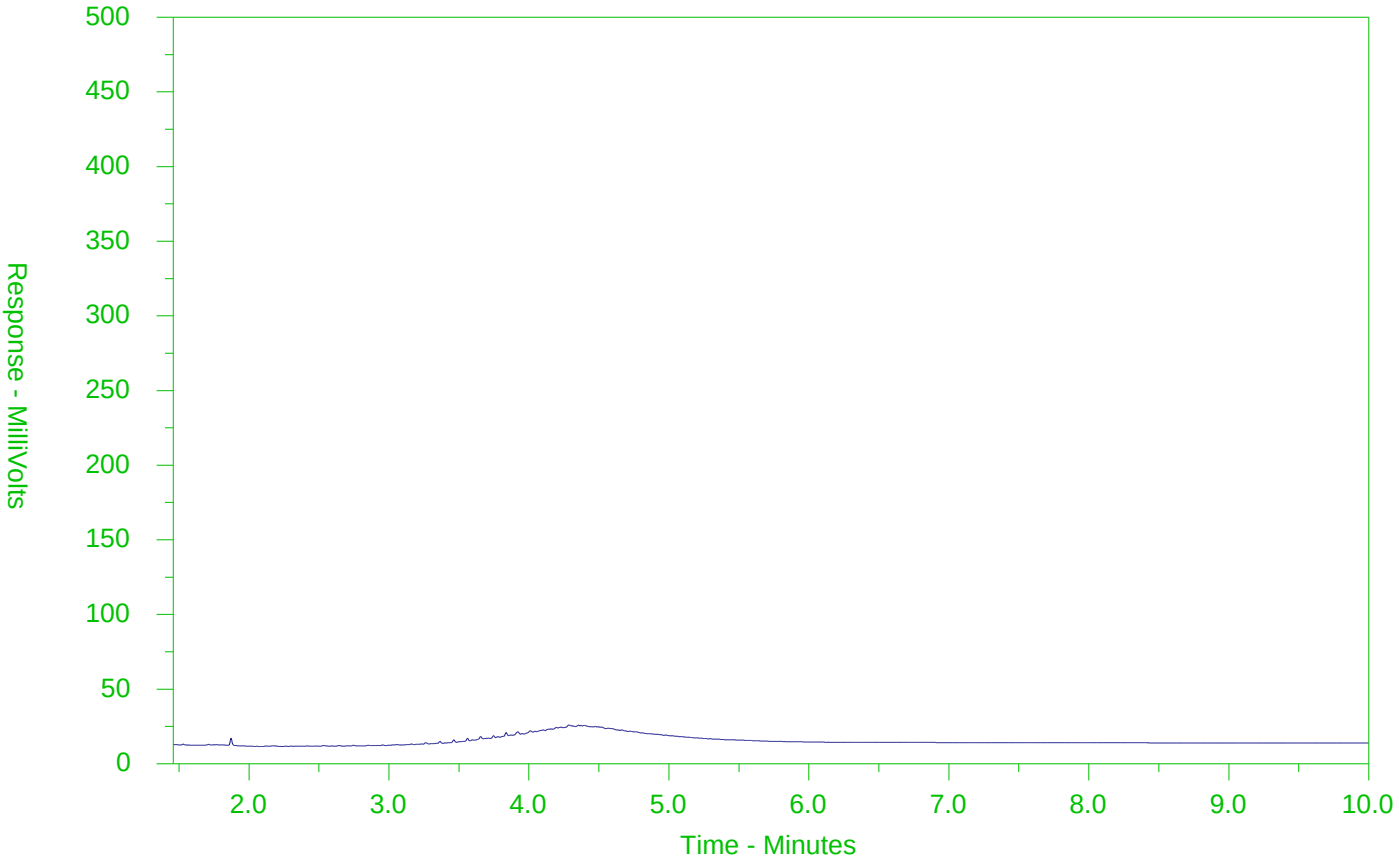
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-5
Client Sample ID: BH202-10-12



←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.

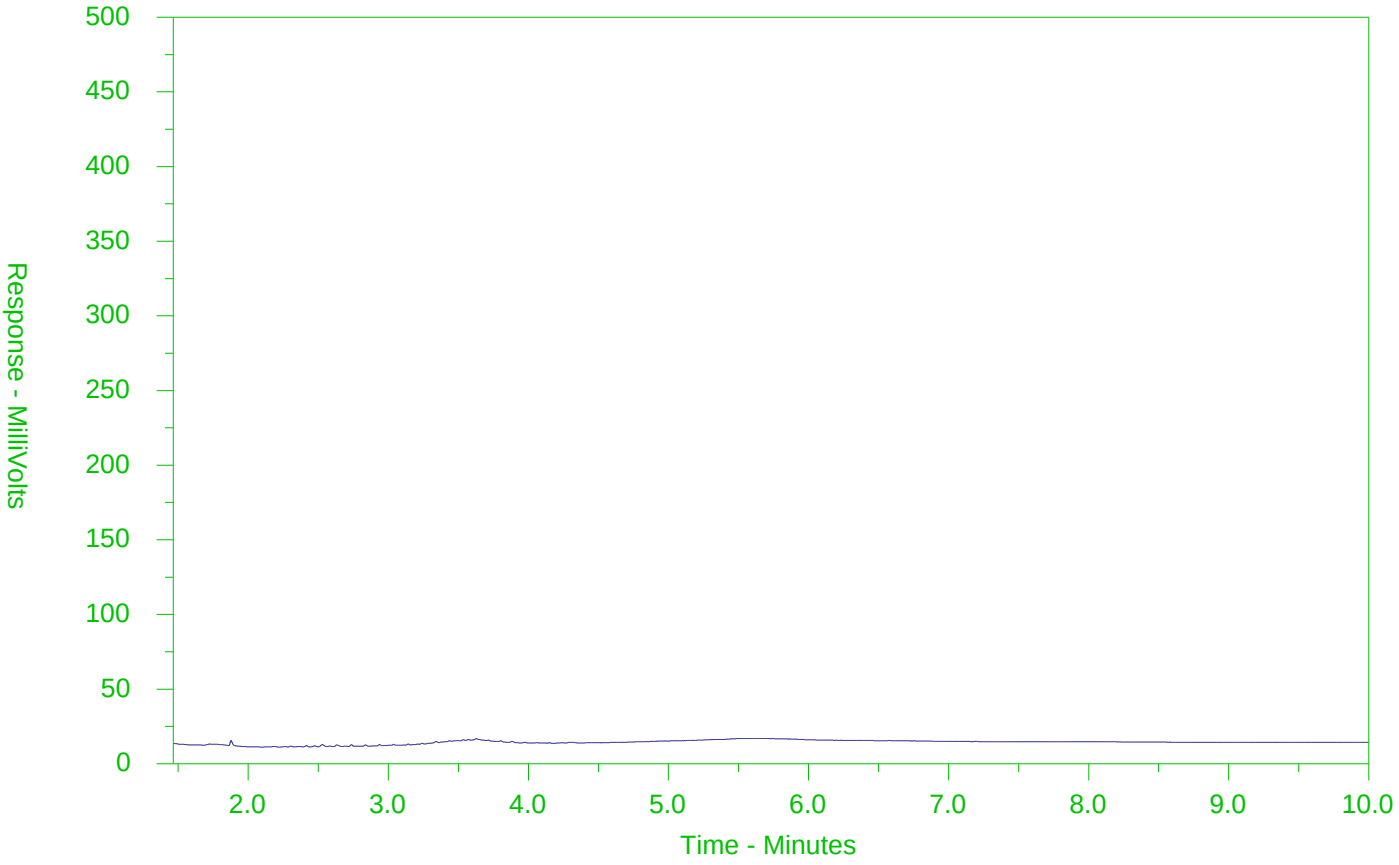
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-11
Client Sample ID: BH205-7.5-9.5



←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.

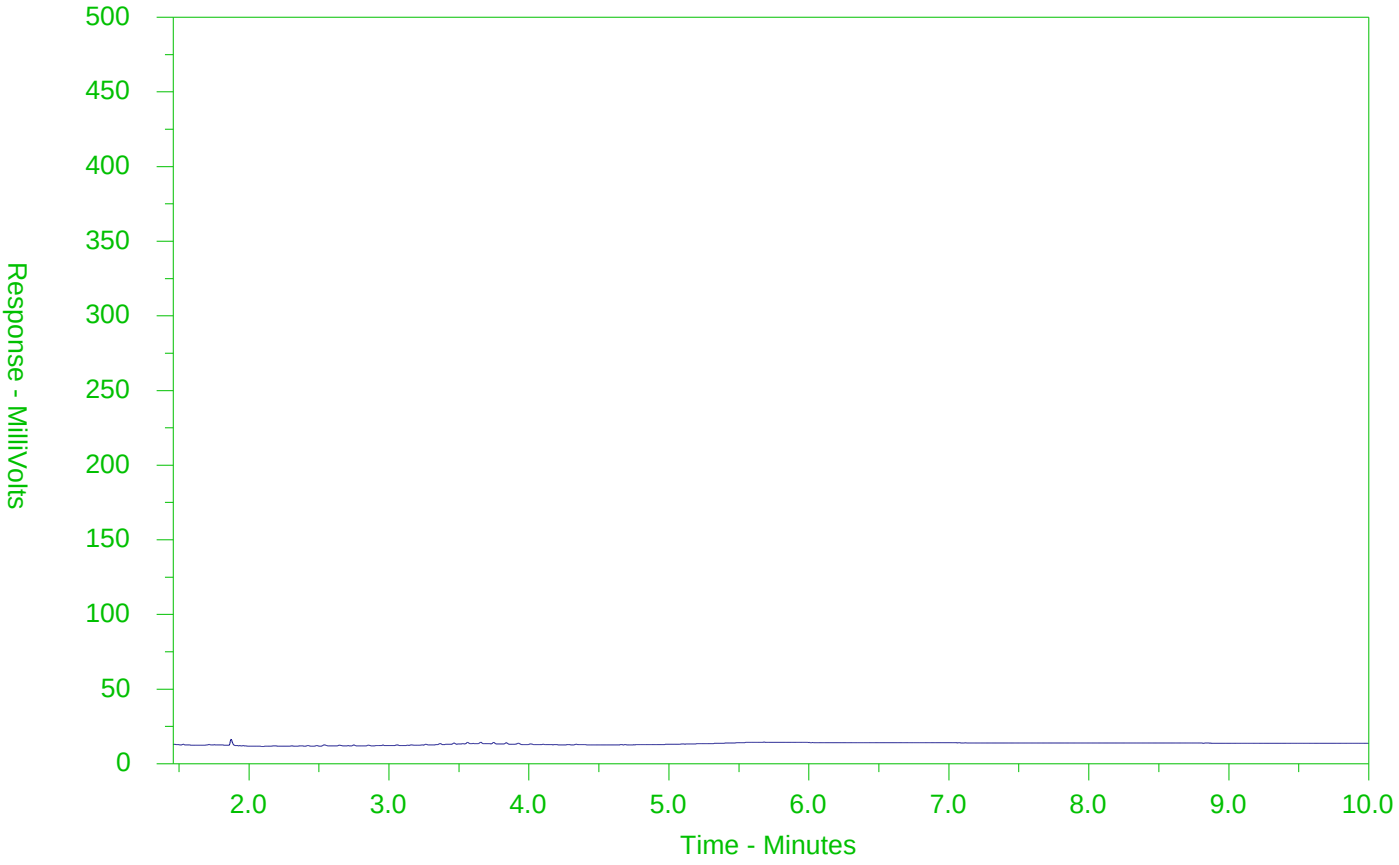
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-12
Client Sample ID: BH205-10-12



←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.

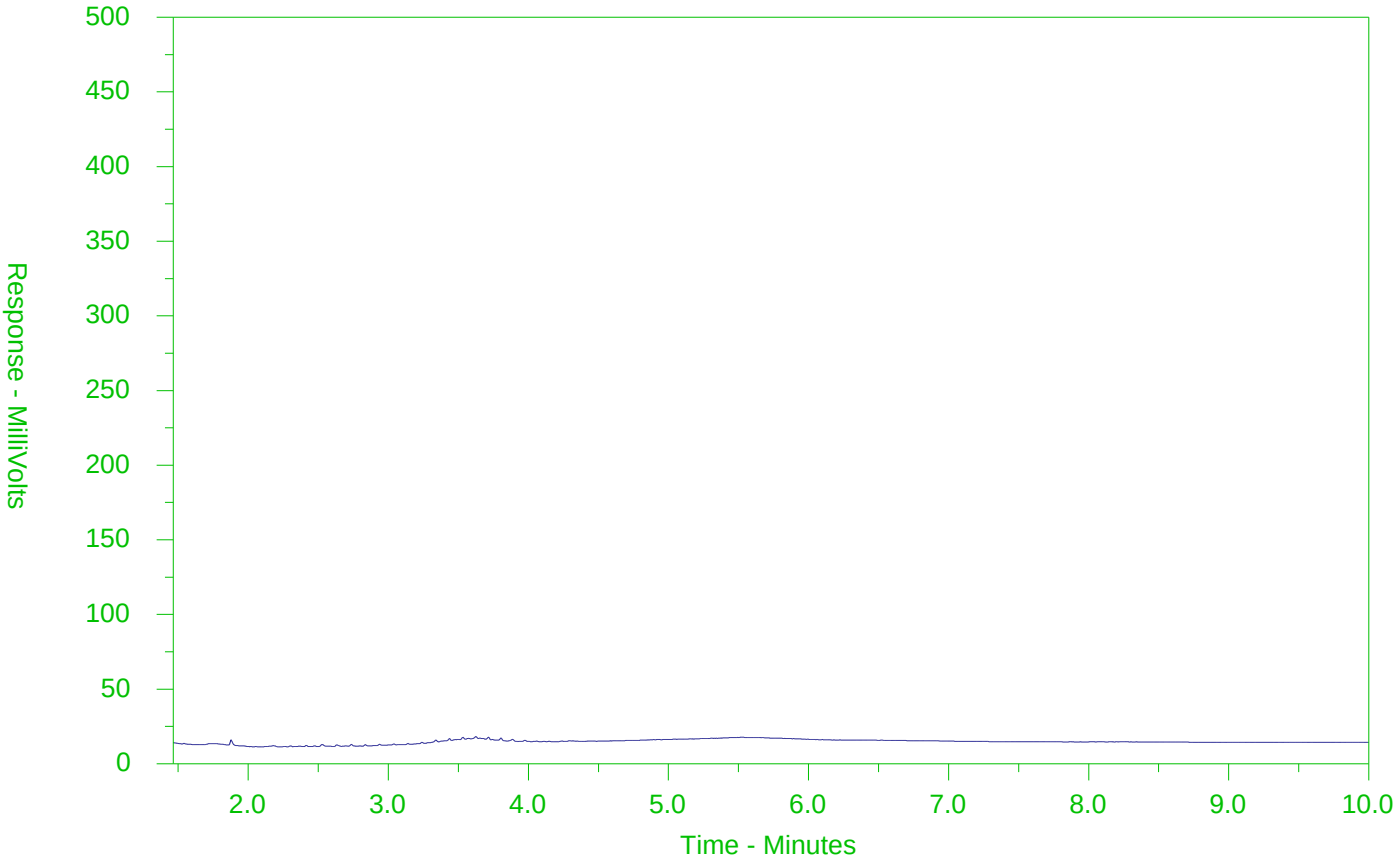
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-15
Client Sample ID: DUP10



←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.

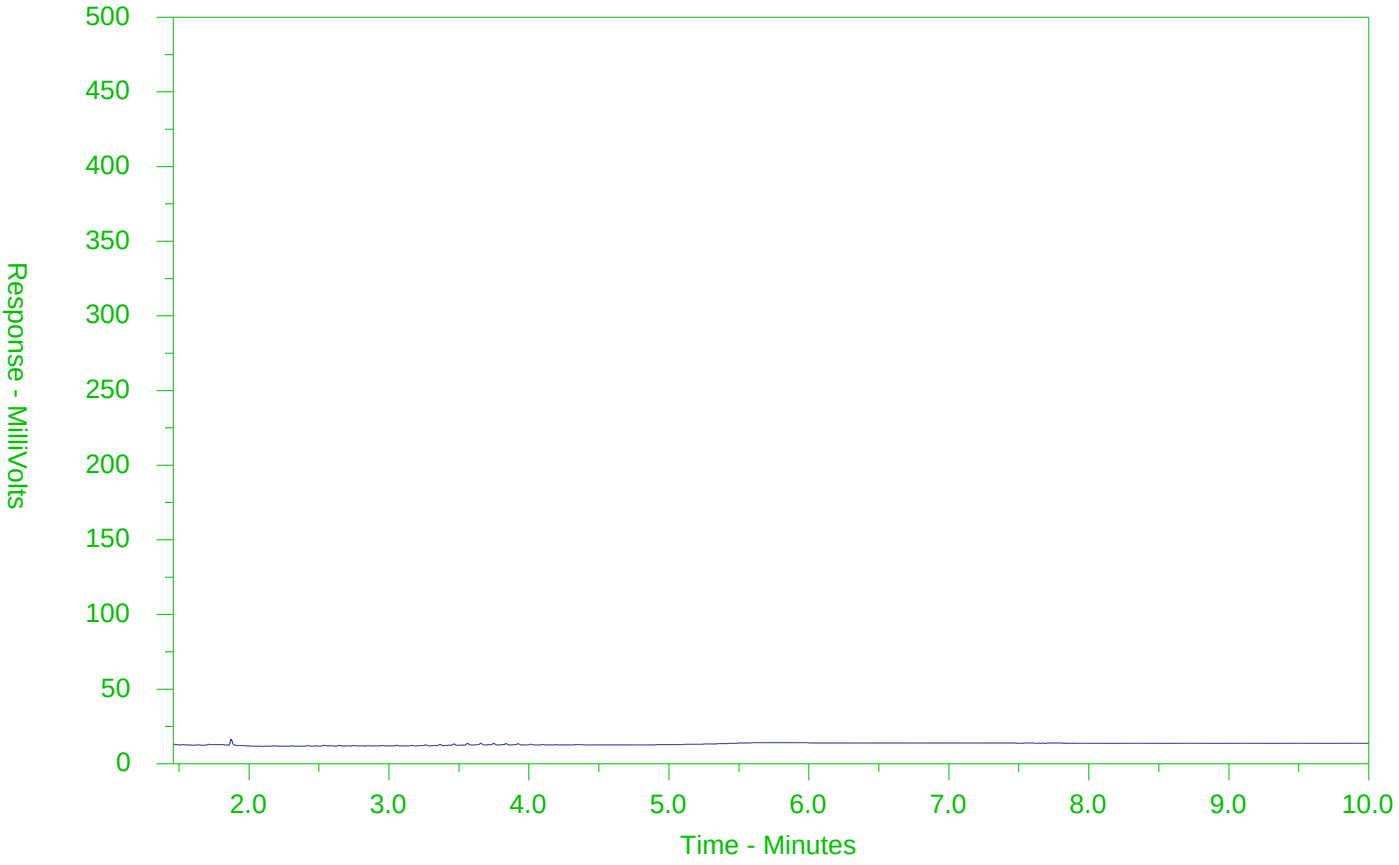
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-16
Client Sample ID: DUP11



←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.

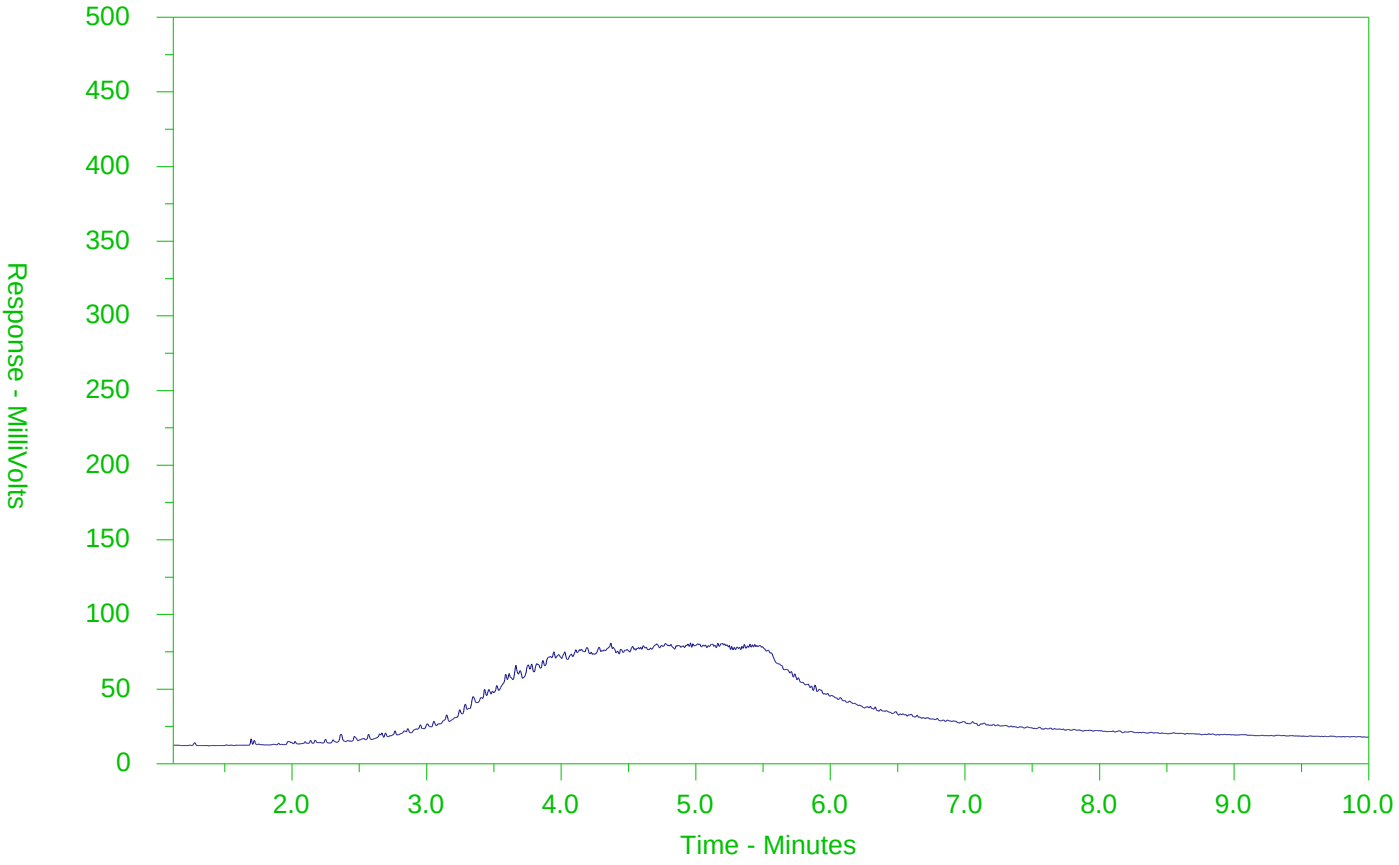
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-17
Client Sample ID: MW105-5-6



←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.

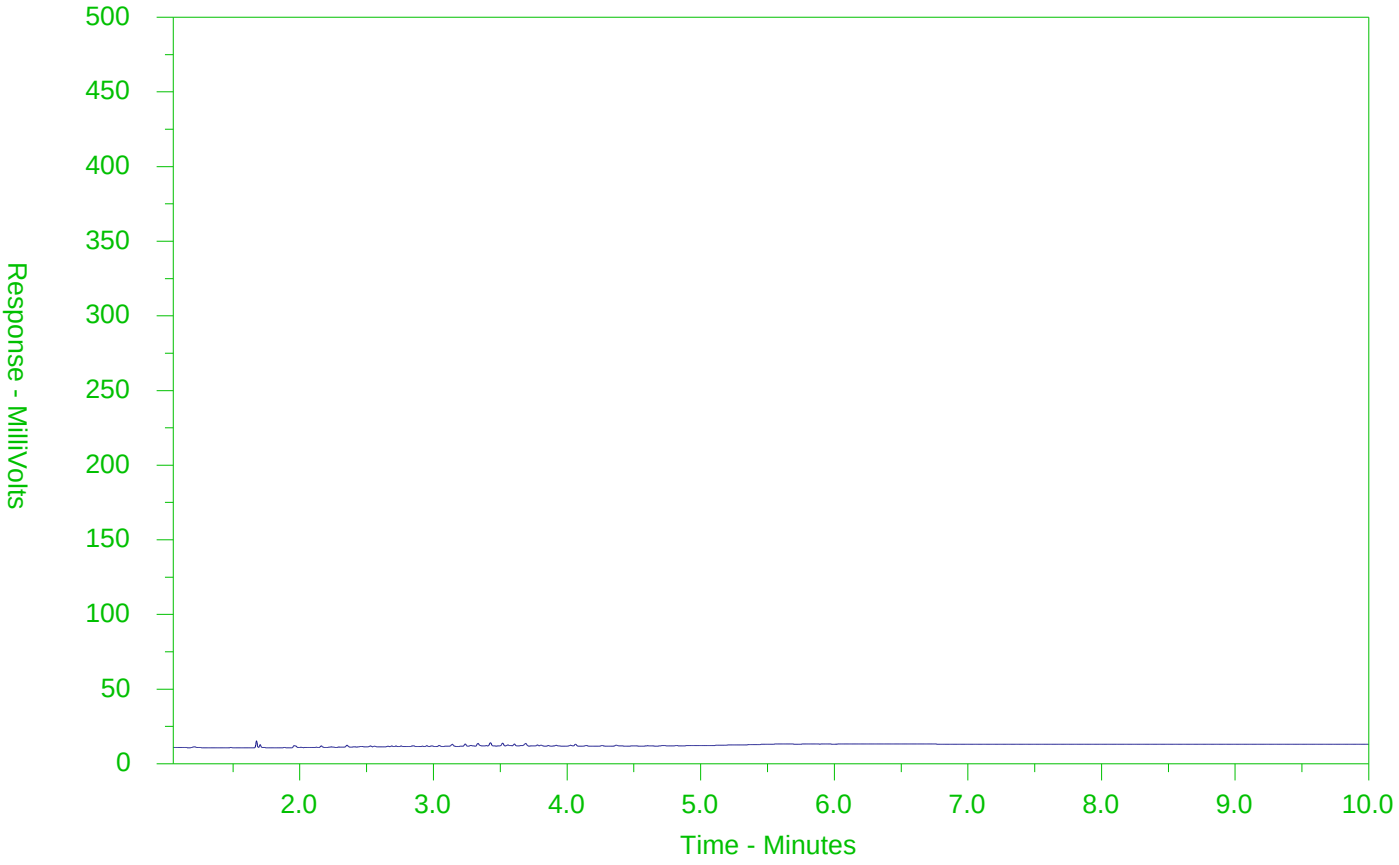
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-19
Client Sample ID: MW105-10-12



←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.

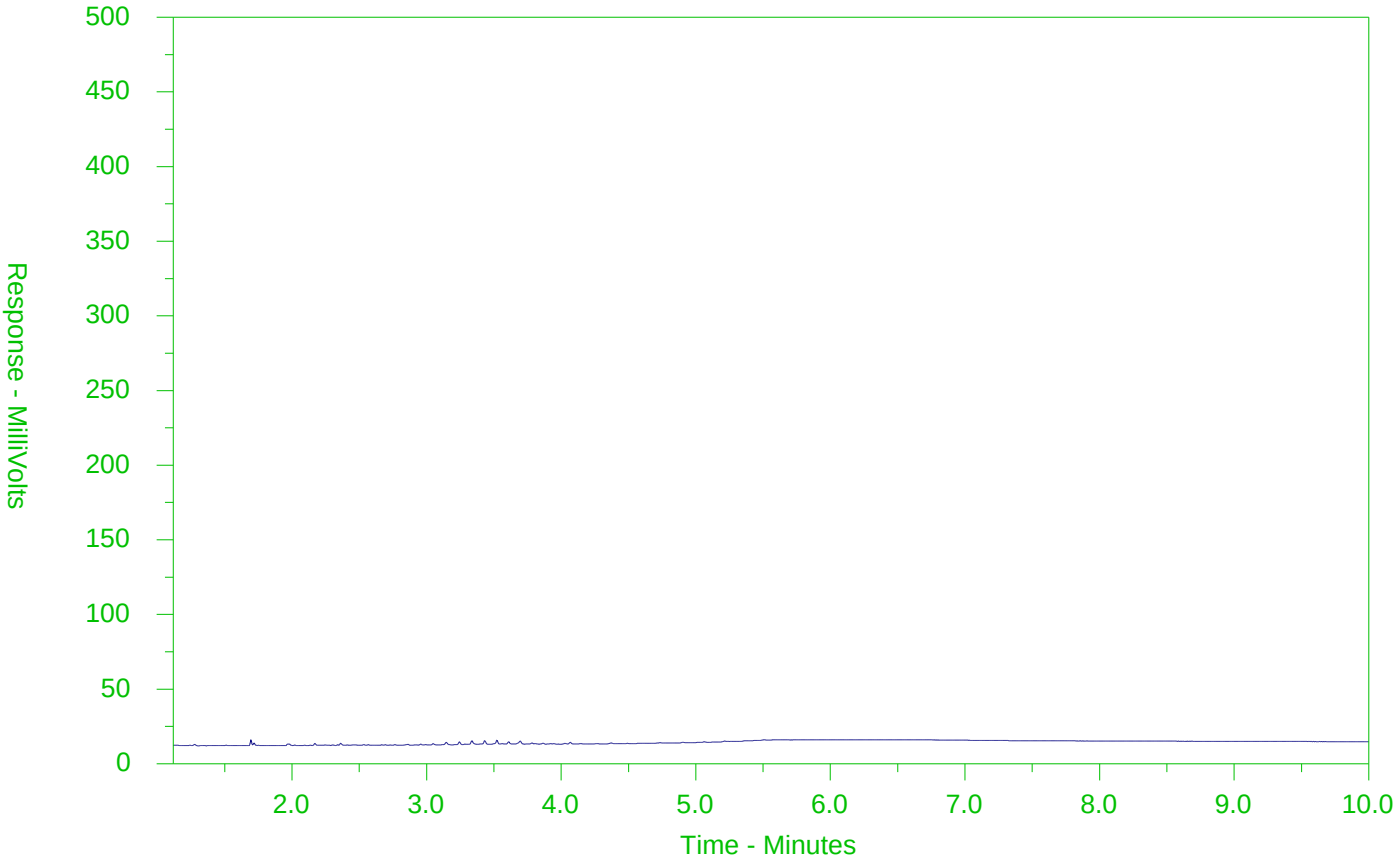
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-21
Client Sample ID: MW105-15-17



←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.

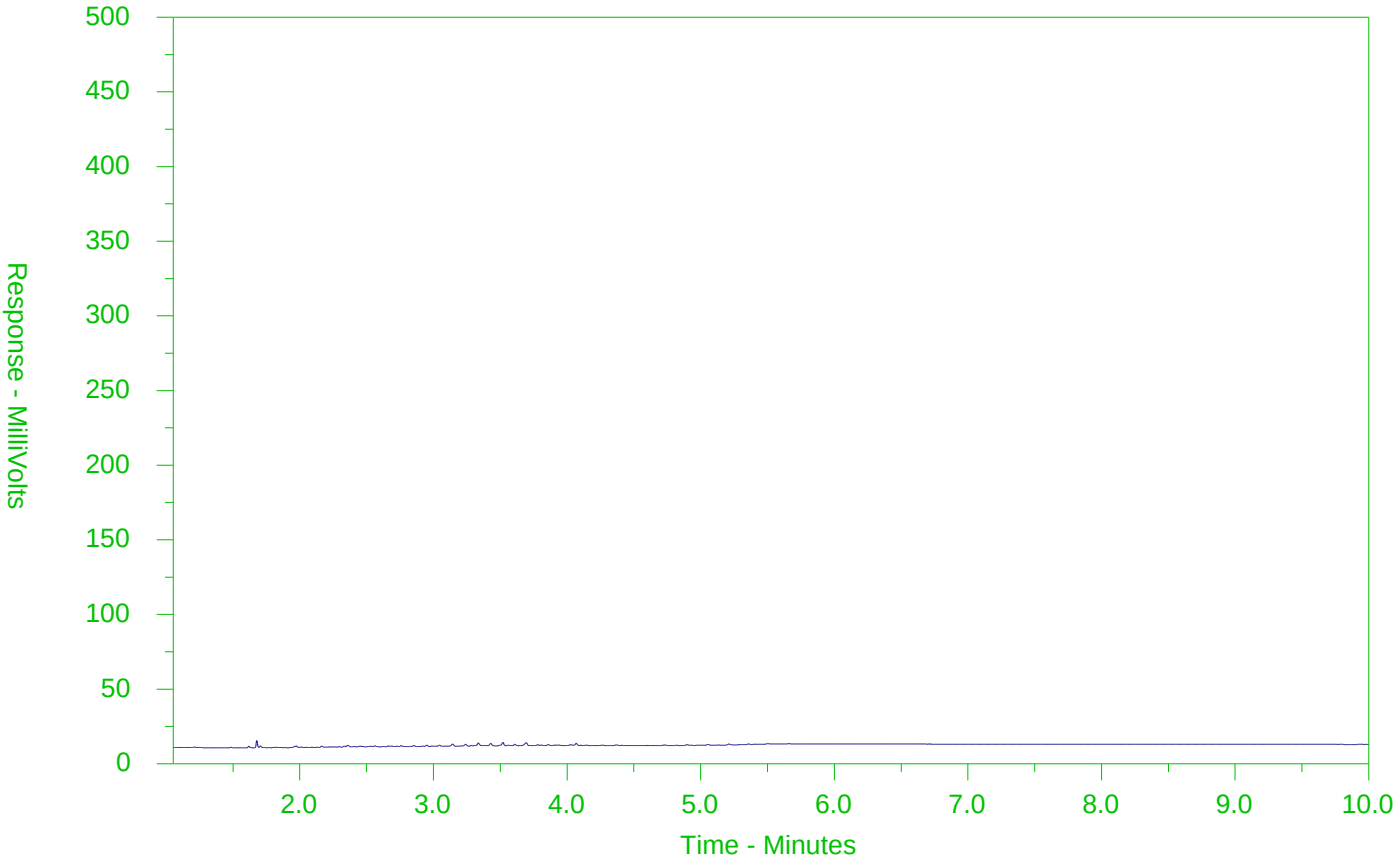
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-24
Client Sample ID: DUP12



←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.

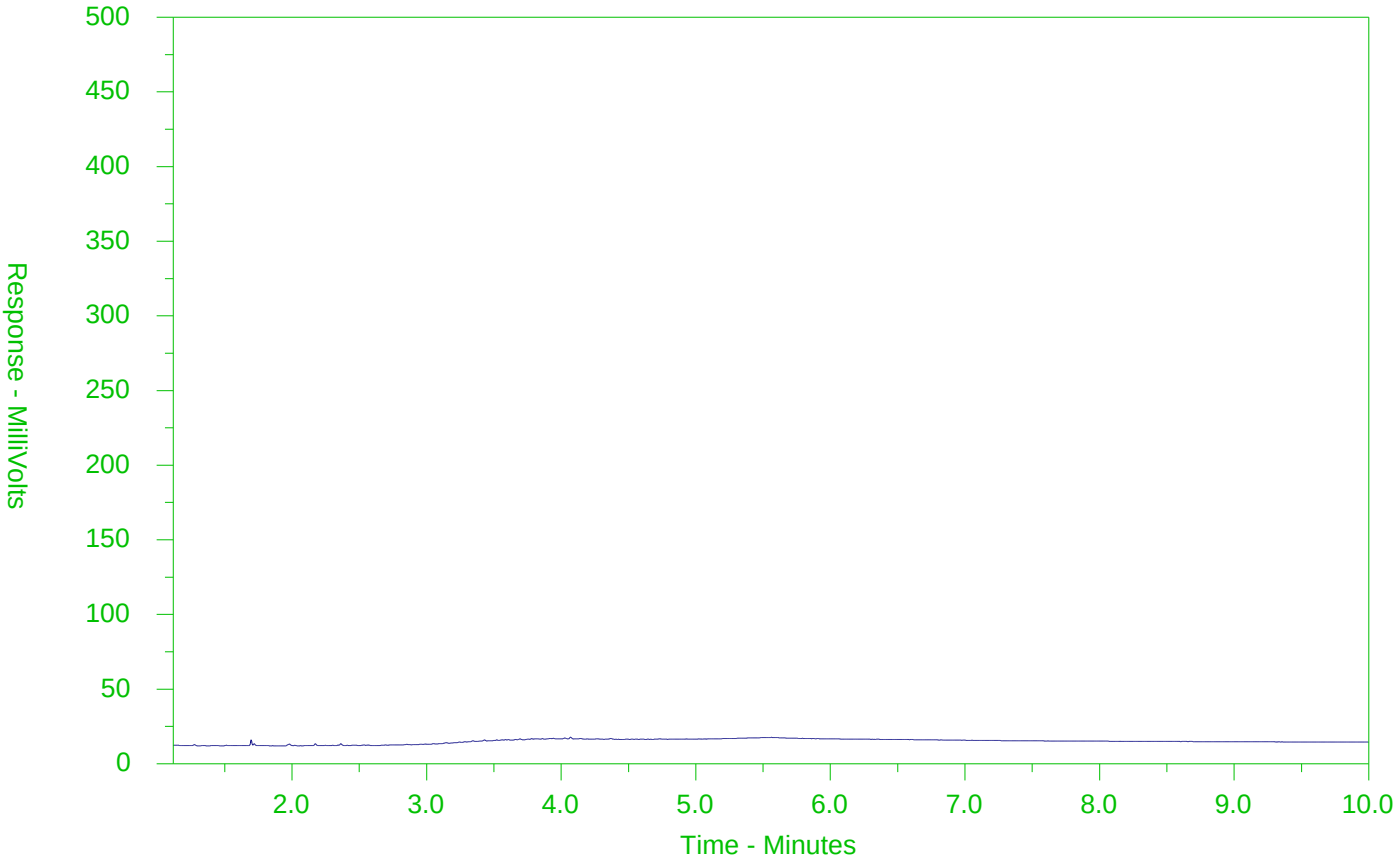
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-26
Client Sample ID: MW104-7-9



←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.

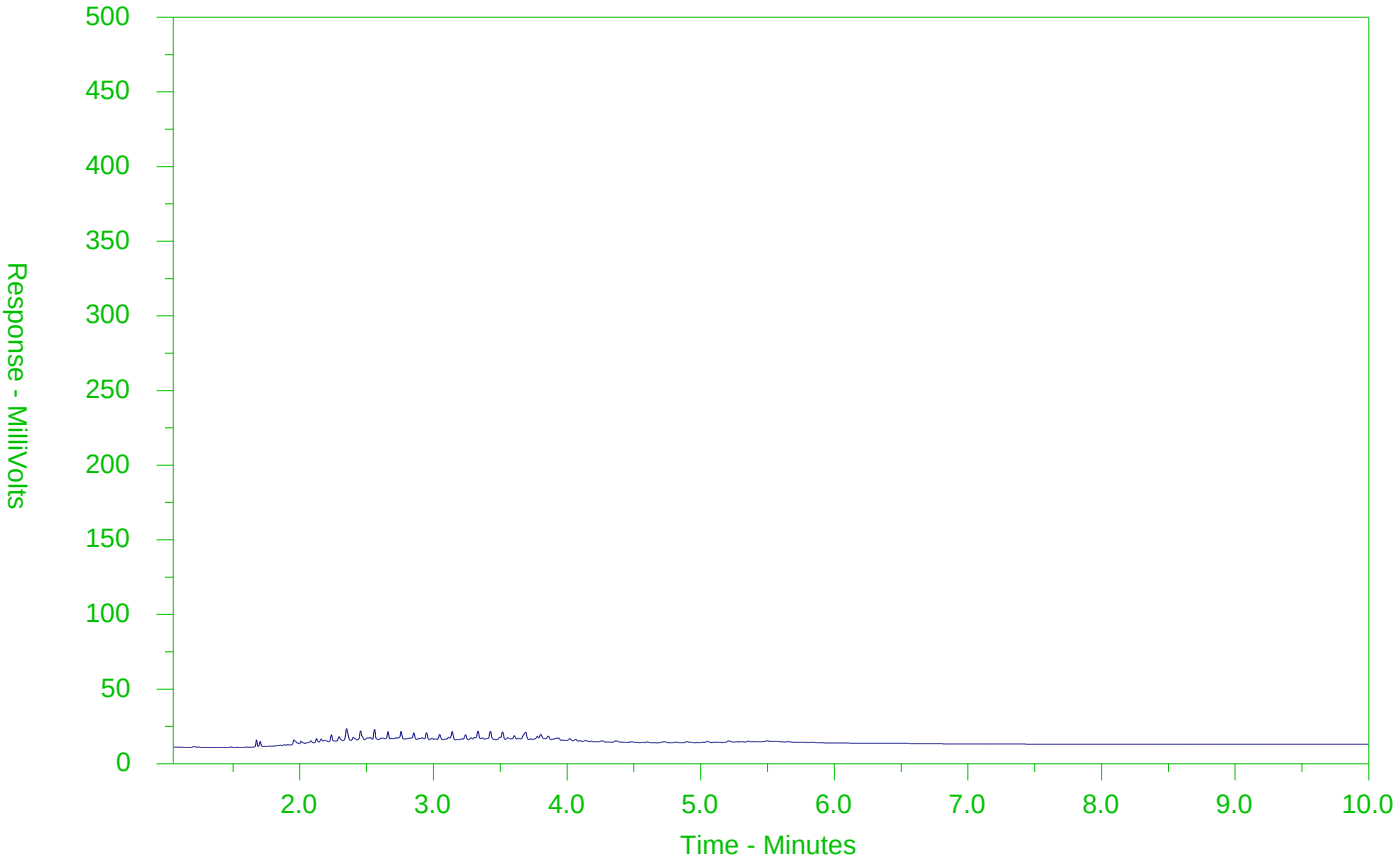
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2328062-28
Client Sample ID: MW104-15-17



←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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2328062-COFC

COC Number: 17 -

Page 1 of 3

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	CH2M Hill/Jacobs	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Andrew Vermeersch	Quality Control (QC) Report with Report: YES NO	Priority (Business days): 4 day [P4-20%] 3 day [P3-25%] 2 day [P2-50%]
Phone:	519 579 3500 x 73247	Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E1 - 100%] Same Day, Weekend or Statutory holiday [E2 -200%] (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs:
Street:	72 Victoria Street South, Suite 300	Email 1 or Fax: Andrew.Vermeersch@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener/Ontario	Email 2: michael.shirey@jacobs.com	
Postal Code:	N2G 4Y9	Email 3:	
Invoice To	Same as Report To: YES NO	Invoice Distribution	
	Copy of Invoice with Report: YES NO	Select Invoice Distribution: EMAIL MAIL FAX	
Company:	CH2M Hill Kitchener	Email 1 or Fax: Accounts Payable	
Contact:	Accounts Payable	Email 2:	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #	Q72980	AFE/Cost Center:	PO#:
Job #:	CE751900.A.CS.EV.A2	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2328062 Aug 13

ALS Contact: Mathy Sampler: Andrew V.

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BU)	PCB	TOC	ABN	Methyl Mercury	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
1	BH200-6-7	12-Aug-19	11:58	Soil							X				1		1
2	BH200-7.5-9.5	"	12:06	"	X	X	X	X	X								4
3	BH200-7.5-9.5	"	"	"										X	1		1
4	BH200-15-17	"	12:37	"	X	X	X	X	X					X	5		5
5	BH202-10-12	"	14:20	"	X	X	X	X	X								4
6	BH202-10-12	"	"	"										X	1		1
7	BH202-15-16.5	"	14:43	"	X	X	X	X	X					X	5		5
8	BH205-0.5-2	"	8:50	"	X												
	BH205-0.5-2	"	"	"										X	1		1
	BH205-3.5-4.5	"	8:58	"					X								1
	BH205-7.5-9.5	"	9:13	"		X	X	X									3
	BH205-10-12	"	9:22	"	X	X	X	X	X								4

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? NO	please compare to Task 1 Standards - criteria not on report
Are samples for human consumption/ use? NO	Please note samples for methyl mercury on Hold

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes		No
Ice Packs	Ice Cubes	Custody seal intact	Yes		No
Cooling Initiated					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				16.7	13.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Andrew Vermeersch	Date: 13-Aug-19	Time: 18:27	Received by:	Date:	Time:	Received by:	Date: Aug 13/19	Time: 18:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2328062-COFC

COC Number: 17 -

Report To	Contact and company name below will appear on the final report
Company:	CH2M Hill/Jacobs
Contact:	Andrew Vermeersch
Phone:	519 579 3500 x 73247
	Company address below will appear on the final report
Street:	72 Victoria Street South, Suite 300
City/Province:	Kitchener/Ontario
Postal Code:	N2G 4Y9
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	CH2M Hill Kitchener
Contact:	Accounts Payable

Report Format / Distribution	
Select Report Format:	☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☒ YES ☐ NO
☒ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Andrew.Vermeersch@jacobs.com
Email 2	michael.smiley@jacobs.com
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Accounts Payable
Email 2	

Project Information	
ALS Account # / Quote #:	Q72980
Job #	CE751900.A CS.EV.A2
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2328062 Aug 13

ALS Contact: Mathy Sampler: Andrew V.

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

Emergency: 1 Business day [E1 - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200%] (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BU)	PCB	TOC	ABN	Methyl Mercury						SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
						P																
	BH205-10-12	12-Aug-19	9:22	Soil										X						1		1
	BH205-12.5-15	"	9:35	"	X	X	X	X	X					X						5		5
	Dup 10	"	—	"		X	X	X														3
	Dup 11	"	—	"	X	X	X	X	X													4
	MW105-5-6	13-Aug-19	8:35	"	X	X	X	X	X													4
	MW105-5-6	"	"	"										X						1		
	MW105-10-12	"	9:02	"	X	X	X	X	X													4
	MW105-10-12	"	"	"										X						1		
	MW105-15-17	"	9:22	"	X	X	X	X	X													4
	MW105-15-17	"	"	"										X						1		
	MW105-21.5-22	"	9:42	"	X	X	X	X	X					X						5		
	Dup 12	"	—	"	X	X	X	X	X													4

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☒ NO	Please compare to Table 1 Standards - criterion not on report
Are samples for human consumption/ use? ☐ YES ☒ NO	- Some samples on HOLD

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				11.7	13.6		

SHIPMENT RELEASE (client use)		
Released by:	Date:	Time:
Andrew Vermeersch	13-Aug-19	14:57

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)		
Received by: MC	Date: Aug 13/19	Time: 18:58

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2328062-COFC

COC Number: 17 -

Page 3 of 3

Report To	Contact and company name below will appear on the final report
Company:	CH2M Hill/Jacobs
Contact:	Andrew Vermeersch
Phone:	519 579 3500 x 73247
	Company address below will appear on the final report
Street:	72 Victoria Street South, Suite 300
City/Province	Kitchener/Ontario
Postal Code:	N2G 4Y9
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	CH2M Hill Kitchener
Contact:	Accounts Payable

Report Format / Distribution	
Select Report Format:	☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Andrew.Vermeersch@jacobs.com
Email 2	Michael.Shirey@jacobs.com
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Accounts Payable
Email 2	

Project Information	
ALS Account # / Quote #:	Q72980
Job #	CE751900.A.CS.EV A2
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2328062-COFC

ALS Contact: Mathy

Sampler: Andrew V.

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

Emergency: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BU)	PCB	TOC	ABN	Methyl Mercury					SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	DUP12	13-Aug-19	-	Soil										X					1		
	MW104-7-9	"	15:12	"	X	X	X	X	X				X								5
	MW104-7-9	"	"	"										X					1		
	MW104-15-17	"	15:44	"	X	X	X	X	X				X								5
	MW104-15-17	"	"	"										X					1		
	MW104-20-22	"	16:16	"	X	X	X	X	X				X	X					10		
	DUP13	"	-	"	X			~~X~~	X				X								3
	TRIPBLANK-20180813	"	-	Methanol		X	X														1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please compare to Table 1 Standards - Criteria not on Report

Some Samples on Hold

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				16.7	13.6		

SHIPMENT RELEASE (client use)		
Released by: Andrew Vermeersch	Date: 13-Aug-19	Time: 18:27

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date: Aug 13/19	Time: 18:35

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2011 Front

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

[1] If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: Andrew Vermeersch
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 16-AUG-19
Report Date: 06-SEP-19 10:23 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2330748

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV.A2
C of C Numbers:
Legal Site Desc:

Emily Hansen
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-1 MW103-12.5-14 Sampled By: ANDREW V on 14-AUG-19 @ 14:50 Matrix: SOIL							
Physical Tests							
Conductivity	1.90		0.0040	mS/cm		27-AUG-19	R4769855
% Moisture	10.8		0.10	%	20-AUG-19	21-AUG-19	R4761888
pH	7.98		0.10	pH units		22-AUG-19	R4764361
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	20-AUG-19	22-AUG-19	R4764193
Organic / Inorganic Carbon							
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Average Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Saturated Paste Extractables							
SAR	26.7		0.10	SAR		27-AUG-19	R4769897
Calcium (Ca)	10.7		0.50	mg/L		27-AUG-19	R4769897
Magnesium (Mg)	1.11		0.50	mg/L		27-AUG-19	R4769897
Sodium (Na)	343		0.50	mg/L		27-AUG-19	R4769897
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Arsenic (As)	1.9		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Barium (Ba)	23.5		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Beryllium (Be)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B)	5.5		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	27-AUG-19	27-AUG-19	R4769645
Cadmium (Cd)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Chromium (Cr)	8.8		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Cobalt (Co)	3.4		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Copper (Cu)	8.4		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Lead (Pb)	11.2		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Mercury (Hg)	0.0068		0.0050	ug/g	27-AUG-19	27-AUG-19	R4769520
Molybdenum (Mo)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Nickel (Ni)	6.8		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Selenium (Se)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Silver (Ag)	<0.20		0.20	ug/g	27-AUG-19	27-AUG-19	R4769902
Thallium (Tl)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Uranium (U)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Vanadium (V)	18.2		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Zinc (Zn)	69.8		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	23-AUG-19	R4765750
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-1 MW103-12.5-14 Sampled By: ANDREW V on 14-AUG-19 @ 14:50 Matrix: SOIL							
Volatile Organic Compounds							
Benzene	<0.0068		0.0068	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromodichloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromoform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromomethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Carbon tetrachloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dibromochloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chloroform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dibromoethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,4-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dichlorodifluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methylene Chloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloropropane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		25-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	22-AUG-19	25-AUG-19	R4768235
n-Hexane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Ethyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
MTBE	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Styrene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Tetrachloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Toluene	<0.080		0.080	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichloroethylene	<0.010		0.010	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichlorofluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Vinyl chloride	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
o-Xylene	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
m+p-Xylenes	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
Xylenes (Total)	<0.050		0.050	ug/g		25-AUG-19	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-1 MW103-12.5-14 Sampled By: ANDREW V on 14-AUG-19 @ 14:50 Matrix: SOIL							
Volatile Organic Compounds							
Surrogate: 4-Bromofluorobenzene	96.8		50-140	%	22-AUG-19	25-AUG-19	R4768235
Surrogate: 1,4-Difluorobenzene	116.2		50-140	%	22-AUG-19	25-AUG-19	R4768235
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	22-AUG-19	25-AUG-19	R4768235
F1-BTEX	<5.0		5.0	ug/g		25-AUG-19	
F2 (C10-C16)	<10		10	ug/g	20-AUG-19	21-AUG-19	R4763044
F2-Naphth	<10		10	ug/g		25-AUG-19	
F3 (C16-C34)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
F3-PAH	<50		50	ug/g		25-AUG-19	
F4 (C34-C50)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
Total Hydrocarbons (C6-C50)	<72		72	ug/g		25-AUG-19	
Chrom. to baseline at nC50	YES				20-AUG-19	21-AUG-19	R4763044
Surrogate: 2-Bromobenzotrifluoride	88.7		60-140	%	20-AUG-19	21-AUG-19	R4763044
Surrogate: 3,4-Dichlorotoluene	83.6		60-140	%	22-AUG-19	25-AUG-19	R4768235
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Acenaphthylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(b)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(k)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Chrysene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluorene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		23-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
2-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
Naphthalene	<0.013		0.013	ug/g	20-AUG-19	23-AUG-19	R4766148
Phenanthrene	<0.046		0.046	ug/g	20-AUG-19	23-AUG-19	R4766148
Pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Surrogate: 2-Fluorobiphenyl	93.2		50-140	%	20-AUG-19	23-AUG-19	R4766148
Surrogate: p-Terphenyl d14	81.1		50-140	%	20-AUG-19	23-AUG-19	R4766148
L2330748-3 MW103-17.5-19.5 Sampled By: ANDREW V on 14-AUG-19 @ 15:11 Matrix: SOIL							
Physical Tests							
Conductivity	1.04		0.0040	mS/cm		27-AUG-19	R4769855
% Moisture	9.01		0.10	%	20-AUG-19	21-AUG-19	R4761888

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-3 MW103-17.5-19.5 Sampled By: ANDREW V on 14-AUG-19 @ 15:11 Matrix: SOIL							
Physical Tests							
pH	7.95		0.10	pH units		22-AUG-19	R4764361
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	20-AUG-19	22-AUG-19	R4764193
Organic / Inorganic Carbon							
Fraction Organic Carbon	0.0035		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	0.0028		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	0.0039		0.0010		01-SEP-19	01-SEP-19	R4779768
Average Fraction Organic Carbon	0.0034		0.0010		01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	0.35		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	0.28		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	0.39		0.10	%	01-SEP-19	01-SEP-19	R4779768
Saturated Paste Extractables							
SAR	13.2		0.10	SAR		27-AUG-19	R4769897
Calcium (Ca)	10.8		0.50	mg/L		27-AUG-19	R4769897
Magnesium (Mg)	2.59		0.50	mg/L		27-AUG-19	R4769897
Sodium (Na)	186		0.50	mg/L		27-AUG-19	R4769897
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Arsenic (As)	2.9		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Barium (Ba)	110		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Beryllium (Be)	0.62		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B)	10.9		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	27-AUG-19	27-AUG-19	R4769645
Cadmium (Cd)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Chromium (Cr)	24.6		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Cobalt (Co)	8.6		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Copper (Cu)	18.8		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Lead (Pb)	8.9		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Mercury (Hg)	0.0122		0.0050	ug/g	27-AUG-19	27-AUG-19	R4769520
Molybdenum (Mo)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Nickel (Ni)	19.5		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Selenium (Se)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Silver (Ag)	<0.20		0.20	ug/g	27-AUG-19	27-AUG-19	R4769902
Thallium (Tl)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Uranium (U)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Vanadium (V)	34.6		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Zinc (Zn)	49.9		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	23-AUG-19	R4765750
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Benzene	<0.0068		0.0068	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromodichloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-3 MW103-17.5-19.5 Sampled By: ANDREW V on 14-AUG-19 @ 15:11 Matrix: SOIL							
Volatile Organic Compounds							
Bromoform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromomethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Carbon tetrachloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dibromochloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chloroform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dibromoethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,4-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dichlorodifluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methylene Chloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloropropane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		25-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	22-AUG-19	25-AUG-19	R4768235
n-Hexane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Ethyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
MTBE	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Styrene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Tetrachloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Toluene	<0.080		0.080	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichloroethylene	<0.010		0.010	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichlorofluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Vinyl chloride	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
o-Xylene	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
m+p-Xylenes	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
Xylenes (Total)	<0.050		0.050	ug/g		25-AUG-19	
Surrogate: 4-Bromofluorobenzene	93.2		50-140	%	22-AUG-19	25-AUG-19	R4768235
Surrogate: 1,4-Difluorobenzene	112.1		50-140	%	22-AUG-19	25-AUG-19	R4768235

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-3 MW103-17.5-19.5 Sampled By: ANDREW V on 14-AUG-19 @ 15:11 Matrix: SOIL							
Volatile Organic Compounds							
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	22-AUG-19	25-AUG-19	R4768235
F1-BTEX	<5.0		5.0	ug/g		25-AUG-19	
F2 (C10-C16)	<10		10	ug/g	20-AUG-19	21-AUG-19	R4763044
F2-Naphth	<10		10	ug/g		25-AUG-19	
F3 (C16-C34)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
F3-PAH	<50		50	ug/g		25-AUG-19	
F4 (C34-C50)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
Total Hydrocarbons (C6-C50)	<72		72	ug/g		25-AUG-19	
Chrom. to baseline at nC50	YES				20-AUG-19	21-AUG-19	R4763044
Surrogate: 2-Bromobenzotrifluoride	82.5		60-140	%	20-AUG-19	21-AUG-19	R4763044
Surrogate: 3,4-Dichlorotoluene	71.4		60-140	%	22-AUG-19	25-AUG-19	R4768235
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Acenaphthylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(b)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(k)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Chrysene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluorene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		23-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
2-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
Naphthalene	<0.013		0.013	ug/g	20-AUG-19	23-AUG-19	R4766148
Phenanthrene	<0.046		0.046	ug/g	20-AUG-19	23-AUG-19	R4766148
Pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Surrogate: 2-Fluorobiphenyl	99.1		50-140	%	20-AUG-19	23-AUG-19	R4766148
Surrogate: p-Terphenyl d14	90.5		50-140	%	20-AUG-19	23-AUG-19	R4766148
L2330748-5 MW103-22.5-24.5 Sampled By: ANDREW V on 14-AUG-19 @ 15:36 Matrix: SOIL							
Physical Tests							
Conductivity	1.08		0.0040	mS/cm		06-SEP-19	R4784415
Saturated Paste Extractables							
SAR	12.7		0.10	SAR		05-SEP-19	R4783543
Calcium (Ca)	12.9		0.50	mg/L		05-SEP-19	R4783543

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-5 MW103-22.5-24.5 Sampled By: ANDREW V on 14-AUG-19 @ 15:36 Matrix: SOIL							
Saturated Paste Extractables							
Magnesium (Mg)	3.33		0.50	mg/L		05-SEP-19	R4783543
Sodium (Na)	198		0.50	mg/L		05-SEP-19	R4783543
L2330748-6 MW109-8-9.5 Sampled By: ANDREW V on 15-AUG-19 @ 10:42 Matrix: SOIL							
Physical Tests							
Conductivity	0.394		0.0040	mS/cm		27-AUG-19	R4769452
% Moisture	8.42		0.10	%	20-AUG-19	21-AUG-19	R4761888
pH	7.96		0.10	pH units		22-AUG-19	R4764361
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	20-AUG-19	22-AUG-19	R4764193
Organic / Inorganic Carbon							
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Average Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Saturated Paste Extractables							
SAR	16.5	SAR:M	0.10	SAR		27-AUG-19	R4769905
Calcium (Ca)	2.16		0.50	mg/L		27-AUG-19	R4769905
Magnesium (Mg)	<0.50		0.50	mg/L		27-AUG-19	R4769905
Sodium (Na)	88.1		0.50	mg/L		27-AUG-19	R4769905
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Arsenic (As)	2.2		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Barium (Ba)	34.1		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Beryllium (Be)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B)	6.3		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B), Hot Water Ext.	0.12		0.10	ug/g	27-AUG-19	27-AUG-19	R4769778
Cadmium (Cd)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Chromium (Cr)	12.8		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Cobalt (Co)	5.1		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Copper (Cu)	12.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Lead (Pb)	13.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Mercury (Hg)	0.0132		0.0050	ug/g	27-AUG-19	27-AUG-19	R4769520
Molybdenum (Mo)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Nickel (Ni)	10.8		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Selenium (Se)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Silver (Ag)	<0.20		0.20	ug/g	27-AUG-19	27-AUG-19	R4769902
Thallium (Tl)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Uranium (U)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-6 MW109-8-9.5 Sampled By: ANDREW V on 15-AUG-19 @ 10:42 Matrix: SOIL							
Metals							
Vanadium (V)	21.7		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Zinc (Zn)	87.0		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	23-AUG-19	R4765750
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	23-AUG-19	26-AUG-19	R4768161
Benzene	<0.0068		0.0068	ug/g	23-AUG-19	26-AUG-19	R4768161
Bromodichloromethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Bromoform	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Bromomethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Carbon tetrachloride	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Chlorobenzene	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Dibromochloromethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Chloroform	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,2-Dibromoethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,2-Dichlorobenzene	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,3-Dichlorobenzene	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,4-Dichlorobenzene	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Dichlorodifluoromethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,1-Dichloroethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,2-Dichloroethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,1-Dichloroethylene	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Methylene Chloride	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,2-Dichloropropane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	23-AUG-19	26-AUG-19	R4768161
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	23-AUG-19	26-AUG-19	R4768161
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		26-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	23-AUG-19	26-AUG-19	R4768161
n-Hexane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Methyl Ethyl Ketone	<0.50		0.50	ug/g	23-AUG-19	26-AUG-19	R4768161
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	23-AUG-19	26-AUG-19	R4768161
MTBE	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Styrene	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Tetrachloroethylene	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Toluene	<0.080		0.080	ug/g	23-AUG-19	26-AUG-19	R4768161
1,1,1-Trichloroethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
1,1,2-Trichloroethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-6 MW109-8-9.5 Sampled By: ANDREW V on 15-AUG-19 @ 10:42 Matrix: SOIL							
Volatile Organic Compounds							
Trichloroethylene	<0.010		0.010	ug/g	23-AUG-19	26-AUG-19	R4768161
Trichlorofluoromethane	<0.050		0.050	ug/g	23-AUG-19	26-AUG-19	R4768161
Vinyl chloride	<0.020		0.020	ug/g	23-AUG-19	26-AUG-19	R4768161
o-Xylene	<0.020		0.020	ug/g	23-AUG-19	26-AUG-19	R4768161
m+p-Xylenes	<0.030		0.030	ug/g	23-AUG-19	26-AUG-19	R4768161
Xylenes (Total)	<0.050		0.050	ug/g		26-AUG-19	
Surrogate: 4-Bromofluorobenzene	87.1		50-140	%	23-AUG-19	26-AUG-19	R4768161
Surrogate: 1,4-Difluorobenzene	95.6		50-140	%	23-AUG-19	26-AUG-19	R4768161
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	23-AUG-19	25-AUG-19	R4768161
F1-BTEX	<5.0		5.0	ug/g		26-AUG-19	
F2 (C10-C16)	<10		10	ug/g	20-AUG-19	21-AUG-19	R4763044
F2-Naphth	<10		10	ug/g		26-AUG-19	
F3 (C16-C34)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
F3-PAH	<50		50	ug/g		26-AUG-19	
F4 (C34-C50)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
Total Hydrocarbons (C6-C50)	<72		72	ug/g		26-AUG-19	
Chrom. to baseline at nC50	YES				20-AUG-19	21-AUG-19	R4763044
Surrogate: 2-Bromobenzotrifluoride	89.0		60-140	%	20-AUG-19	21-AUG-19	R4763044
Surrogate: 3,4-Dichlorotoluene	76.8		60-140	%	23-AUG-19	25-AUG-19	R4768161
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Acenaphthylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(b)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(k)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Chrysene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluorene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		23-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
2-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
Naphthalene	<0.013		0.013	ug/g	20-AUG-19	23-AUG-19	R4766148
Phenanthrene	<0.046		0.046	ug/g	20-AUG-19	23-AUG-19	R4766148
Pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Surrogate: 2-Fluorobiphenyl	96.3		50-140	%	20-AUG-19	23-AUG-19	R4766148

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-6 MW109-8-9.5 Sampled By: ANDREW V on 15-AUG-19 @ 10:42 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Surrogate: p-Terphenyl d14	84.9		50-140	%	20-AUG-19	23-AUG-19	R4766148
L2330748-8 MW109-12.5-14.5 Sampled By: ANDREW V on 15-AUG-19 @ 11:11 Matrix: SOIL							
Physical Tests							
Conductivity	0.167		0.0040	mS/cm		27-AUG-19	R4769452
% Moisture	9.71		0.10	%	20-AUG-19	21-AUG-19	R4761888
pH	7.98		0.10	pH units		22-AUG-19	R4764361
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	20-AUG-19	22-AUG-19	R4764193
Organic / Inorganic Carbon							
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Average Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Saturated Paste Extractables							
SAR	5.24		0.10	SAR		27-AUG-19	R4769905
Calcium (Ca)	2.64		0.50	mg/L		27-AUG-19	R4769905
Magnesium (Mg)	0.92		0.50	mg/L		27-AUG-19	R4769905
Sodium (Na)	38.8		0.50	mg/L		27-AUG-19	R4769905
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Arsenic (As)	2.4		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Barium (Ba)	48.4		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Beryllium (Be)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B)	6.3		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	27-AUG-19	27-AUG-19	R4769778
Cadmium (Cd)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Chromium (Cr)	14.3		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Cobalt (Co)	6.2		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Copper (Cu)	12.9		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Lead (Pb)	14.5		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Mercury (Hg)	0.0111		0.0050	ug/g	27-AUG-19	27-AUG-19	R4769520
Molybdenum (Mo)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Nickel (Ni)	13.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Selenium (Se)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Silver (Ag)	<0.20		0.20	ug/g	27-AUG-19	27-AUG-19	R4769902
Thallium (Tl)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Uranium (U)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Vanadium (V)	23.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-8 MW109-12.5-14.5 Sampled By: ANDREW V on 15-AUG-19 @ 11:11 Matrix: SOIL							
Metals							
Zinc (Zn)	64.7		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	23-AUG-19	R4765750
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Benzene	<0.0068		0.0068	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromodichloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromoform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromomethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Carbon tetrachloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dibromochloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chloroform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dibromoethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,4-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dichlorodifluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methylene Chloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloropropane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		25-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	22-AUG-19	25-AUG-19	R4768235
n-Hexane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Ethyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
MTBE	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Styrene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Tetrachloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Toluene	<0.080		0.080	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichloroethylene	<0.010		0.010	ug/g	22-AUG-19	25-AUG-19	R4768235

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-8 MW109-12.5-14.5 Sampled By: ANDREW V on 15-AUG-19 @ 11:11 Matrix: SOIL							
Volatile Organic Compounds							
Trichlorofluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Vinyl chloride	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
o-Xylene	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
m+p-Xylenes	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
Xylenes (Total)	<0.050		0.050	ug/g		25-AUG-19	
Surrogate: 4-Bromofluorobenzene	92.9		50-140	%	22-AUG-19	25-AUG-19	R4768235
Surrogate: 1,4-Difluorobenzene	112.5		50-140	%	22-AUG-19	25-AUG-19	R4768235
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	22-AUG-19	25-AUG-19	R4768235
F1-BTEX	<5.0		5.0	ug/g		25-AUG-19	
F2 (C10-C16)	<10		10	ug/g	20-AUG-19	21-AUG-19	R4763044
F2-Naphth	<10		10	ug/g		25-AUG-19	
F3 (C16-C34)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
F3-PAH	<50		50	ug/g		25-AUG-19	
F4 (C34-C50)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
Total Hydrocarbons (C6-C50)	<72		72	ug/g		25-AUG-19	
Chrom. to baseline at nC50	YES				20-AUG-19	21-AUG-19	R4763044
Surrogate: 2-Bromobenzotrifluoride	86.9		60-140	%	20-AUG-19	21-AUG-19	R4763044
Surrogate: 3,4-Dichlorotoluene	92.6		60-140	%	22-AUG-19	25-AUG-19	R4768235
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Acenaphthylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(b)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(k)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Chrysene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluorene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		23-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
2-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
Naphthalene	<0.013		0.013	ug/g	20-AUG-19	23-AUG-19	R4766148
Phenanthrene	<0.046		0.046	ug/g	20-AUG-19	23-AUG-19	R4766148
Pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Surrogate: 2-Fluorobiphenyl	95.4		50-140	%	20-AUG-19	23-AUG-19	R4766148
Surrogate: p-Terphenyl d14	84.7		50-140	%	20-AUG-19	23-AUG-19	R4766148

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-10 MW109-16-17 Sampled By: ANDREW V on 15-AUG-19 @ 11:20 Matrix: SOIL							
Organic / Inorganic Carbon							
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Average Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
L2330748-11 MW109-16-17 Sampled By: ANDREW V on 15-AUG-19 @ 11:20 Matrix: SOIL							
Saturated Paste Extractables							
SAR	5.23		0.10	SAR		05-SEP-19	R4783543
Calcium (Ca)	1.67		0.50	mg/L		05-SEP-19	R4783543
Magnesium (Mg)	0.72		0.50	mg/L		05-SEP-19	R4783543
Sodium (Na)	32.1		0.50	mg/L		05-SEP-19	R4783543
L2330748-12 DUP14 Sampled By: ANDREW V on 15-AUG-19 Matrix: SOIL							
Physical Tests							
Conductivity	0.177		0.0040	mS/cm		27-AUG-19	R4769452
% Moisture	10.7		0.10	%	20-AUG-19	21-AUG-19	R4761888
pH	8.00		0.10	pH units		22-AUG-19	R4764361
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	20-AUG-19	22-AUG-19	R4764193
Saturated Paste Extractables							
SAR	5.29		0.10	SAR		27-AUG-19	R4769905
Calcium (Ca)	2.80		0.50	mg/L		27-AUG-19	R4769905
Magnesium (Mg)	0.97		0.50	mg/L		27-AUG-19	R4769905
Sodium (Na)	40.3		0.50	mg/L		27-AUG-19	R4769905
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Arsenic (As)	2.3		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Barium (Ba)	41.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Beryllium (Be)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B)	6.8		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	27-AUG-19	27-AUG-19	R4769778
Cadmium (Cd)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Chromium (Cr)	13.7		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Cobalt (Co)	5.8		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Copper (Cu)	12.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Lead (Pb)	11.2		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Mercury (Hg)	0.0104		0.0050	ug/g	27-AUG-19	27-AUG-19	R4769520
Molybdenum (Mo)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-12 DUP14 Sampled By: ANDREW V on 15-AUG-19 Matrix: SOIL							
Metals							
Nickel (Ni)	11.8		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Selenium (Se)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Silver (Ag)	<0.20		0.20	ug/g	27-AUG-19	27-AUG-19	R4769902
Thallium (Tl)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Uranium (U)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Vanadium (V)	22.4		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Zinc (Zn)	57.1		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	23-AUG-19	R4766888
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Benzene	<0.0068		0.0068	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromodichloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromoform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromomethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Carbon tetrachloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dibromochloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chloroform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dibromoethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,4-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dichlorodifluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methylene Chloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloropropane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		25-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	22-AUG-19	25-AUG-19	R4768235
n-Hexane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Ethyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
MTBE	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Styrene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-12 DUP14 Sampled By: ANDREW V on 15-AUG-19 Matrix: SOIL							
Volatile Organic Compounds							
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Tetrachloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Toluene	<0.080		0.080	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichloroethylene	<0.010		0.010	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichlorofluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Vinyl chloride	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
o-Xylene	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
m+p-Xylenes	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
Xylenes (Total)	<0.050		0.050	ug/g		25-AUG-19	
Surrogate: 4-Bromofluorobenzene	99.8		50-140	%	22-AUG-19	25-AUG-19	R4768235
Surrogate: 1,4-Difluorobenzene	118.2		50-140	%	22-AUG-19	25-AUG-19	R4768235
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	22-AUG-19	25-AUG-19	R4768235
F1-BTEX	<5.0		5.0	ug/g		25-AUG-19	
F2 (C10-C16)	<10		10	ug/g	20-AUG-19	21-AUG-19	R4763044
F2-Naphth	<10		10	ug/g		25-AUG-19	
F3 (C16-C34)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
F3-PAH	<50		50	ug/g		25-AUG-19	
F4 (C34-C50)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
Total Hydrocarbons (C6-C50)	<72		72	ug/g		25-AUG-19	
Chrom. to baseline at nC50	YES				20-AUG-19	21-AUG-19	R4763044
Surrogate: 2-Bromobenzotrifluoride	86.3		60-140	%	20-AUG-19	21-AUG-19	R4763044
Surrogate: 3,4-Dichlorotoluene	89.7		60-140	%	22-AUG-19	25-AUG-19	R4768235
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Acenaphthylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(b)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(k)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Chrysene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluorene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		23-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-12 DUP14 Sampled By: ANDREW V on 15-AUG-19 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
2-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
Naphthalene	<0.013		0.013	ug/g	20-AUG-19	23-AUG-19	R4766148
Phenanthrene	<0.046		0.046	ug/g	20-AUG-19	23-AUG-19	R4766148
Pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Surrogate: 2-Fluorobiphenyl	95.9		50-140	%	20-AUG-19	23-AUG-19	R4766148
Surrogate: p-Terphenyl d14	84.5		50-140	%	20-AUG-19	23-AUG-19	R4766148
L2330748-13 MW108-12.5-14.5 Sampled By: ANDREW V on 16-AUG-19 @ 09:06 Matrix: SOIL							
Physical Tests							
Conductivity	0.509		0.0040	mS/cm		27-AUG-19	R4769452
% Moisture	11.4		0.10	%	20-AUG-19	21-AUG-19	R4761888
pH	7.69		0.10	pH units		22-AUG-19	R4764361
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	20-AUG-19	22-AUG-19	R4764193
Organic / Inorganic Carbon							
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Average Fraction Organic Carbon	<0.0010		0.0010		01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	<0.10		0.10	%	01-SEP-19	01-SEP-19	R4779768
Saturated Paste Extractables							
SAR	2.51		0.10	SAR		27-AUG-19	R4769905
Calcium (Ca)	15.7		0.50	mg/L		27-AUG-19	R4769905
Magnesium (Mg)	6.33		0.50	mg/L		27-AUG-19	R4769905
Sodium (Na)	46.6		0.50	mg/L		27-AUG-19	R4769905
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Arsenic (As)	1.7		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Barium (Ba)	36.6		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Beryllium (Be)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B)	6.6		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B), Hot Water Ext.	0.17		0.10	ug/g	27-AUG-19	27-AUG-19	R4769778
Cadmium (Cd)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Chromium (Cr)	12.1		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Cobalt (Co)	3.9		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Copper (Cu)	10.2		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Lead (Pb)	10.1		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Mercury (Hg)	0.0099		0.0050	ug/g	27-AUG-19	27-AUG-19	R4769520
Molybdenum (Mo)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Nickel (Ni)	8.6		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-13 MW108-12.5-14.5 Sampled By: ANDREW V on 16-AUG-19 @ 09:06 Matrix: SOIL							
Metals							
Selenium (Se)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Silver (Ag)	<0.20		0.20	ug/g	27-AUG-19	27-AUG-19	R4769902
Thallium (Tl)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Uranium (U)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Vanadium (V)	20.5		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Zinc (Zn)	55.4		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	23-AUG-19	R4766888
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Benzene	<0.0068		0.0068	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromodichloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromoform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromomethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Carbon tetrachloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dibromochloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chloroform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dibromoethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,4-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dichlorodifluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methylene Chloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloropropane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		25-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	22-AUG-19	25-AUG-19	R4768235
n-Hexane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Ethyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
MTBE	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Styrene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-13 MW108-12.5-14.5 Sampled By: ANDREW V on 16-AUG-19 @ 09:06 Matrix: SOIL							
Volatile Organic Compounds							
Tetrachloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Toluene	<0.080		0.080	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichloroethylene	<0.010		0.010	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichlorofluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Vinyl chloride	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
o-Xylene	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
m+p-Xylenes	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
Xylenes (Total)	<0.050		0.050	ug/g		25-AUG-19	
Surrogate: 4-Bromofluorobenzene	98.7		50-140	%	22-AUG-19	25-AUG-19	R4768235
Surrogate: 1,4-Difluorobenzene	118.4		50-140	%	22-AUG-19	25-AUG-19	R4768235
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	22-AUG-19	25-AUG-19	R4768235
F1-BTEX	<5.0		5.0	ug/g		25-AUG-19	
F2 (C10-C16)	<10		10	ug/g	20-AUG-19	21-AUG-19	R4763044
F2-Naphth	<10		10	ug/g		25-AUG-19	
F3 (C16-C34)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
F3-PAH	<50		50	ug/g		25-AUG-19	
F4 (C34-C50)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
Total Hydrocarbons (C6-C50)	<72		72	ug/g		25-AUG-19	
Chrom. to baseline at nC50	YES				20-AUG-19	21-AUG-19	R4763044
Surrogate: 2-Bromobenzotrifluoride	83.5		60-140	%	20-AUG-19	21-AUG-19	R4763044
Surrogate: 3,4-Dichlorotoluene	86.3		60-140	%	22-AUG-19	25-AUG-19	R4768235
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Acenaphthylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(b)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(k)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Chrysene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluorene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		23-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
2-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-13 MW108-12.5-14.5 Sampled By: ANDREW V on 16-AUG-19 @ 09:06 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Naphthalene	<0.013		0.013	ug/g	20-AUG-19	23-AUG-19	R4766148
Phenanthrene	<0.046		0.046	ug/g	20-AUG-19	23-AUG-19	R4766148
Pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Surrogate: 2-Fluorobiphenyl	97.3		50-140	%	20-AUG-19	23-AUG-19	R4766148
Surrogate: p-Terphenyl d14	85.4		50-140	%	20-AUG-19	23-AUG-19	R4766148
L2330748-15 MW108-17.5-19 Sampled By: ANDREW V on 16-AUG-19 @ 09:31 Matrix: SOIL							
Physical Tests							
Conductivity	0.281		0.0040	mS/cm		27-AUG-19	R4769452
% Moisture	8.10		0.10	%	20-AUG-19	21-AUG-19	R4761888
pH	7.98		0.10	pH units		22-AUG-19	R4764361
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	20-AUG-19	22-AUG-19	R4764193
Organic / Inorganic Carbon							
Fraction Organic Carbon	0.0019		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	0.0020		0.0010		01-SEP-19	01-SEP-19	R4779768
Fraction Organic Carbon	0.0018		0.0010		01-SEP-19	01-SEP-19	R4779768
Average Fraction Organic Carbon	0.0019		0.0010		01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	0.19		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	0.20		0.10	%	01-SEP-19	01-SEP-19	R4779768
Total Organic Carbon	0.18		0.10	%	01-SEP-19	01-SEP-19	R4779768
Saturated Paste Extractables							
SAR	2.22		0.10	SAR		27-AUG-19	R4769905
Calcium (Ca)	5.43		0.50	mg/L		27-AUG-19	R4769905
Magnesium (Mg)	2.01		0.50	mg/L		27-AUG-19	R4769905
Sodium (Na)	23.8		0.50	mg/L		27-AUG-19	R4769905
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Arsenic (As)	2.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Barium (Ba)	57.2		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Beryllium (Be)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B)	8.8		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Boron (B), Hot Water Ext.	0.13		0.10	ug/g	27-AUG-19	27-AUG-19	R4769778
Cadmium (Cd)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Chromium (Cr)	18.4		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Cobalt (Co)	6.2		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Copper (Cu)	14.3		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Lead (Pb)	12.9		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Mercury (Hg)	0.0123		0.0050	ug/g	27-AUG-19	27-AUG-19	R4769520
Molybdenum (Mo)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Nickel (Ni)	14.2		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Selenium (Se)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-15 MW108-17.5-19 Sampled By: ANDREW V on 16-AUG-19 @ 09:31 Matrix: SOIL							
Metals							
Silver (Ag)	<0.20		0.20	ug/g	27-AUG-19	27-AUG-19	R4769902
Thallium (Tl)	<0.50		0.50	ug/g	27-AUG-19	27-AUG-19	R4769902
Uranium (U)	<1.0		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Vanadium (V)	27.8		1.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Zinc (Zn)	81.0		5.0	ug/g	27-AUG-19	27-AUG-19	R4769902
Speciated Metals							
Chromium, Hexavalent	0.26		0.20	ug/g	22-AUG-19	23-AUG-19	R4766888
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Benzene	<0.0068		0.0068	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromodichloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromoform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromomethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Carbon tetrachloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dibromochloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chloroform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dibromoethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,4-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dichlorodifluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methylene Chloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloropropane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		25-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	22-AUG-19	25-AUG-19	R4768235
n-Hexane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Ethyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
MTBE	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Styrene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Tetrachloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-15 MW108-17.5-19 Sampled By: ANDREW V on 16-AUG-19 @ 09:31 Matrix: SOIL							
Volatile Organic Compounds							
Toluene	<0.080		0.080	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichloroethylene	<0.010		0.010	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichlorofluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Vinyl chloride	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
o-Xylene	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
m+p-Xylenes	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
Xylenes (Total)	<0.050		0.050	ug/g		25-AUG-19	
Surrogate: 4-Bromofluorobenzene	98.5		50-140	%	22-AUG-19	25-AUG-19	R4768235
Surrogate: 1,4-Difluorobenzene	118.5		50-140	%	22-AUG-19	25-AUG-19	R4768235
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	22-AUG-19	25-AUG-19	R4768235
F1-BTEX	<5.0		5.0	ug/g		25-AUG-19	
F2 (C10-C16)	<10		10	ug/g	20-AUG-19	21-AUG-19	R4763044
F2-Naphth	<10		10	ug/g		25-AUG-19	
F3 (C16-C34)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
F3-PAH	<50		50	ug/g		25-AUG-19	
F4 (C34-C50)	<50		50	ug/g	20-AUG-19	21-AUG-19	R4763044
Total Hydrocarbons (C6-C50)	<72		72	ug/g		25-AUG-19	
Chrom. to baseline at nC50	YES				20-AUG-19	21-AUG-19	R4763044
Surrogate: 2-Bromobenzotrifluoride	107.6		60-140	%	20-AUG-19	21-AUG-19	R4763044
Surrogate: 3,4-Dichlorotoluene	88.9		60-140	%	22-AUG-19	25-AUG-19	R4768235
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Acenaphthylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(a)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(b)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Benzo(k)fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Chrysene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluoranthene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Fluorene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		23-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
2-Methylnaphthalene	<0.030		0.030	ug/g	20-AUG-19	23-AUG-19	R4766148
Naphthalene	<0.013		0.013	ug/g	20-AUG-19	23-AUG-19	R4766148

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-15 MW108-17.5-19 Sampled By: ANDREW V on 16-AUG-19 @ 09:31 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Phenanthrene	<0.046		0.046	ug/g	20-AUG-19	23-AUG-19	R4766148
Pyrene	<0.050		0.050	ug/g	20-AUG-19	23-AUG-19	R4766148
Surrogate: 2-Fluorobiphenyl	94.3		50-140	%	20-AUG-19	23-AUG-19	R4766148
Surrogate: p-Terphenyl d14	84.0		50-140	%	20-AUG-19	23-AUG-19	R4766148
L2330748-18 TRIP BLANK-20190816 Sampled By: ANDREW V on 16-AUG-19 Matrix: SOIL							
Physical Tests							
% Moisture	<0.10		0.10	%	20-AUG-19	21-AUG-19	R4761888
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Benzene	<0.0068		0.0068	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromodichloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromoform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Bromomethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Carbon tetrachloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dibromochloromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Chloroform	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dibromoethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,4-Dichlorobenzene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Dichlorodifluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methylene Chloride	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,2-Dichloropropane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		25-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	22-AUG-19	25-AUG-19	R4768235
n-Hexane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Ethyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	22-AUG-19	25-AUG-19	R4768235
MTBE	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Styrene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2330748-18 TRIP BLANK-20190816 Sampled By: ANDREW V on 16-AUG-19 Matrix: SOIL							
Volatile Organic Compounds							
Tetrachloroethylene	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Toluene	<0.080		0.080	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,1-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
1,1,2-Trichloroethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichloroethylene	<0.010		0.010	ug/g	22-AUG-19	25-AUG-19	R4768235
Trichlorofluoromethane	<0.050		0.050	ug/g	22-AUG-19	25-AUG-19	R4768235
Vinyl chloride	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
o-Xylene	<0.020		0.020	ug/g	22-AUG-19	25-AUG-19	R4768235
m+p-Xylenes	<0.030		0.030	ug/g	22-AUG-19	25-AUG-19	R4768235
Xylenes (Total)	<0.050		0.050	ug/g		25-AUG-19	
Surrogate: 4-Bromofluorobenzene	97.7		50-140	%	22-AUG-19	25-AUG-19	R4768235
Surrogate: 1,4-Difluorobenzene	116.4		50-140	%	22-AUG-19	25-AUG-19	R4768235
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	22-AUG-19	25-AUG-19	R4768235
Surrogate: 3,4-Dichlorotoluene	87.8		60-140	%	22-AUG-19	25-AUG-19	R4768235

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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.

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

Reference Information

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).

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)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT Soil ABN-Calculated Parameters SW846 8270

MOISTURE-WT Soil % Moisture CCME PHC in Soil - Tier 1 (mod)

PAH-511-WT Soil PAH-O.Reg 153/04 (July 2011) SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT 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.

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).

SAR-R511-WT 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 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).

TOC-R511-WT Soil TOC & FOC-O.Reg 153/04 (July 2011) CARTER 21.3.2

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).

Reference Information

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

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.

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

Chain of Custody Numbers:

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 weight of sample
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.

Quality Control Report

Workorder: L2330748 Report Date: 06-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4769645								
WG3144202-4 DUP		**L2331567-19**						
Boron (B), Hot Water Ext.		0.12	0.11		ug/g	6.5	30	27-AUG-19
WG3144202-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			89.2		%		70-130	27-AUG-19
WG3144202-3 LCS								
Boron (B), Hot Water Ext.			95.1		%		70-130	27-AUG-19
WG3144202-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	27-AUG-19
Batch R4769778								
WG3144340-4 DUP		**L2331567-9**						
Boron (B), Hot Water Ext.		0.12	0.13		ug/g	2.2	30	27-AUG-19
WG3144340-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			108.4		%		70-130	27-AUG-19
WG3144340-3 LCS								
Boron (B), Hot Water Ext.			89.8		%		70-130	27-AUG-19
WG3144340-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	27-AUG-19
CN-WAD-R511-WT	**Soil**							
Batch R4764193								
WG3138396-3 DUP		**L2330594-4**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	22-AUG-19
WG3138396-2 LCS								
Cyanide, Weak Acid Diss			97.1		%		80-120	22-AUG-19
WG3138396-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	22-AUG-19
WG3138396-4 MS		**L2330594-4**						
Cyanide, Weak Acid Diss			103.0		%		70-130	22-AUG-19
CR-CR6-IC-WT	**Soil**							
Batch R4765750								
WG3140311-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			106.2		%		70-130	23-AUG-19
WG3140311-3 DUP		**L2330594-1**						
Chromium, Hexavalent		0.26	0.28		ug/g	7.6	35	23-AUG-19
WG3140311-2 LCS								
Chromium, Hexavalent			98.7		%		80-120	23-AUG-19
WG3140311-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	23-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT	**Soil**							
Batch R4766888								
WG3140702-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			107.5		%		70-130	23-AUG-19
WG3140702-3 DUP		**L2330398-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	23-AUG-19
WG3140702-2 LCS								
Chromium, Hexavalent			97.9		%		80-120	23-AUG-19
WG3140702-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	23-AUG-19
EC-WT	**Soil**							
Batch R4769452								
WG3144061-4 DUP		**WG3144061-3**						
Conductivity		0.394	0.393		mS/cm	0.3	20	27-AUG-19
WG3144061-2 IRM		**WT SAR3**						
Conductivity			86.5		%		70-130	27-AUG-19
WG3144248-1 LCS								
Conductivity			98.7		%		90-110	27-AUG-19
WG3144061-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-AUG-19
Batch R4769855								
WG3144328-4 DUP		**WG3144328-3**						
Conductivity		0.407	0.385		mS/cm	5.6	20	27-AUG-19
WG3144328-2 IRM		**WT SAR3**						
Conductivity			96.6		%		70-130	27-AUG-19
WG3144804-1 LCS								
Conductivity			97.7		%		90-110	27-AUG-19
WG3144328-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-AUG-19
Batch R4784415								
WG3152286-4 DUP		**WG3152286-3**						
Conductivity		1.08	1.09		mS/cm	0.5	20	06-SEP-19
WG3152286-2 IRM		**WT SAR3**						
Conductivity			94.8		%		70-130	06-SEP-19
WG3152539-1 LCS								
Conductivity			99.4		%		90-110	06-SEP-19
WG3152286-1 MB								
Conductivity			<0.0040		mS/cm		0.004	06-SEP-19
F1-HS-511-WT	**Soil**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4768161								
WG3141159-4 DUP		**WG3141159-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	25-AUG-19
WG3141159-2 LCS								
F1 (C6-C10)			107.9		%		80-120	25-AUG-19
WG3141159-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	25-AUG-19
Surrogate: 3,4-Dichlorotoluene			91.1		%		60-140	25-AUG-19
WG3141159-6 MS		**L2328794-28**						
F1 (C6-C10)			83.4		%		60-140	25-AUG-19
Batch R4768235								
WG3139896-4 DUP		**WG3139896-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	25-AUG-19
WG3139896-2 LCS								
F1 (C6-C10)			113.6		%		80-120	25-AUG-19
WG3139896-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	25-AUG-19
Surrogate: 3,4-Dichlorotoluene			102.2		%		60-140	25-AUG-19
WG3139896-6 MS		**L2330748-15**						
F1 (C6-C10)			101.6		%		60-140	25-AUG-19
F2-F4-511-WT	**Soil**							
Batch R4763044								
WG3138351-3 DUP		**WG3138351-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	21-AUG-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	21-AUG-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	21-AUG-19
WG3138351-2 LCS								
F2 (C10-C16)			101.6		%		80-120	21-AUG-19
F3 (C16-C34)			98.0		%		80-120	21-AUG-19
F4 (C34-C50)			100.6		%		80-120	21-AUG-19
WG3138351-1 MB								
F2 (C10-C16)			<10		ug/g		10	21-AUG-19
F3 (C16-C34)			<50		ug/g		50	21-AUG-19
F4 (C34-C50)			<50		ug/g		50	21-AUG-19
Surrogate: 2-Bromobenzotrifluoride			82.3		%		60-140	21-AUG-19
WG3138351-4 MS		**WG3138351-5**						
F2 (C10-C16)			100.0		%		60-140	21-AUG-19
F3 (C16-C34)			98.6		%		60-140	21-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4763044								
WG3138351-4 MS		**WG3138351-5**						
F4 (C34-C50)			101.2		%		60-140	21-AUG-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4769520								
WG3144042-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			95.4		%		70-130	27-AUG-19
WG3144042-6 DUP		**WG3144042-5**						
Mercury (Hg)		0.0141	0.0144		ug/g	2.5	40	27-AUG-19
WG3144042-3 LCS								
Mercury (Hg)			98.0		%		80-120	27-AUG-19
WG3144042-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	27-AUG-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4769902								
WG3144042-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			93.9		%		70-130	27-AUG-19
Arsenic (As)			93.0		%		70-130	27-AUG-19
Barium (Ba)			96.8		%		70-130	27-AUG-19
Beryllium (Be)			95.5		%		70-130	27-AUG-19
Boron (B)			2.7		mg/kg		0-8.2	27-AUG-19
Cadmium (Cd)			92.2		%		70-130	27-AUG-19
Chromium (Cr)			93.6		%		70-130	27-AUG-19
Cobalt (Co)			92.7		%		70-130	27-AUG-19
Copper (Cu)			94.8		%		70-130	27-AUG-19
Lead (Pb)			92.4		%		70-130	27-AUG-19
Molybdenum (Mo)			94.7		%		70-130	27-AUG-19
Nickel (Ni)			93.0		%		70-130	27-AUG-19
Selenium (Se)			0.32		mg/kg		0.11-0.51	27-AUG-19
Silver (Ag)			0.22		mg/kg		0.13-0.33	27-AUG-19
Thallium (Tl)			0.111		mg/kg		0.077-0.18	27-AUG-19
Uranium (U)			91.8		%		70-130	27-AUG-19
Vanadium (V)			93.5		%		70-130	27-AUG-19
Zinc (Zn)			92.1		%		70-130	27-AUG-19
WG3144042-6 DUP		**WG3144042-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	27-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4769902								
WG3144042-6 DUP		**WG3144042-5**						
Arsenic (As)		2.33	2.24		ug/g	3.9	30	27-AUG-19
Barium (Ba)		54.9	52.3		ug/g	4.9	40	27-AUG-19
Beryllium (Be)		0.43	0.41		ug/g	3.7	30	27-AUG-19
Boron (B)		7.5	7.0		ug/g	6.4	30	27-AUG-19
Cadmium (Cd)		0.074	0.069		ug/g	7.2	30	27-AUG-19
Chromium (Cr)		14.9	14.0		ug/g	5.8	30	27-AUG-19
Cobalt (Co)		6.07	5.69		ug/g	6.4	30	27-AUG-19
Copper (Cu)		11.5	11.1		ug/g	3.5	30	27-AUG-19
Lead (Pb)		6.58	6.27		ug/g	4.9	40	27-AUG-19
Molybdenum (Mo)		0.32	0.35		ug/g	11	40	27-AUG-19
Nickel (Ni)		13.0	12.3		ug/g	5.0	30	27-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	27-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	27-AUG-19
Thallium (Tl)		0.125	0.115		ug/g	8.3	30	27-AUG-19
Uranium (U)		0.507	0.473		ug/g	6.9	30	27-AUG-19
Vanadium (V)		25.5	24.2		ug/g	5.3	30	27-AUG-19
Zinc (Zn)		30.4	29.4		ug/g	3.3	30	27-AUG-19
WG3144042-4 LCS								
Antimony (Sb)			105.6		%		80-120	27-AUG-19
Arsenic (As)			104.1		%		80-120	27-AUG-19
Barium (Ba)			105.9		%		80-120	27-AUG-19
Beryllium (Be)			103.1		%		80-120	27-AUG-19
Boron (B)			99.9		%		80-120	27-AUG-19
Cadmium (Cd)			102.5		%		80-120	27-AUG-19
Chromium (Cr)			104.6		%		80-120	27-AUG-19
Cobalt (Co)			102.3		%		80-120	27-AUG-19
Copper (Cu)			102.2		%		80-120	27-AUG-19
Lead (Pb)			104.1		%		80-120	27-AUG-19
Molybdenum (Mo)			108.8		%		80-120	27-AUG-19
Nickel (Ni)			103.3		%		80-120	27-AUG-19
Selenium (Se)			103.7		%		80-120	27-AUG-19
Silver (Ag)			106.2		%		80-120	27-AUG-19
Thallium (Tl)			100.1		%		80-120	27-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4769902								
WG3144042-4 LCS								
Uranium (U)			105.4		%		80-120	27-AUG-19
Vanadium (V)			106.9		%		80-120	27-AUG-19
Zinc (Zn)			102.0		%		80-120	27-AUG-19
WG3144042-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	27-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	27-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	27-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	27-AUG-19
Boron (B)			<5.0		mg/kg		5	27-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	27-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	27-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	27-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	27-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	27-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	27-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	27-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	27-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	27-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	27-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	27-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	27-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	27-AUG-19
MOISTURE-WT	**Soil**							
Batch R4761888								
WG3138152-3 DUP		**L2330748-1**						
% Moisture		10.8	10.8		%	0.7	20	21-AUG-19
WG3138152-2 LCS								
% Moisture			100.0		%		90-110	21-AUG-19
WG3138152-1 MB								
% Moisture			<0.10		%		0.1	21-AUG-19
PAH-511-WT	**Soil**							
Batch R4766148								
WG3138048-3 DUP		**WG3138048-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	23-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4766148								
WG3138048-3 DUP		**WG3138048-5**						
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	23-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	23-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	23-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	23-AUG-19
WG3138048-2 LCS								
1-Methylnaphthalene			101.4		%		50-140	23-AUG-19
2-Methylnaphthalene			96.5		%		50-140	23-AUG-19
Acenaphthene			103.4		%		50-140	23-AUG-19
Acenaphthylene			106.6		%		50-140	23-AUG-19
Anthracene			103.6		%		50-140	23-AUG-19
Benzo(a)anthracene			105.3		%		50-140	23-AUG-19
Benzo(a)pyrene			102.0		%		50-140	23-AUG-19
Benzo(b)fluoranthene			102.3		%		50-140	23-AUG-19
Benzo(g,h,i)perylene			100.2		%		50-140	23-AUG-19
Benzo(k)fluoranthene			99.7		%		50-140	23-AUG-19
Chrysene			107.6		%		50-140	23-AUG-19
Dibenzo(ah)anthracene			100.5		%		50-140	23-AUG-19
Fluoranthene			101.2		%		50-140	23-AUG-19
Fluorene			101.7		%		50-140	23-AUG-19
Indeno(1,2,3-cd)pyrene			104.8		%		50-140	23-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4766148								
WG3138048-2 LCS								
Naphthalene			99.6		%		50-140	23-AUG-19
Phenanthrene			103.7		%		50-140	23-AUG-19
Pyrene			101.3		%		50-140	23-AUG-19
WG3138048-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	23-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	23-AUG-19
Acenaphthene			<0.050		ug/g		0.05	23-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	23-AUG-19
Anthracene			<0.050		ug/g		0.05	23-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	23-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	23-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	23-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	23-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	23-AUG-19
Chrysene			<0.050		ug/g		0.05	23-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	23-AUG-19
Fluoranthene			<0.050		ug/g		0.05	23-AUG-19
Fluorene			<0.050		ug/g		0.05	23-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	23-AUG-19
Naphthalene			<0.013		ug/g		0.013	23-AUG-19
Phenanthrene			<0.046		ug/g		0.046	23-AUG-19
Pyrene			<0.050		ug/g		0.05	23-AUG-19
Surrogate: 2-Fluorobiphenyl			95.0		%		50-140	23-AUG-19
Surrogate: p-Terphenyl d14			82.5		%		50-140	23-AUG-19
WG3138048-4 MS		**WG3138048-5**						
1-Methylnaphthalene			101.1		%		50-140	23-AUG-19
2-Methylnaphthalene			95.6		%		50-140	23-AUG-19
Acenaphthene			104.1		%		50-140	23-AUG-19
Acenaphthylene			106.2		%		50-140	23-AUG-19
Anthracene			102.2		%		50-140	23-AUG-19
Benzo(a)anthracene			107.2		%		50-140	23-AUG-19
Benzo(a)pyrene			102.2		%		50-140	23-AUG-19
Benzo(b)fluoranthene			102.0		%		50-140	23-AUG-19
Benzo(g,h,i)perylene			99.1		%		50-140	23-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4766148								
WG3138048-4 MS		**WG3138048-5**						
Benzo(k)fluoranthene			101.0		%		50-140	23-AUG-19
Chrysene			107.9		%		50-140	23-AUG-19
Dibenzo(ah)anthracene			100.2		%		50-140	23-AUG-19
Fluoranthene			103.5		%		50-140	23-AUG-19
Fluorene			102.8		%		50-140	23-AUG-19
Indeno(1,2,3-cd)pyrene			105.4		%		50-140	23-AUG-19
Naphthalene			98.8		%		50-140	23-AUG-19
Phenanthrene			103.7		%		50-140	23-AUG-19
Pyrene			103.1		%		50-140	23-AUG-19
PH-WT	**Soil**							
Batch R4764361								
WG3138423-1 DUP		**L2330718-2**						
pH		7.28	7.28	J	pH units	0.00	0.3	22-AUG-19
WG3140006-1 LCS								
pH			6.97		pH units		6.9-7.1	22-AUG-19
SAR-R511-WT	**Soil**							
Batch R4769897								
WG3144328-4 DUP		**WG3144328-3**						
Calcium (Ca)		16.1	17.1		mg/L	6.0	30	27-AUG-19
Sodium (Na)		56.2	57.6		mg/L	2.5	30	27-AUG-19
Magnesium (Mg)		1.49	1.55		mg/L	3.9	30	27-AUG-19
WG3144328-2 IRM		**WT SAR3**						
Calcium (Ca)			98.2		%		70-130	27-AUG-19
Sodium (Na)			104.0		%		70-130	27-AUG-19
Magnesium (Mg)			100.0		%		70-130	27-AUG-19
WG3144328-5 LCS								
Calcium (Ca)			104.7		%		70-130	27-AUG-19
Sodium (Na)			100.6		%		70-130	27-AUG-19
Magnesium (Mg)			100.4		%		70-130	27-AUG-19
WG3144328-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	27-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4769905								
WG3144061-4 DUP		**WG3144061-3**						
Calcium (Ca)		1.83	2.16		mg/L	17	30	27-AUG-19
Sodium (Na)		86.3	88.1		mg/L	2.1	30	27-AUG-19
Magnesium (Mg)		<0.50	<0.50	RPD-NA	mg/L	N/A	30	27-AUG-19
WG3144061-2 IRM		**WT SAR3**						
Calcium (Ca)			83.9		%		70-130	27-AUG-19
Sodium (Na)			92.3		%		70-130	27-AUG-19
Magnesium (Mg)			84.9		%		70-130	27-AUG-19
WG3144061-5 LCS								
Calcium (Ca)			105.3		%		70-130	27-AUG-19
Sodium (Na)			101.6		%		70-130	27-AUG-19
Magnesium (Mg)			100.8		%		70-130	27-AUG-19
WG3144061-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	27-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-AUG-19
Batch R4783543								
WG3152286-4 DUP		**WG3152286-3**						
Calcium (Ca)		12.7	12.9		mg/L	1.6	30	05-SEP-19
Sodium (Na)		199	198		mg/L	0.5	30	05-SEP-19
Magnesium (Mg)		3.27	3.33		mg/L	1.8	30	05-SEP-19
WG3152286-2 IRM		**WT SAR3**						
Calcium (Ca)			83.5		%		70-130	05-SEP-19
Sodium (Na)			95.4		%		70-130	05-SEP-19
Magnesium (Mg)			89.8		%		70-130	05-SEP-19
WG3152286-5 LCS								
Calcium (Ca)			102.0		%		70-130	05-SEP-19
Sodium (Na)			101.0		%		70-130	05-SEP-19
Magnesium (Mg)			100.2		%		70-130	05-SEP-19
WG3152286-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	05-SEP-19
Sodium (Na)			<0.50		mg/L		0.5	05-SEP-19
Magnesium (Mg)			<0.50		mg/L		0.5	05-SEP-19
TOC-R511-WT	**Soil**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TOC-R511-WT	**Soil**							
Batch R4779768								
WG3149754-3 CRM		**WT-TOC-CRM**						
Total Organic Carbon			97.7		%		70-130	01-SEP-19
WG3149754-4 DUP		**L2330748-1**						
Total Organic Carbon		<0.10	<0.10	RPD-NA	%	N/A	35	01-SEP-19
WG3149754-2 LCS								
Total Organic Carbon			104.1		%		80-120	01-SEP-19
Total Organic Carbon			104.1		%		80-120	01-SEP-19
Total Organic Carbon			104.1		%		80-120	01-SEP-19
WG3149754-1 MB								
Total Organic Carbon			<0.10		%		0.1	01-SEP-19
VOC-511-HS-WT	**Soil**							
Batch R4768161								
WG3141159-4 DUP		**WG3141159-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	26-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768161								
WG3141159-4 DUP		**WG3141159-3**						
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	26-AUG-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	26-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	26-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-AUG-19
WG3141159-2 LCS								
1,1,1,2-Tetrachloroethane			108.7		%		60-130	26-AUG-19
1,1,2,2-Tetrachloroethane			115.1		%		60-130	26-AUG-19
1,1,1-Trichloroethane			100.0		%		60-130	26-AUG-19
1,1,2-Trichloroethane			106.3		%		60-130	26-AUG-19
1,1-Dichloroethane			101.6		%		60-130	26-AUG-19
1,1-Dichloroethylene			90.8		%		60-130	26-AUG-19
1,2-Dibromoethane			107.3		%		70-130	26-AUG-19
1,2-Dichlorobenzene			105.6		%		70-130	26-AUG-19
1,2-Dichloroethane			107.0		%		60-130	26-AUG-19
1,2-Dichloropropane			105.0		%		70-130	26-AUG-19
1,3-Dichlorobenzene			101.6		%		70-130	26-AUG-19
1,4-Dichlorobenzene			101.7		%		70-130	26-AUG-19
Acetone			108.7		%		60-140	26-AUG-19
Benzene			105.5		%		70-130	26-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768161								
WG3141159-2 LCS								
Bromodichloromethane			106.3		%		50-140	26-AUG-19
Bromoform			114.9		%		70-130	26-AUG-19
Bromomethane			89.4		%		50-140	26-AUG-19
Carbon tetrachloride			101.5		%		70-130	26-AUG-19
Chlorobenzene			107.2		%		70-130	26-AUG-19
Chloroform			104.9		%		70-130	26-AUG-19
cis-1,2-Dichloroethylene			101.9		%		70-130	26-AUG-19
cis-1,3-Dichloropropene			112.7		%		70-130	26-AUG-19
Dibromochloromethane			108.5		%		60-130	26-AUG-19
Dichlorodifluoromethane			50.0		%		50-140	26-AUG-19
Ethylbenzene			99.5		%		70-130	26-AUG-19
n-Hexane			83.2		%		70-130	26-AUG-19
Methylene Chloride			103.2		%		70-130	26-AUG-19
MTBE			102.5		%		70-130	26-AUG-19
m+p-Xylenes			103.5		%		70-130	26-AUG-19
Methyl Ethyl Ketone			107.1		%		60-140	26-AUG-19
Methyl Isobutyl Ketone			103.3		%		60-140	26-AUG-19
o-Xylene			102.3		%		70-130	26-AUG-19
Styrene			102.4		%		70-130	26-AUG-19
Tetrachloroethylene			102.9		%		60-130	26-AUG-19
Toluene			102.7		%		70-130	26-AUG-19
trans-1,2-Dichloroethylene			95.2		%		60-130	26-AUG-19
trans-1,3-Dichloropropene			111.2		%		70-130	26-AUG-19
Trichloroethylene			103.4		%		60-130	26-AUG-19
Trichlorofluoromethane			93.0		%		50-140	26-AUG-19
Vinyl chloride			90.0		%		60-140	26-AUG-19
WG3141159-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	26-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	26-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768161								
WG3141159-1 MB								
1,2-Dichlorobenzene			<0.050		ug/g		0.05	26-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	26-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	26-AUG-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	26-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	26-AUG-19
Acetone			<0.50		ug/g		0.5	26-AUG-19
Benzene			<0.0068		ug/g		0.0068	26-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	26-AUG-19
Bromoform			<0.050		ug/g		0.05	26-AUG-19
Bromomethane			<0.050		ug/g		0.05	26-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	26-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	26-AUG-19
Chloroform			<0.050		ug/g		0.05	26-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	26-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	26-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	26-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	26-AUG-19
n-Hexane			<0.050		ug/g		0.05	26-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	26-AUG-19
MTBE			<0.050		ug/g		0.05	26-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	26-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	26-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	26-AUG-19
o-Xylene			<0.020		ug/g		0.02	26-AUG-19
Styrene			<0.050		ug/g		0.05	26-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	26-AUG-19
Toluene			<0.080		ug/g		0.08	26-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	26-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	26-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	26-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	26-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768161								
WG3141159-1 MB								
Surrogate: 1,4-Difluorobenzene			102.9		%		50-140	26-AUG-19
Surrogate: 4-Bromofluorobenzene			93.1		%		50-140	26-AUG-19
WG3141159-5 MS		**L2330748-6**						
1,1,1,2-Tetrachloroethane			114.1		%		50-140	26-AUG-19
1,1,2,2-Tetrachloroethane			120.5		%		50-140	26-AUG-19
1,1,1-Trichloroethane			105.9		%		50-140	26-AUG-19
1,1,2-Trichloroethane			113.1		%		50-140	26-AUG-19
1,1-Dichloroethane			106.6		%		50-140	26-AUG-19
1,1-Dichloroethylene			93.4		%		50-140	26-AUG-19
1,2-Dibromoethane			114.2		%		50-140	26-AUG-19
1,2-Dichlorobenzene			107.4		%		50-140	26-AUG-19
1,2-Dichloroethane			112.4		%		50-140	26-AUG-19
1,2-Dichloropropane			109.7		%		50-140	26-AUG-19
1,3-Dichlorobenzene			102.0		%		50-140	26-AUG-19
1,4-Dichlorobenzene			100.9		%		50-140	26-AUG-19
Acetone			120.5		%		50-140	26-AUG-19
Benzene			109.1		%		50-140	26-AUG-19
Bromodichloromethane			109.8		%		50-140	26-AUG-19
Bromoform			120.0		%		50-140	26-AUG-19
Bromomethane			90.3		%		50-140	26-AUG-19
Carbon tetrachloride			105.3		%		50-140	26-AUG-19
Chlorobenzene			109.4		%		50-140	26-AUG-19
Chloroform			109.1		%		50-140	26-AUG-19
cis-1,2-Dichloroethylene			104.8		%		50-140	26-AUG-19
cis-1,3-Dichloropropene			109.4		%		50-140	26-AUG-19
Dibromochloromethane			114.7		%		50-140	26-AUG-19
Dichlorodifluoromethane			53.9		%		50-140	26-AUG-19
Ethylbenzene			101.7		%		50-140	26-AUG-19
n-Hexane			87.5		%		50-140	26-AUG-19
Methylene Chloride			106.8		%		50-140	26-AUG-19
MTBE			104.6		%		50-140	26-AUG-19
m+p-Xylenes			104.5		%		50-140	26-AUG-19
Methyl Ethyl Ketone			115.9		%		50-140	26-AUG-19
Methyl Isobutyl Ketone			108.1		%		50-140	26-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768161								
WG3141159-5 MS		**L2330748-6**						
o-Xylene			104.9		%		50-140	26-AUG-19
Styrene			103.6		%		50-140	26-AUG-19
Tetrachloroethylene			103.1		%		50-140	26-AUG-19
Toluene			106.0		%		50-140	26-AUG-19
trans-1,2-Dichloroethylene			93.8		%		50-140	26-AUG-19
trans-1,3-Dichloropropene			108.5		%		50-140	26-AUG-19
Trichloroethylene			103.9		%		50-140	26-AUG-19
Trichlorofluoromethane			97.1		%		50-140	26-AUG-19
Vinyl chloride			92.6		%		50-140	26-AUG-19
Batch R4768235								
WG3139896-4 DUP		**WG3139896-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	25-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	25-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768235								
WG3139896-4 DUP		**WG3139896-3**						
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	25-AUG-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	25-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	25-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	25-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	25-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	25-AUG-19
WG3139896-2 LCS								
1,1,1,2-Tetrachloroethane			105.9		%		60-130	25-AUG-19
1,1,2,2-Tetrachloroethane			107.9		%		60-130	25-AUG-19
1,1,1-Trichloroethane			104.6		%		60-130	25-AUG-19
1,1,2-Trichloroethane			106.0		%		60-130	25-AUG-19
1,1-Dichloroethane			105.3		%		60-130	25-AUG-19
1,1-Dichloroethylene			92.1		%		60-130	25-AUG-19
1,2-Dibromoethane			106.8		%		70-130	25-AUG-19
1,2-Dichlorobenzene			102.5		%		70-130	25-AUG-19
1,2-Dichloroethane			109.1		%		60-130	25-AUG-19
1,2-Dichloropropane			106.8		%		70-130	25-AUG-19
1,3-Dichlorobenzene			100.2		%		70-130	25-AUG-19
1,4-Dichlorobenzene			101.5		%		70-130	25-AUG-19
Acetone			103.2		%		60-140	25-AUG-19
Benzene			107.8		%		70-130	25-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768235								
WG3139896-2 LCS								
Bromodichloromethane			108.7		%		50-140	25-AUG-19
Bromoform			108.1		%		70-130	25-AUG-19
Bromomethane			88.1		%		50-140	25-AUG-19
Carbon tetrachloride			106.1		%		70-130	25-AUG-19
Chlorobenzene			101.4		%		70-130	25-AUG-19
Chloroform			107.7		%		70-130	25-AUG-19
cis-1,2-Dichloroethylene			106.4		%		70-130	25-AUG-19
cis-1,3-Dichloropropene			108.1		%		70-130	25-AUG-19
Dibromochloromethane			103.8		%		60-130	25-AUG-19
Dichlorodifluoromethane			58.6		%		50-140	25-AUG-19
Ethylbenzene			95.2		%		70-130	25-AUG-19
n-Hexane			87.8		%		70-130	25-AUG-19
Methylene Chloride			106.4		%		70-130	25-AUG-19
MTBE			103.7		%		70-130	25-AUG-19
m+p-Xylenes			97.4		%		70-130	25-AUG-19
Methyl Ethyl Ketone			101.1		%		60-140	25-AUG-19
Methyl Isobutyl Ketone			94.5		%		60-140	25-AUG-19
o-Xylene			95.6		%		70-130	25-AUG-19
Styrene			96.6		%		70-130	25-AUG-19
Tetrachloroethylene			99.6		%		60-130	25-AUG-19
Toluene			95.3		%		70-130	25-AUG-19
trans-1,2-Dichloroethylene			99.7		%		60-130	25-AUG-19
trans-1,3-Dichloropropene			101.8		%		70-130	25-AUG-19
Trichloroethylene			109.0		%		60-130	25-AUG-19
Trichlorofluoromethane			94.7		%		50-140	25-AUG-19
Vinyl chloride			95.1		%		60-140	25-AUG-19
WG3139896-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	25-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	25-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	25-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	25-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	25-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	25-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	25-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768235								
WG3139896-1 MB								
1,2-Dichlorobenzene			<0.050		ug/g		0.05	25-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	25-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	25-AUG-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	25-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	25-AUG-19
Acetone			<0.50		ug/g		0.5	25-AUG-19
Benzene			<0.0068		ug/g		0.0068	25-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	25-AUG-19
Bromoform			<0.050		ug/g		0.05	25-AUG-19
Bromomethane			<0.050		ug/g		0.05	25-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	25-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	25-AUG-19
Chloroform			<0.050		ug/g		0.05	25-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	25-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	25-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	25-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	25-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	25-AUG-19
n-Hexane			<0.050		ug/g		0.05	25-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	25-AUG-19
MTBE			<0.050		ug/g		0.05	25-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	25-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	25-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	25-AUG-19
o-Xylene			<0.020		ug/g		0.02	25-AUG-19
Styrene			<0.050		ug/g		0.05	25-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	25-AUG-19
Toluene			<0.080		ug/g		0.08	25-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	25-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	25-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	25-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	25-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	25-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768235								
WG3139896-1 MB								
Surrogate: 1,4-Difluorobenzene			117.5		%		50-140	25-AUG-19
Surrogate: 4-Bromofluorobenzene			99.5		%		50-140	25-AUG-19
WG3139896-5 MS		**L2330748-12**						
1,1,1,2-Tetrachloroethane			112.9		%		50-140	27-AUG-19
1,1,2,2-Tetrachloroethane			112.6		%		50-140	27-AUG-19
1,1,1-Trichloroethane			111.4		%		50-140	27-AUG-19
1,1,2-Trichloroethane			105.1		%		50-140	27-AUG-19
1,1-Dichloroethane			108.8		%		50-140	27-AUG-19
1,1-Dichloroethylene			100.5		%		50-140	27-AUG-19
1,2-Dibromoethane			104.7		%		50-140	27-AUG-19
1,2-Dichlorobenzene			108.7		%		50-140	27-AUG-19
1,2-Dichloroethane			107.5		%		50-140	27-AUG-19
1,2-Dichloropropane			109.5		%		50-140	27-AUG-19
1,3-Dichlorobenzene			110.5		%		50-140	27-AUG-19
1,4-Dichlorobenzene			110.7		%		50-140	27-AUG-19
Acetone			99.2		%		50-140	27-AUG-19
Benzene			113.1		%		50-140	27-AUG-19
Bromodichloromethane			109.6		%		50-140	27-AUG-19
Bromoform			111.1		%		50-140	27-AUG-19
Bromomethane			97.3		%		50-140	27-AUG-19
Carbon tetrachloride			112.1		%		50-140	27-AUG-19
Chlorobenzene			113.4		%		50-140	27-AUG-19
Chloroform			111.5		%		50-140	27-AUG-19
cis-1,2-Dichloroethylene			109.1		%		50-140	27-AUG-19
cis-1,3-Dichloropropene			120.2		%		50-140	27-AUG-19
Dibromochloromethane			108.3		%		50-140	27-AUG-19
Dichlorodifluoromethane			62.4		%		50-140	27-AUG-19
Ethylbenzene			107.5		%		50-140	27-AUG-19
n-Hexane			93.5		%		50-140	27-AUG-19
Methylene Chloride			107.3		%		50-140	27-AUG-19
MTBE			102.4		%		50-140	27-AUG-19
m+p-Xylenes			112.8		%		50-140	27-AUG-19
Methyl Ethyl Ketone			98.6		%		50-140	27-AUG-19
Methyl Isobutyl Ketone			95.1		%		50-140	27-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4768235								
WG3139896-5 MS		**L2330748-12**						
o-Xylene			108.8		%		50-140	27-AUG-19
Styrene			107.0		%		50-140	27-AUG-19
Tetrachloroethylene			114.8		%		50-140	27-AUG-19
Toluene			109.6		%		50-140	27-AUG-19
trans-1,2-Dichloroethylene			106.6		%		50-140	27-AUG-19
trans-1,3-Dichloropropene			115.9		%		50-140	27-AUG-19
Trichloroethylene			115.1		%		50-140	27-AUG-19
Trichlorofluoromethane			104.3		%		50-140	27-AUG-19
Vinyl chloride			101.3		%		50-140	27-AUG-19

Quality Control Report

Workorder: L2330748 Report Date: 06-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

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.
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.

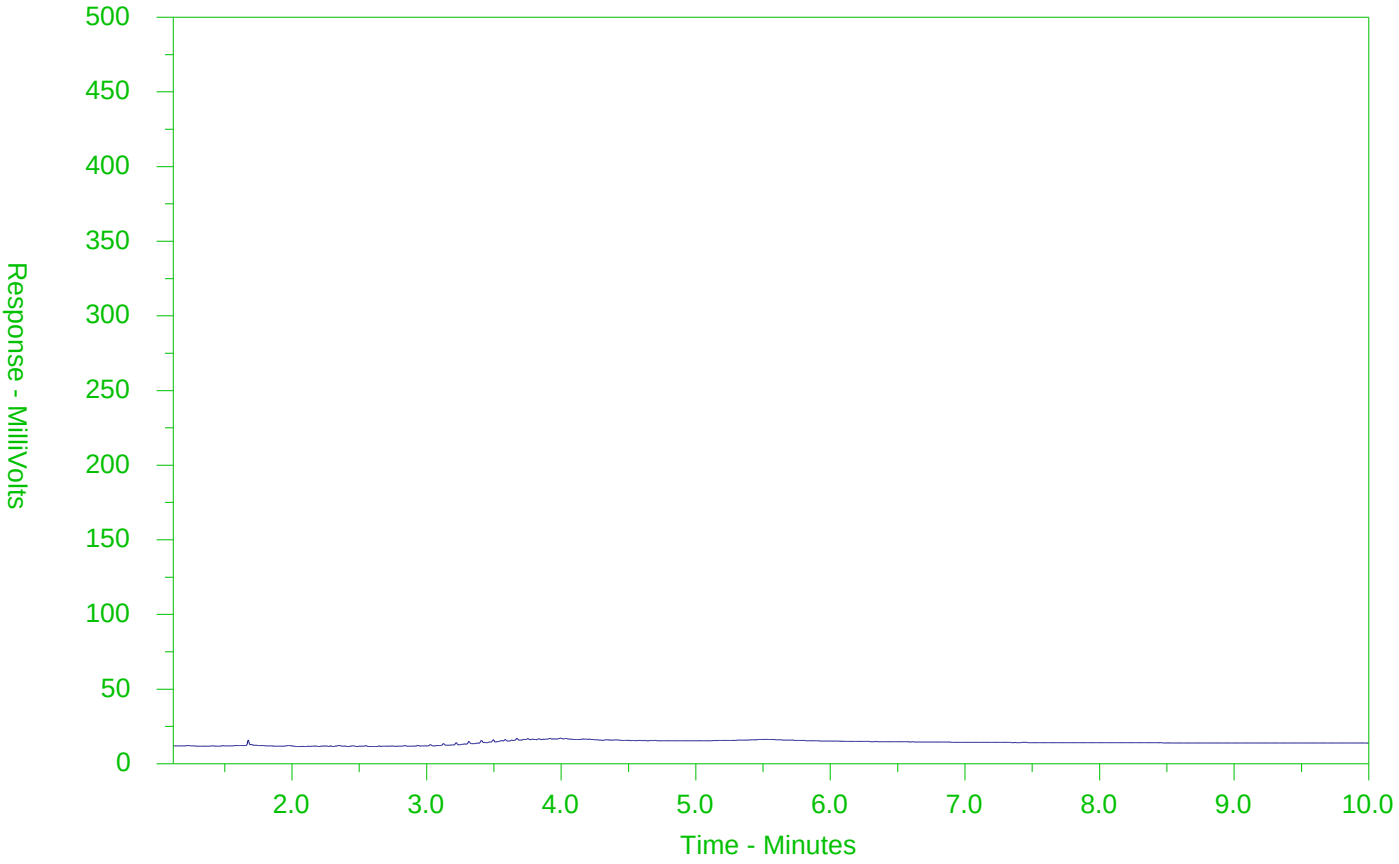
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2330748-1
Client Sample ID: MW103-12.5-14



←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.

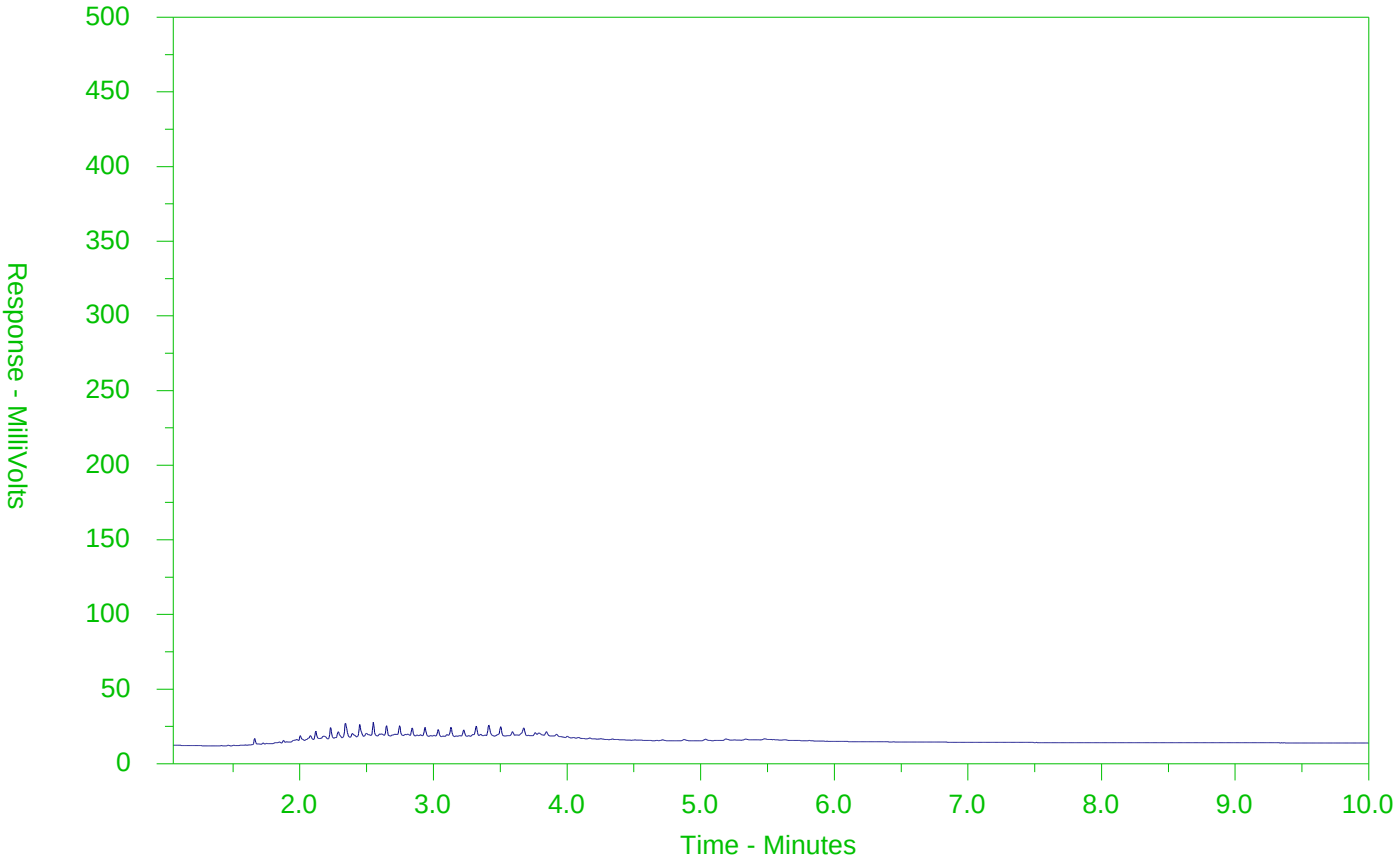
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2330748-3
Client Sample ID: MW103-17.5-19.5



←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.

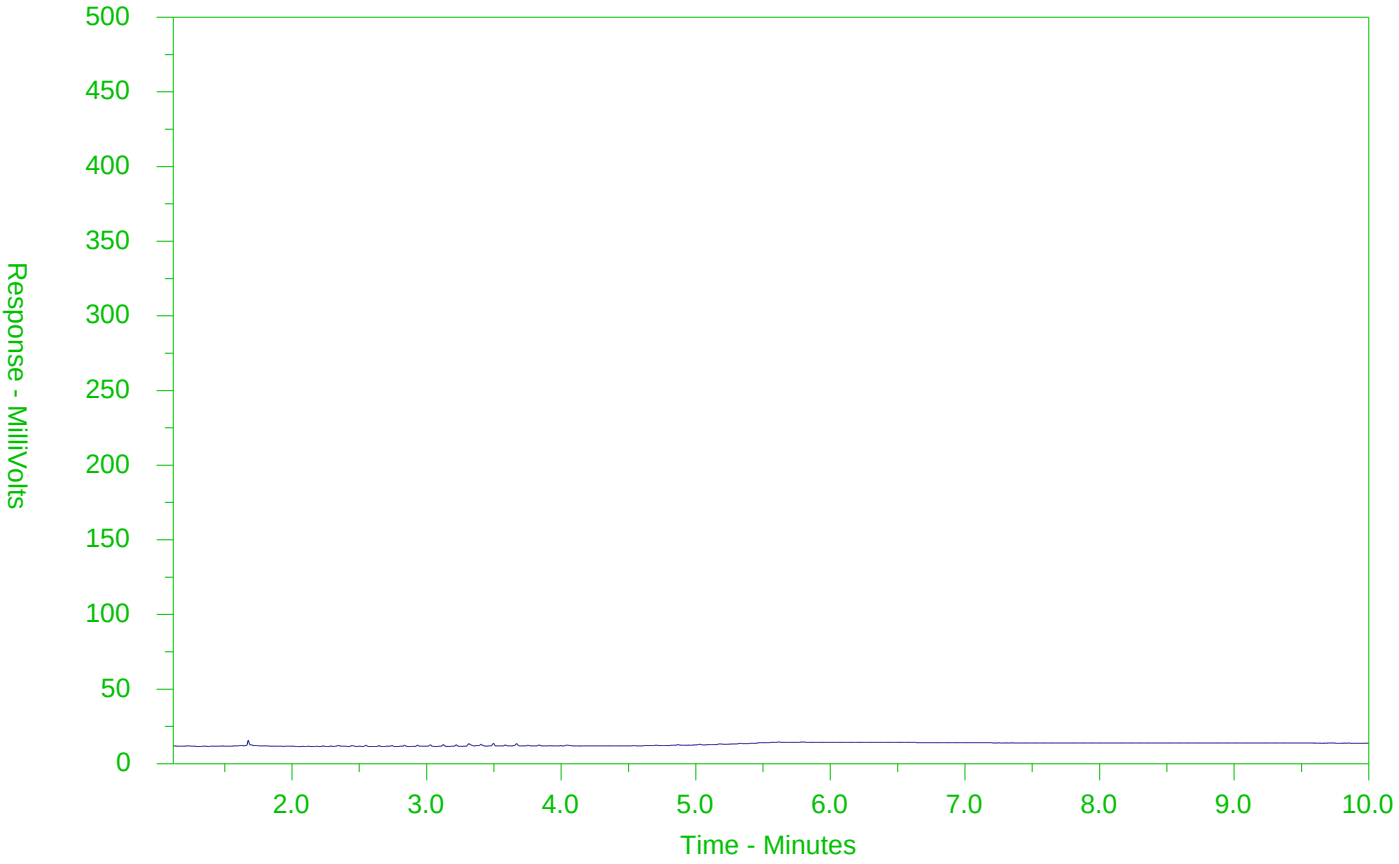
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2330748-6
Client Sample ID: MW109-8-9.5



←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.

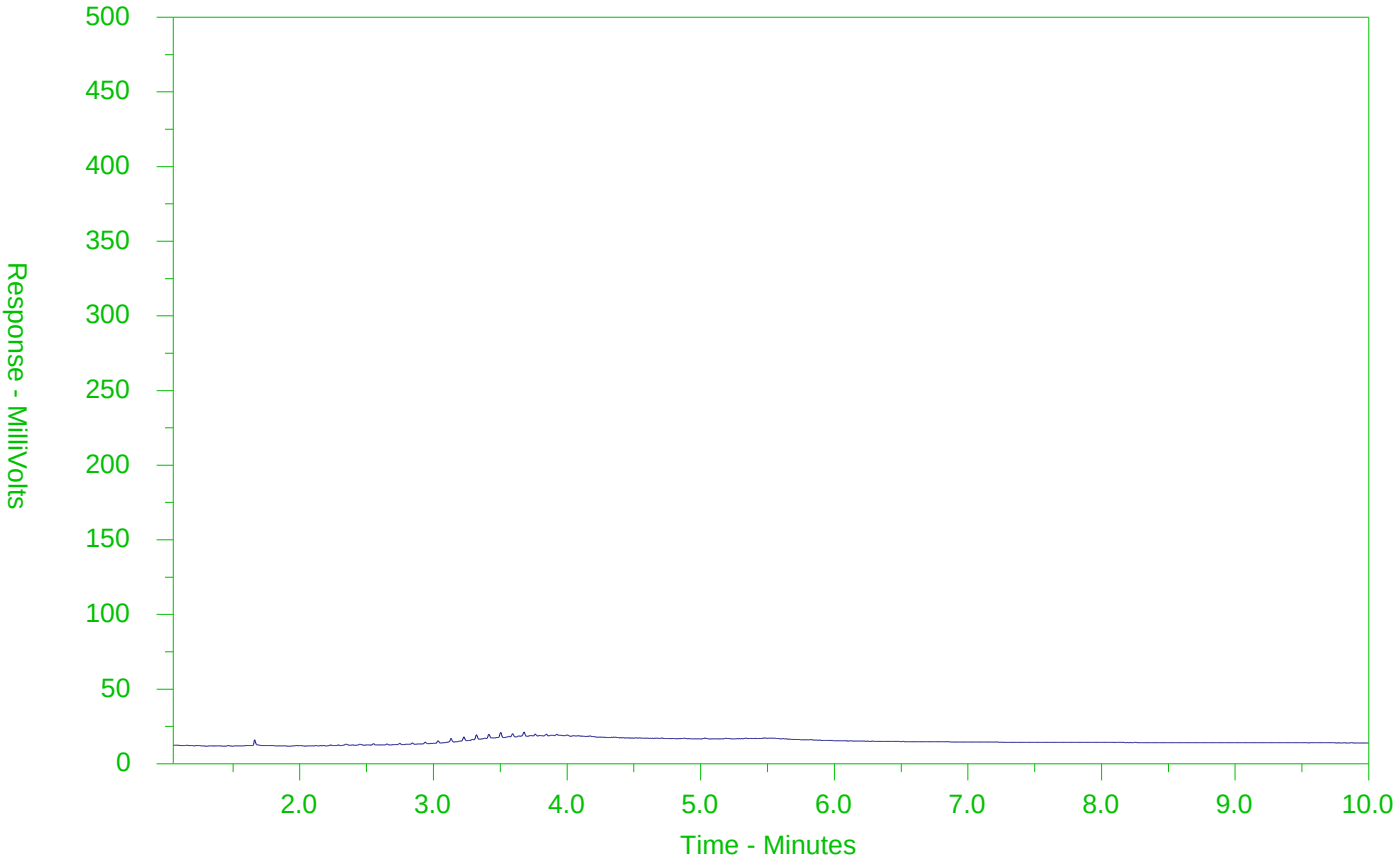
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2330748-8
Client Sample ID: MW109-12.5-14.5



←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.

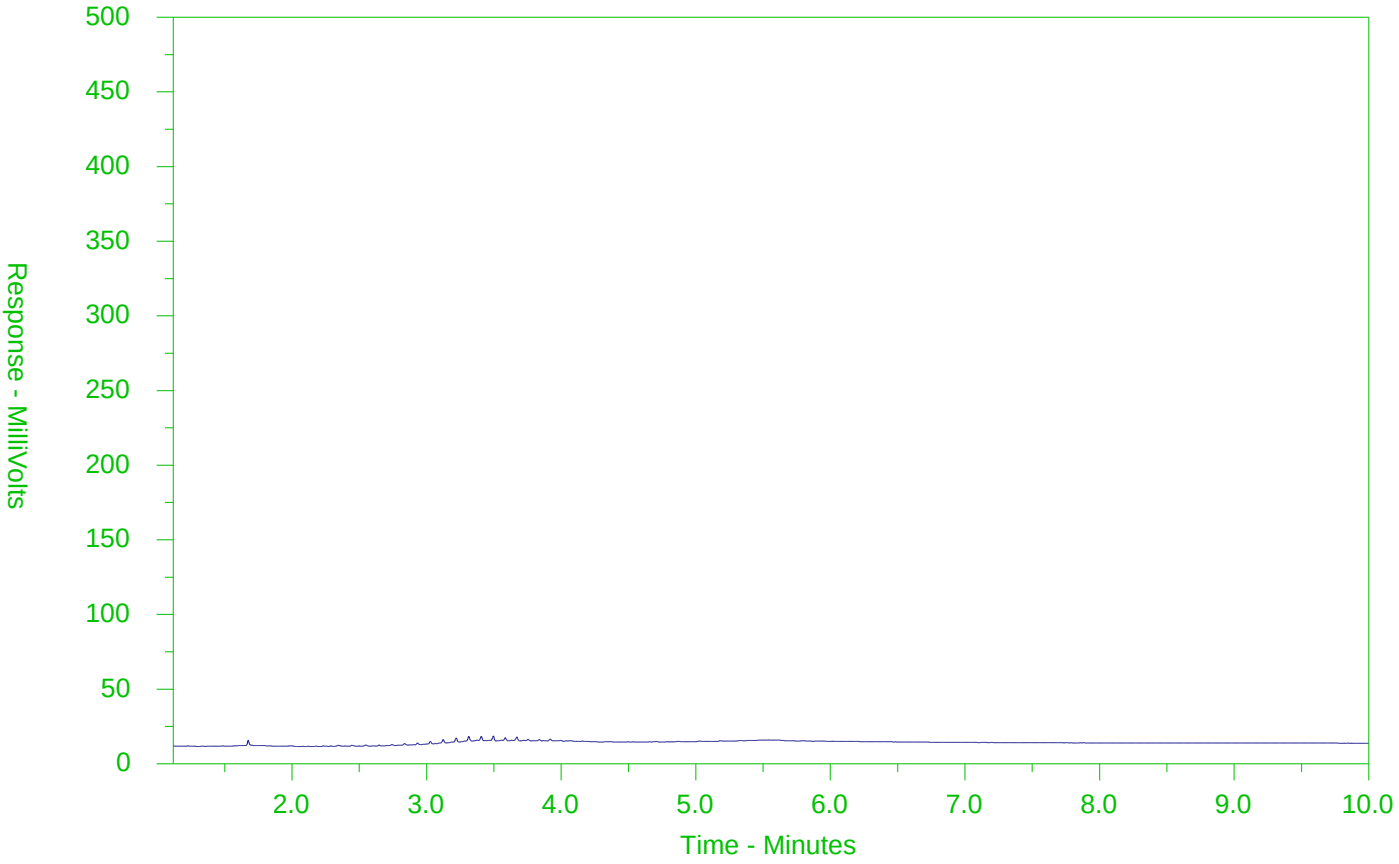
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2330748-12
Client Sample ID: DUP14



←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.

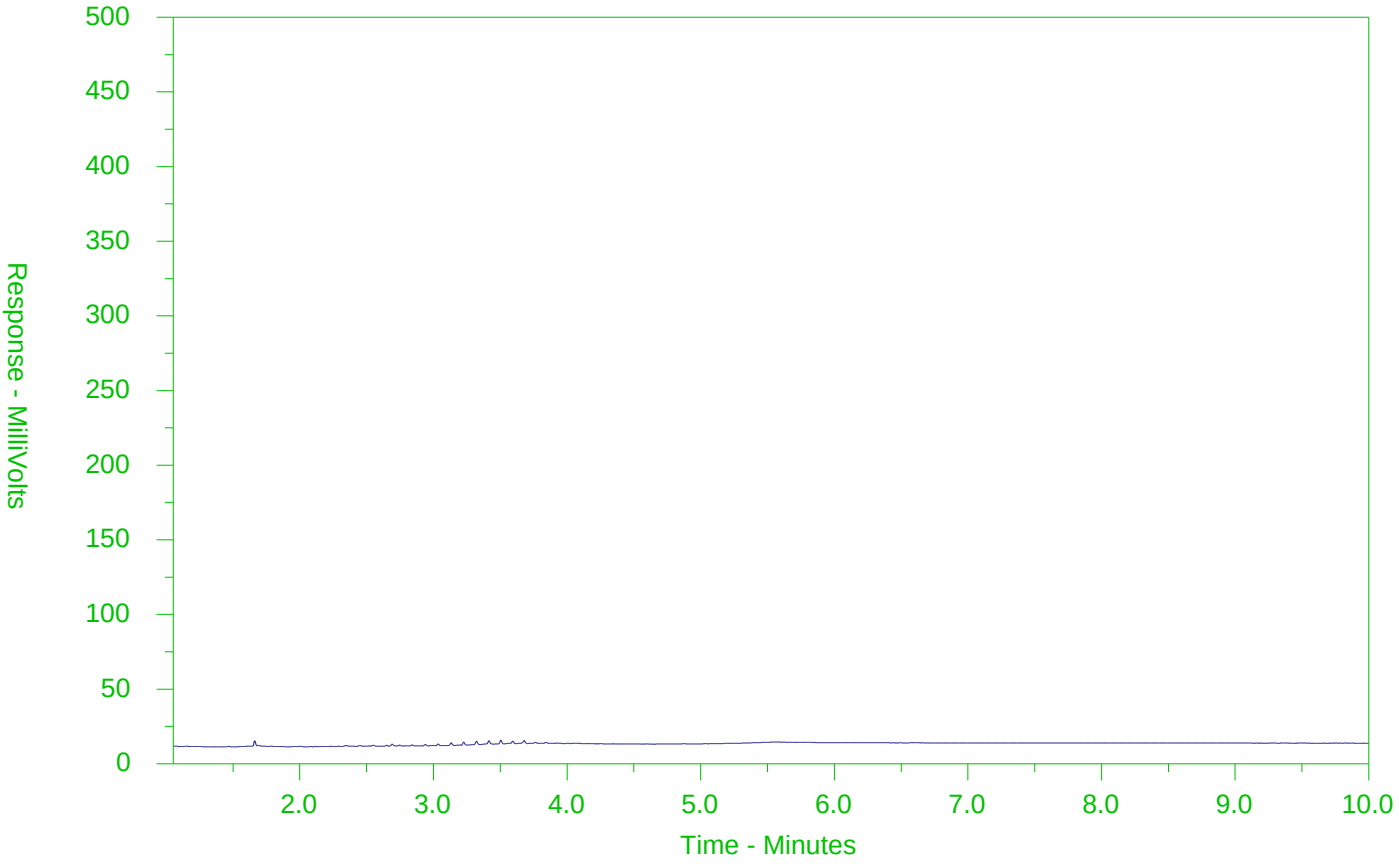
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2330748-13
Client Sample ID: MW108-12.5-14.5



←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.

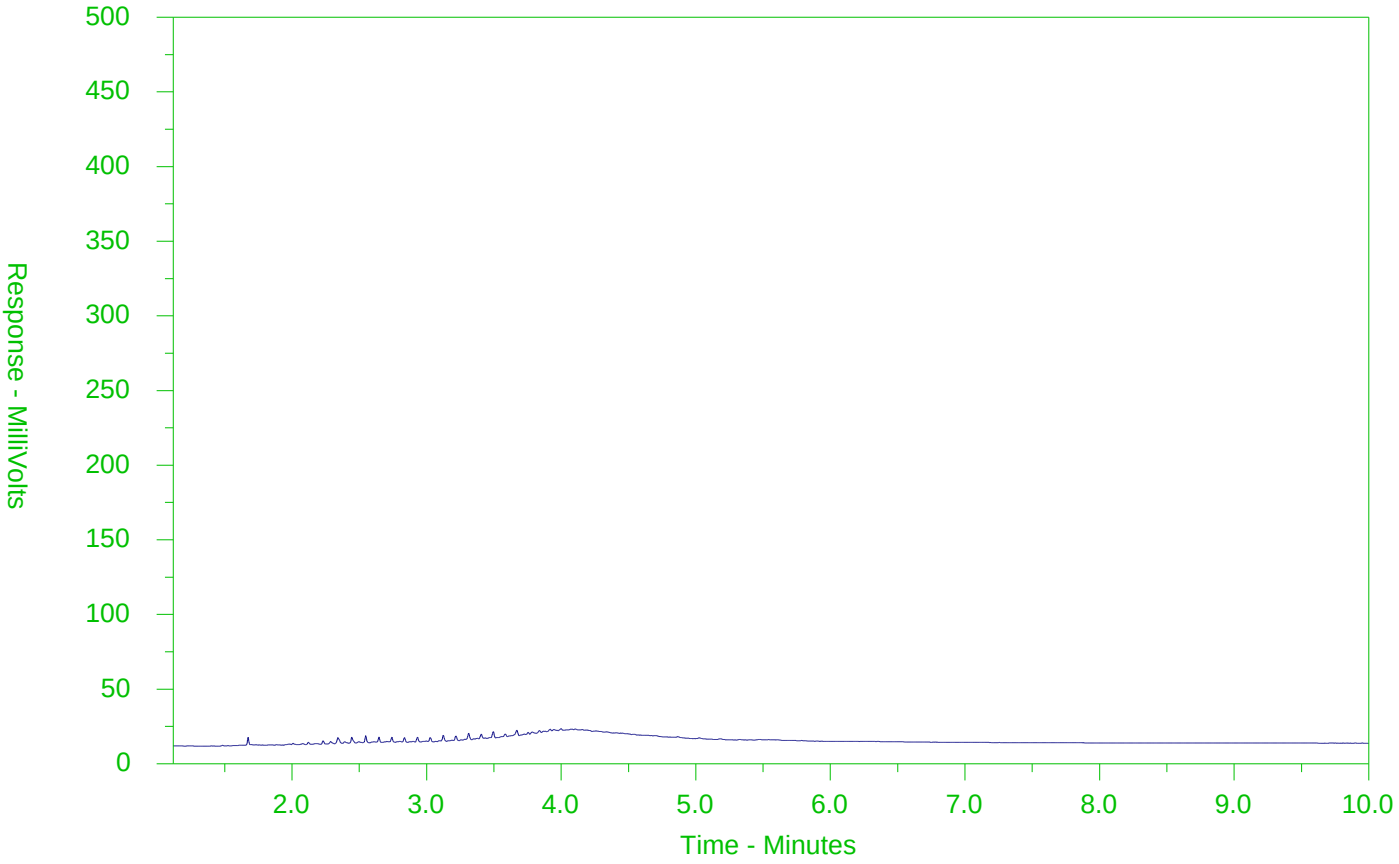
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2330748-15
Client Sample ID: MW108-17.5-19



←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.

Chain of Custody (COC) / Analytical Request Form

L2330748-COFC

COC Number: 17 -

Page 1 of 2

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	CH2M Hill/Jacobs
Contact:	Andrew Vermeersch
Phone:	519 579 3500 x 73247
	Company address below will appear on the final report
Street:	72 Victoria Street South, Suite 300
City/Province:	Kitchener/Ontario
Postal Code	N2G 4Y9
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	CH2M Hill Kitchener
Contact:	Accounts Payable

Report Format / Distribution	
Select Report Format:	☑ PDF ☒ EXCEL ☒ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Andrew.Vermeersch@jacobs.com
Email 2	Michael.Shirey@jacobs.com
Email 3	Katherine.appleby@jacobs.com

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Accounts Payable
Email 2	

Project Information	
ALS Account # / Quote #:	Q72980
Job #:	CE751900.ACS.EV.A2
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2330748

ALS Contact: Mathy

Sampler: Andrew V.

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R]: ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): ☐ 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%]

EMERGENCY: ☐ 1 Business day [E1 - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BU)	PCB	F0C	ABN	Methyl Mercury					SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	MW103-12.5-14	14-Aug-19	14:50	Soil	X	X	X	X	X			X									5
	MW103-12.5-14	"	"	"										X					1		
	MW103-17.5-19.5	"	15:11	"	X	X	X	X	X			X									5
	MW103-17.5-19.5	"	"	"										X					1		
	MW103-22.5-24.5	"	15:36	"	X	X	X	X	X			X		X					6		
	MW109-8-9.5	15-Aug-19	10:42	"	X	X	X	X	X			X									5
	MW109-8-9.5	"	"	"										X					1		
	MW109-12.5-14.5	"	11:11	"	X	X	X	X	X			X									5
	MW109-12.5-14.5	"	"	"										X					1		
	MW109-16-17	"	11:20	"								X									1
	MW109-16-17	"	"	"	X	X	X	X	X			X		X					6		
	DUP14	"	—	"	X	X	X	X	X												4

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☒ NO	Please compare to Table 1 Standards - Criteria not on report
Are samples for human consumption/ use? ☐ YES ☒ NO	Sim samples on Hold

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☑

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				3.8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Andrew Vermeersch	Date: 16-Aug-19	Time: 16:20	Received by:	Date:	Time:	Received by:	Date: 08/16/19	Time: 16:25

REFER TO BACK PAGE I OR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SDM 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1 If any water samples are taken from a Regulated Drinking Water (DW) System please submit using an Authorized DW COC form

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2330748-COFC

COC Number: 17 -

Report To	Contact and company name below will appear on the final report
Company:	CH2M Hill/Jacobs
Contact:	Andrew Vermeersch
Phone:	519 579 3500 x 73247
	Company address below will appear on the final report
Street:	72 Victoria Street South, Suite 300
City/Province:	Kitchener/Ontario
Postal Code:	N2G 4Y9
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	CH2M Hill Kitchener
Contact:	Accounts Payable

Report Format

Select Report Format: ☒ PDF ☒ EXCEL ☐ EDC (DIGITAL)

Quality Control (QC) Report with Report ☒ YES ☐ NO

☒ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: Andrew.Vermeersch@jacobs.com

Email 2: michael.shirey@jacobs.com

Email 3: katherine.appleby@jacobs.com

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: Accounts Payable

Email 2:

Project Information

ALS Account # / Quote #:	Q72980
Job #:	CE751900.A CS.EV A2
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2330748

ALS Contact: Mathy

Sampler: Andrew V.

- Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

Emergency: 1 Business day [E1 - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BU)	PCB	TOC	ABN	Methyl Mercury					SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
						P															
	MW108-12.5-14.5	16-Aug-19	9:06	Soil	X	X	X	X	X			X		X							5
	MW108-12.5-14.5	"	"	"										X					1		
	MW108-17.5-19	"	9:31	"	X	X	X	X	X			X									5
	MW108-17.5-19	"	"	"										X					1		
	MW108-20-21	"	9:58	"	X	X	X	X	X			X							5		
	TRIPBLANK-20,408,BB	-	-	Methanol		X	X														1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☒ NO

Are samples for human consumption/ use? ☐ YES ☒ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please compare to Table 1 Standards-Criteria not on report

Segregate Samples on Hold

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☒

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				3.8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Andrew Vermeersch	Date: 16-Aug-19	Time: 16:30	Received by:	Date:	Time:	Received by:	Date: 09/16/19	Time: 16:25

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: Andrew Vermeersch
CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 21-AUG-19
Report Date: 11-NOV-19 07:56 (MT)
Version: FINAL REV. 3

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2333129

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV.A2
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 04-SEP-19 11:00

Emily Hansen
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-1 BH206-7.5-9.5 Sampled By: ANDREW V on 19-AUG-19 @ 08:30 Matrix: SOIL							
Physical Tests							
Conductivity	0.554		0.0040	mS/cm		29-AUG-19	R4776668
% Moisture	8.42		0.10	%	21-AUG-19	22-AUG-19	R4762874
pH	7.94		0.10	pH units		23-AUG-19	R4766910
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	22-AUG-19	23-AUG-19	R4768449
Saturated Paste Extractables							
SAR	2.75		0.10	SAR		29-AUG-19	R4775892
Calcium (Ca)	23.1		0.50	mg/L		29-AUG-19	R4775892
Magnesium (Mg)	9.09		0.50	mg/L		29-AUG-19	R4775892
Sodium (Na)	61.7		0.50	mg/L		29-AUG-19	R4775892
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Arsenic (As)	2.7		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Barium (Ba)	47.8		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Beryllium (Be)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B)	8.2		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B), Hot Water Ext.	0.21		0.10	ug/g	29-AUG-19	29-AUG-19	R4776610
Cadmium (Cd)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Chromium (Cr)	17.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Cobalt (Co)	7.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Copper (Cu)	14.3		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Lead (Pb)	13.3		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Mercury (Hg)	0.0159		0.0050	ug/g	29-AUG-19	29-AUG-19	R4777068
Molybdenum (Mo)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Nickel (Ni)	15.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Selenium (Se)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Silver (Ag)	<0.20		0.20	ug/g	29-AUG-19	29-AUG-19	R4777686
Thallium (Tl)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Uranium (U)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Vanadium (V)	27.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Zinc (Zn)	72.3		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	27-AUG-19	R4769342
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-1 BH206-7.5-9.5 Sampled By: ANDREW V on 19-AUG-19 @ 08:30 Matrix: SOIL							
Volatile Organic Compounds							
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	
Surrogate: 4-Bromofluorobenzene	87.6		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	104.5		50-140	%	26-AUG-19	28-AUG-19	R4774229
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	26-AUG-19	28-AUG-19	R4774229
F1-BTEX	<5.0		5.0	ug/g		28-AUG-19	
F2 (C10-C16)	<10		10	ug/g	22-AUG-19	26-AUG-19	R4769692
F2-Naphth	<10		10	ug/g		28-AUG-19	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-1 BH206-7.5-9.5 Sampled By: ANDREW V on 19-AUG-19 @ 08:30 Matrix: SOIL							
Hydrocarbons							
F3 (C16-C34)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
F3-PAH	<50		50	ug/g		28-AUG-19	
F4 (C34-C50)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
Total Hydrocarbons (C6-C50)	<72		72	ug/g		28-AUG-19	
Chrom. to baseline at nC50	YES				22-AUG-19	26-AUG-19	R4769692
Surrogate: 2-Bromobenzotrifluoride	88.2		60-140	%	22-AUG-19	26-AUG-19	R4769692
Surrogate: 3,4-Dichlorotoluene	71.3		60-140	%	26-AUG-19	28-AUG-19	R4774229
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Acenaphthylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(b)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(k)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Chrysene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluorene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		28-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
2-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
Naphthalene	<0.013		0.013	ug/g	22-AUG-19	28-AUG-19	R4772851
Phenanthrene	<0.046		0.046	ug/g	22-AUG-19	28-AUG-19	R4772851
Pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Surrogate: 2-Fluorobiphenyl	103.5		50-140	%	22-AUG-19	28-AUG-19	R4772851
Surrogate: p-Terphenyl d14	94.9		50-140	%	22-AUG-19	28-AUG-19	R4772851
L2333129-3 BH206-12.5-14.5 Sampled By: ANDREW V on 19-AUG-19 @ 08:50 Matrix: SOIL							
Physical Tests							
Conductivity	0.628		0.0040	mS/cm		29-AUG-19	R4776634
% Moisture	9.72		0.10	%	22-AUG-19	22-AUG-19	R4764565
pH	7.89		0.10	pH units		23-AUG-19	R4766910
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	22-AUG-19	23-AUG-19	R4768449
Saturated Paste Extractables							
SAR	1.55		0.10	SAR		29-AUG-19	R4776328
Calcium (Ca)	51.1		0.50	mg/L		29-AUG-19	R4776328
Magnesium (Mg)	11.2		0.50	mg/L		29-AUG-19	R4776328

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-3 BH206-12.5-14.5 Sampled By: ANDREW V on 19-AUG-19 @ 08:50 Matrix: SOIL							
Saturated Paste Extractables							
Sodium (Na)	47.0		0.50	mg/L		29-AUG-19	R4776328
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Arsenic (As)	2.6		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Barium (Ba)	45.9		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Beryllium (Be)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B)	9.1		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B), Hot Water Ext.	0.11		0.10	ug/g	29-AUG-19	29-AUG-19	R4777576
Cadmium (Cd)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Chromium (Cr)	16.6		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Cobalt (Co)	6.5		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Copper (Cu)	13.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Lead (Pb)	12.7		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Mercury (Hg)	0.0098		0.0050	ug/g	29-AUG-19	29-AUG-19	R4777068
Molybdenum (Mo)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Nickel (Ni)	13.7		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Selenium (Se)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Silver (Ag)	<0.20		0.20	ug/g	29-AUG-19	29-AUG-19	R4777686
Thallium (Tl)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Uranium (U)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Vanadium (V)	26.3		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Zinc (Zn)	73.4		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	27-AUG-19	R4769342
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-3 BH206-12.5-14.5 Sampled By: ANDREW V on 19-AUG-19 @ 08:50 Matrix: SOIL							
Volatile Organic Compounds							
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	
Surrogate: 4-Bromofluorobenzene	94.4		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	110.6		50-140	%	26-AUG-19	28-AUG-19	R4774229
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	26-AUG-19	28-AUG-19	R4774229
F1-BTEX	<5.0		5.0	ug/g		28-AUG-19	
F2 (C10-C16)	<10		10	ug/g	22-AUG-19	26-AUG-19	R4769692
F2-Naphth	<10		10	ug/g		28-AUG-19	
F3 (C16-C34)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
F3-PAH	<50		50	ug/g		28-AUG-19	
F4 (C34-C50)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
Total Hydrocarbons (C6-C50)	<72		72	ug/g		28-AUG-19	
Chrom. to baseline at nC50	YES				22-AUG-19	26-AUG-19	R4769692
Surrogate: 2-Bromobenzotrifluoride	87.5		60-140	%	22-AUG-19	26-AUG-19	R4769692
Surrogate: 3,4-Dichlorotoluene	67.7		60-140	%	26-AUG-19	28-AUG-19	R4774229
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-3 BH206-12.5-14.5 Sampled By: ANDREW V on 19-AUG-19 @ 08:50 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Acenaphthylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(b)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(k)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Chrysene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluorene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		28-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
2-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
Naphthalene	<0.013		0.013	ug/g	22-AUG-19	28-AUG-19	R4772851
Phenanthrene	<0.046		0.046	ug/g	22-AUG-19	28-AUG-19	R4772851
Pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Surrogate: 2-Fluorobiphenyl	102.6		50-140	%	22-AUG-19	28-AUG-19	R4772851
Surrogate: p-Terphenyl d14	92.2		50-140	%	22-AUG-19	28-AUG-19	R4772851
L2333129-6 MW107-2.5-4.5 Sampled By: ANDREW V on 19-AUG-19 @ 11:27 Matrix: SOIL							
Physical Tests							
Conductivity	0.376		0.0040	mS/cm		29-AUG-19	R4776634
% Moisture	6.31		0.10	%	21-AUG-19	22-AUG-19	R4762874
pH	8.24		0.10	pH units		23-AUG-19	R4766910
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	22-AUG-19	23-AUG-19	R4768449
Saturated Paste Extractables							
SAR	11.4		0.10	SAR		29-AUG-19	R4776328
Calcium (Ca)	1.63		0.50	mg/L		29-AUG-19	R4776328
Magnesium (Mg)	0.98		0.50	mg/L		29-AUG-19	R4776328
Sodium (Na)	74.4		0.50	mg/L		29-AUG-19	R4776328
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Arsenic (As)	3.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Barium (Ba)	15.2		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Beryllium (Be)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B)	6.4		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	29-AUG-19	29-AUG-19	R4777576
Cadmium (Cd)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-6 MW107-2.5-4.5 Sampled By: ANDREW V on 19-AUG-19 @ 11:27 Matrix: SOIL							
Metals							
Chromium (Cr)	12.9		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Cobalt (Co)	2.9		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Copper (Cu)	14.9		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Lead (Pb)	16.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Mercury (Hg)	0.0148		0.0050	ug/g	29-AUG-19	29-AUG-19	R4777068
Molybdenum (Mo)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Nickel (Ni)	6.6		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Selenium (Se)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Silver (Ag)	<0.20		0.20	ug/g	29-AUG-19	29-AUG-19	R4777686
Thallium (Tl)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Uranium (U)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Vanadium (V)	19.2		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Zinc (Zn)	66.0		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Speciated Metals							
Chromium, Hexavalent	0.54		0.20	ug/g	22-AUG-19	27-AUG-19	R4769342
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-6 MW107-2.5-4.5 Sampled By: ANDREW V on 19-AUG-19 @ 11:27 Matrix: SOIL							
Volatile Organic Compounds							
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	
Surrogate: 4-Bromofluorobenzene	90.0		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	109.8		50-140	%	26-AUG-19	28-AUG-19	R4774229
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	26-AUG-19	28-AUG-19	R4774229
F1-BTEX	<5.0		5.0	ug/g		28-AUG-19	
F2 (C10-C16)	<20	DLM	20	ug/g	22-AUG-19	26-AUG-19	R4769692
F2-Naphth	<20		20	ug/g		28-AUG-19	
F3 (C16-C34)	300	DLM	100	ug/g	22-AUG-19	26-AUG-19	R4769692
F3-PAH	300		100	ug/g		28-AUG-19	
F4 (C34-C50)	800	DLM	100	ug/g	22-AUG-19	26-AUG-19	R4769692
F4G-SG (GHH-Silica)	2110		250	ug/g	24-AUG-19	24-AUG-19	R4773168
Total Hydrocarbons (C6-C50)	1090		140	ug/g		28-AUG-19	
Chrom. to baseline at nC50	NO				22-AUG-19	26-AUG-19	R4769692
Surrogate: 2-Bromobenzotrifluoride	97.3		60-140	%	22-AUG-19	26-AUG-19	R4769692
Surrogate: 3,4-Dichlorotoluene	53.3	SURR-ND	60-140	%	26-AUG-19	28-AUG-19	R4774229
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Acenaphthylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(b)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(g,h,i)perylene	0.067		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(k)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-6 MW107-2.5-4.5 Sampled By: ANDREW V on 19-AUG-19 @ 11:27 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Chrysene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluorene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		28-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
2-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
Naphthalene	<0.013		0.013	ug/g	22-AUG-19	28-AUG-19	R4772851
Phenanthrene	<0.046		0.046	ug/g	22-AUG-19	28-AUG-19	R4772851
Pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Surrogate: 2-Fluorobiphenyl	101.4		50-140	%	22-AUG-19	28-AUG-19	R4772851
Surrogate: p-Terphenyl d14	97.8		50-140	%	22-AUG-19	28-AUG-19	R4772851
L2333129-8 MW107-7.5-9.5 Sampled By: ANDREW V on 19-AUG-19 @ 11:46 Matrix: SOIL							
Physical Tests							
Conductivity	1.71		0.0040	mS/cm		29-AUG-19	R4776634
% Moisture	6.96		0.10	%	21-AUG-19	22-AUG-19	R4762874
pH	8.33		0.10	pH units		23-AUG-19	R4766910
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	22-AUG-19	23-AUG-19	R4768449
Saturated Paste Extractables							
SAR	25.2		0.10	SAR		29-AUG-19	R4776328
Calcium (Ca)	8.04		0.50	mg/L		29-AUG-19	R4776328
Magnesium (Mg)	1.71		0.50	mg/L		29-AUG-19	R4776328
Sodium (Na)	302		0.50	mg/L		29-AUG-19	R4776328
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Arsenic (As)	1.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Barium (Ba)	11.3		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Beryllium (Be)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B)	<5.0		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	29-AUG-19	29-AUG-19	R4777576
Cadmium (Cd)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Chromium (Cr)	6.2		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Cobalt (Co)	1.8		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Copper (Cu)	8.7		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Lead (Pb)	9.5		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Mercury (Hg)	<0.0050		0.0050	ug/g	29-AUG-19	29-AUG-19	R4777068
Molybdenum (Mo)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Nickel (Ni)	3.8		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-8 MW107-7.5-9.5 Sampled By: ANDREW V on 19-AUG-19 @ 11:46 Matrix: SOIL							
Metals							
Selenium (Se)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Silver (Ag)	<0.20		0.20	ug/g	29-AUG-19	29-AUG-19	R4777686
Thallium (Tl)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Uranium (U)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Vanadium (V)	11.8		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Zinc (Zn)	88.3		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	27-AUG-19	R4769342
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-8 MW107-7.5-9.5 Sampled By: ANDREW V on 19-AUG-19 @ 11:46 Matrix: SOIL							
Volatile Organic Compounds							
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	
Surrogate: 4-Bromofluorobenzene	90.8		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	108.9		50-140	%	26-AUG-19	28-AUG-19	R4774229
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	26-AUG-19	28-AUG-19	R4774229
F1-BTEX	<5.0		5.0	ug/g		28-AUG-19	
F2 (C10-C16)	<10		10	ug/g	22-AUG-19	26-AUG-19	R4769692
F2-Naphth	<10		10	ug/g		28-AUG-19	
F3 (C16-C34)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
F3-PAH	<50		50	ug/g		28-AUG-19	
F4 (C34-C50)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
Total Hydrocarbons (C6-C50)	<72		72	ug/g		28-AUG-19	
Chrom. to baseline at nC50	YES				22-AUG-19	26-AUG-19	R4769692
Surrogate: 2-Bromobenzotrifluoride	93.3		60-140	%	22-AUG-19	26-AUG-19	R4769692
Surrogate: 3,4-Dichlorotoluene	59.1	SURR-ND	60-140	%	26-AUG-19	28-AUG-19	R4774229
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Acenaphthylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(b)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(k)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Chrysene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluorene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		28-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
2-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-8 MW107-7.5-9.5 Sampled By: ANDREW V on 19-AUG-19 @ 11:46 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Naphthalene	<0.013		0.013	ug/g	22-AUG-19	28-AUG-19	R4772851
Phenanthrene	<0.046		0.046	ug/g	22-AUG-19	28-AUG-19	R4772851
Pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Surrogate: 2-Fluorobiphenyl	102.5		50-140	%	22-AUG-19	28-AUG-19	R4772851
Surrogate: p-Terphenyl d14	90.3		50-140	%	22-AUG-19	28-AUG-19	R4772851
L2333129-10 MW107-15-16.5 Sampled By: ANDREW V on 19-AUG-19 @ 12:10 Matrix: SOIL							
Physical Tests							
Conductivity	1.35		0.0040	mS/cm		06-SEP-19	R4784808
Saturated Paste Extractables							
SAR	19.1		0.10	SAR		06-SEP-19	R4784493
Calcium (Ca)	8.06		0.50	mg/L		06-SEP-19	R4784493
Magnesium (Mg)	2.64		0.50	mg/L		06-SEP-19	R4784493
Sodium (Na)	245		0.50	mg/L		06-SEP-19	R4784493
L2333129-11 DUP15 Sampled By: ANDREW V on 19-AUG-19 @ 12:10 Matrix: SOIL							
Physical Tests							
Conductivity	0.643		0.0040	mS/cm		29-AUG-19	R4776634
% Moisture	9.36		0.10	%	21-AUG-19	22-AUG-19	R4762874
pH	7.91		0.10	pH units		23-AUG-19	R4766910
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	23-AUG-19	27-AUG-19	R4769677
Saturated Paste Extractables							
SAR	1.64		0.10	SAR		29-AUG-19	R4776328
Calcium (Ca)	51.2		0.50	mg/L		29-AUG-19	R4776328
Magnesium (Mg)	10.9		0.50	mg/L		29-AUG-19	R4776328
Sodium (Na)	49.6		0.50	mg/L		29-AUG-19	R4776328
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Arsenic (As)	2.5		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Barium (Ba)	43.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Beryllium (Be)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B)	6.9		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B), Hot Water Ext.	0.11		0.10	ug/g	29-AUG-19	29-AUG-19	R4777576
Cadmium (Cd)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Chromium (Cr)	15.1		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Cobalt (Co)	6.2		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Copper (Cu)	13.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Lead (Pb)	11.9		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Mercury (Hg)	0.0101		0.0050	ug/g	29-AUG-19	29-AUG-19	R4777068
Molybdenum (Mo)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-11 DUP15 Sampled By: ANDREW V on 19-AUG-19 @ 12:10 Matrix: SOIL							
Metals							
Nickel (Ni)	13.1		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Selenium (Se)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Silver (Ag)	<0.20		0.20	ug/g	29-AUG-19	29-AUG-19	R4777686
Thallium (Tl)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Uranium (U)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Vanadium (V)	24.9		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Zinc (Zn)	71.7		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	27-AUG-19	R4769342
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-11 DUP15 Sampled By: ANDREW V on 19-AUG-19 @ 12:10 Matrix: SOIL							
Volatile Organic Compounds							
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	
Surrogate: 4-Bromofluorobenzene	81.6		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	97.7		50-140	%	26-AUG-19	28-AUG-19	R4774229
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	26-AUG-19	28-AUG-19	R4774229
F1-BTEX	<5.0		5.0	ug/g		28-AUG-19	
F2 (C10-C16)	<10		10	ug/g	22-AUG-19	26-AUG-19	R4769692
F2-Naphth	<10		10	ug/g		28-AUG-19	
F3 (C16-C34)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
F3-PAH	<50		50	ug/g		28-AUG-19	
F4 (C34-C50)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
Total Hydrocarbons (C6-C50)	<72		72	ug/g		28-AUG-19	
Chrom. to baseline at nC50	YES				22-AUG-19	26-AUG-19	R4769692
Surrogate: 2-Bromobenzotrifluoride	92.8		60-140	%	22-AUG-19	26-AUG-19	R4769692
Surrogate: 3,4-Dichlorotoluene	56.2	SURR-ND	60-140	%	26-AUG-19	28-AUG-19	R4774229
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Acenaphthylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(b)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(k)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Chrysene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluorene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		28-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-11 DUP15 Sampled By: ANDREW V on 19-AUG-19 @ 12:10 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
2-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
Naphthalene	<0.013		0.013	ug/g	22-AUG-19	28-AUG-19	R4772851
Phenanthrene	<0.046		0.046	ug/g	22-AUG-19	28-AUG-19	R4772851
Pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Surrogate: 2-Fluorobiphenyl	102.8		50-140	%	22-AUG-19	28-AUG-19	R4772851
Surrogate: p-Terphenyl d14	94.6		50-140	%	22-AUG-19	28-AUG-19	R4772851
L2333129-12 MW106-7.5-8.5 Sampled By: ANDREW V on 20-AUG-19 @ 08:35 Matrix: SOIL							
Physical Tests							
Conductivity	0.703		0.0040	mS/cm		29-AUG-19	R4776634
% Moisture	4.72		0.10	%	21-AUG-19	22-AUG-19	R4762874
pH	8.34		0.10	pH units		23-AUG-19	R4767069
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	23-AUG-19	27-AUG-19	R4769677
Saturated Paste Extractables							
SAR	16.3		0.10	SAR		29-AUG-19	R4776328
Calcium (Ca)	3.11		0.50	mg/L		29-AUG-19	R4776328
Magnesium (Mg)	0.96		0.50	mg/L		29-AUG-19	R4776328
Sodium (Na)	128		0.50	mg/L		29-AUG-19	R4776328
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Arsenic (As)	1.5		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Barium (Ba)	9.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Beryllium (Be)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B)	<5.0		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	29-AUG-19	29-AUG-19	R4777576
Cadmium (Cd)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Chromium (Cr)	7.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Cobalt (Co)	1.6		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Copper (Cu)	6.3		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Lead (Pb)	14.5		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Mercury (Hg)	0.0503		0.0050	ug/g	29-AUG-19	29-AUG-19	R4777068
Molybdenum (Mo)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Nickel (Ni)	3.7		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Selenium (Se)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Silver (Ag)	<0.20		0.20	ug/g	29-AUG-19	29-AUG-19	R4777686
Thallium (Tl)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Uranium (U)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Vanadium (V)	11.3		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Zinc (Zn)	67.8		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Speciated Metals							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-12 MW106-7.5-8.5 Sampled By: ANDREW V on 20-AUG-19 @ 08:35 Matrix: SOIL							
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	27-AUG-19	R4769342
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-12 MW106-7.5-8.5 Sampled By: ANDREW V on 20-AUG-19 @ 08:35 Matrix: SOIL							
Volatile Organic Compounds							
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	
Surrogate: 4-Bromofluorobenzene	89.9		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	105.2		50-140	%	26-AUG-19	28-AUG-19	R4774229
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	26-AUG-19	28-AUG-19	R4774229
F1-BTEX	<5.0		5.0	ug/g		28-AUG-19	
F2 (C10-C16)	<10		10	ug/g	22-AUG-19	26-AUG-19	R4769692
F2-Naphth	<10		10	ug/g		28-AUG-19	
F3 (C16-C34)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
F3-PAH	<50		50	ug/g		28-AUG-19	
F4 (C34-C50)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
Total Hydrocarbons (C6-C50)	<72		72	ug/g		28-AUG-19	
Chrom. to baseline at nC50	YES				22-AUG-19	26-AUG-19	R4769692
Surrogate: 2-Bromobenzotrifluoride	94.8		60-140	%	22-AUG-19	26-AUG-19	R4769692
Surrogate: 3,4-Dichlorotoluene	61.4		60-140	%	26-AUG-19	28-AUG-19	R4774229
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Acenaphthylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)pyrene	0.068		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(b)fluoranthene	0.108		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(g,h,i)perylene	0.063		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(k)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Chrysene	0.054		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluoranthene	0.080		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluorene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Indeno(1,2,3-cd)pyrene	0.055		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		28-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
2-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
Naphthalene	<0.013		0.013	ug/g	22-AUG-19	28-AUG-19	R4772851
Phenanthrene	<0.046		0.046	ug/g	22-AUG-19	28-AUG-19	R4772851
Pyrene	0.072		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Surrogate: 2-Fluorobiphenyl	103.3		50-140	%	22-AUG-19	28-AUG-19	R4772851
Surrogate: p-Terphenyl d14	95.4		50-140	%	22-AUG-19	28-AUG-19	R4772851
L2333129-14 MW106-17.5-18.5 Sampled By: ANDREW V on 20-AUG-19 @ 09:22 Matrix: SOIL							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-14 MW106-17.5-18.5 Sampled By: ANDREW V on 20-AUG-19 @ 09:22 Matrix: SOIL							
Physical Tests							
Conductivity	0.756		0.0040	mS/cm		06-SEP-19	R4784808
Saturated Paste Extractables							
SAR	24.8		0.10	SAR		06-SEP-19	R4784493
Calcium (Ca)	1.51		0.50	mg/L		06-SEP-19	R4784493
Magnesium (Mg)	0.64		0.50	mg/L		06-SEP-19	R4784493
Sodium (Na)	144		0.50	mg/L		06-SEP-19	R4784493
L2333129-15 BH203-0.5-2 Sampled By: ANDREW V on 20-AUG-19 @ 15:25 Matrix: SOIL							
Physical Tests							
Conductivity	0.750		0.0040	mS/cm		30-AUG-19	R4778337
% Moisture	4.29		0.10	%	21-AUG-19	22-AUG-19	R4762874
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	23-AUG-19	27-AUG-19	R4769677
Saturated Paste Extractables							
SAR	5.24		0.10	SAR		29-AUG-19	R4776908
Calcium (Ca)	3.15		0.50	mg/L		29-AUG-19	R4776908
Magnesium (Mg)	6.32		0.50	mg/L		29-AUG-19	R4776908
Sodium (Na)	70.1		0.50	mg/L		29-AUG-19	R4776908
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Arsenic (As)	2.5		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Barium (Ba)	29.7		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Beryllium (Be)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B)	5.3		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B), Hot Water Ext.	0.15		0.10	ug/g	29-AUG-19	29-AUG-19	R4777833
Cadmium (Cd)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Chromium (Cr)	8.2		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Cobalt (Co)	2.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Copper (Cu)	9.2		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Lead (Pb)	30.6		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Mercury (Hg)	0.240		0.0050	ug/g	29-AUG-19	29-AUG-19	R4777068
Molybdenum (Mo)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Nickel (Ni)	5.1		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Selenium (Se)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Silver (Ag)	<0.20		0.20	ug/g	29-AUG-19	29-AUG-19	R4777686
Thallium (Tl)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Uranium (U)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Vanadium (V)	13.3		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Zinc (Zn)	89.5		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	27-AUG-19	R4769342

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-15 BH203-0.5-2 Sampled By: ANDREW V on 20-AUG-19 @ 15:25 Matrix: SOIL							
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.063	RRR	0.063	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-15 BH203-0.5-2 Sampled By: ANDREW V on 20-AUG-19 @ 15:25 Matrix: SOIL							
Volatile Organic Compounds							
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	
Surrogate: 4-Bromofluorobenzene	92.4		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	110.1		50-140	%	26-AUG-19	28-AUG-19	R4774229
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	26-AUG-19	28-AUG-19	R4774229
F1-BTEX	<5.0		5.0	ug/g		28-AUG-19	
F2 (C10-C16)	<20	DLM	20	ug/g	22-AUG-19	26-AUG-19	R4769692
F2-Naphth	<20		20	ug/g		28-AUG-19	
F3 (C16-C34)	190	DLM	100	ug/g	22-AUG-19	26-AUG-19	R4769692
F3-PAH	190		100	ug/g		28-AUG-19	
F4 (C34-C50)	520	DLM	100	ug/g	22-AUG-19	26-AUG-19	R4769692
F4G-SG (GHH-Silica)	1710		250	ug/g	24-AUG-19	24-AUG-19	R4773168
Total Hydrocarbons (C6-C50)	710		140	ug/g		28-AUG-19	
Chrom. to baseline at nC50	NO				22-AUG-19	26-AUG-19	R4769692
Surrogate: 2-Bromobenzotrifluoride	97.0		60-140	%	22-AUG-19	26-AUG-19	R4769692
Surrogate: 3,4-Dichlorotoluene	68.2		60-140	%	26-AUG-19	28-AUG-19	R4774229
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Acenaphthylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Anthracene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Benzo(a)anthracene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Benzo(a)pyrene	0.073		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Benzo(b)fluoranthene	0.104		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Benzo(g,h,i)perylene	0.102		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Benzo(k)fluoranthene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Chrysene	0.056		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Fluoranthene	0.063		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Fluorene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Indeno(1,2,3-cd)pyrene	0.065		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		28-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4771436
2-Methylnaphthalene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4771436
Naphthalene	<0.013		0.013	ug/g	26-AUG-19	28-AUG-19	R4771436
Phenanthrene	<0.046		0.046	ug/g	26-AUG-19	28-AUG-19	R4771436
Pyrene	0.067		0.050	ug/g	26-AUG-19	28-AUG-19	R4771436
Surrogate: 2-Fluorobiphenyl	94.1		50-140	%	26-AUG-19	28-AUG-19	R4771436
Surrogate: p-Terphenyl d14	82.5		50-140	%	26-AUG-19	28-AUG-19	R4771436
Report Remarks : RRR - Detection Limit Raised due to instrument sensitivity							
L2333129-16 BH203-0.5-2 Sampled By: ANDREW V on 20-AUG-19 @ 15:25 Matrix: SOIL							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-16 BH203-0.5-2 Sampled By: ANDREW V on 20-AUG-19 @ 15:25 Matrix: SOIL							
Physical Tests							
Moisture	3.46		0.25	%		09-SEP-19	R4791293
Speciated Metals							
Methylmercury (as MeHg)	<0.000050		0.000050	mg/kg	17-SEP-19	17-SEP-19	R4820510
L2333129-17 BH203-7.5-9.5 Sampled By: ANDREW V on 20-AUG-19 @ 15:51 Matrix: SOIL							
Physical Tests							
Conductivity	1.26		0.0040	mS/cm		30-AUG-19	R4778337
% Moisture	6.81		0.10	%	21-AUG-19	22-AUG-19	R4762874
pH	8.33		0.10	pH units		23-AUG-19	R4767069
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	23-AUG-19	27-AUG-19	R4769677
Saturated Paste Extractables							
SAR	19.0		0.10	SAR		29-AUG-19	R4776908
Calcium (Ca)	3.79		0.50	mg/L		29-AUG-19	R4776908
Magnesium (Mg)	1.72		0.50	mg/L		29-AUG-19	R4776908
Sodium (Na)	178		0.50	mg/L		29-AUG-19	R4776908
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Arsenic (As)	1.9		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Barium (Ba)	18.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Beryllium (Be)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B)	5.6		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	29-AUG-19	29-AUG-19	R4777833
Cadmium (Cd)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Chromium (Cr)	7.9		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Cobalt (Co)	2.7		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Copper (Cu)	7.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Lead (Pb)	10.8		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Mercury (Hg)	<0.0050		0.0050	ug/g	29-AUG-19	29-AUG-19	R4777068
Molybdenum (Mo)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Nickel (Ni)	5.6		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Selenium (Se)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Silver (Ag)	<0.20		0.20	ug/g	29-AUG-19	29-AUG-19	R4777686
Thallium (Tl)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Uranium (U)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Vanadium (V)	15.5		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Zinc (Zn)	72.0		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	27-AUG-19	R4769342
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-17 BH203-7.5-9.5 Sampled By: ANDREW V on 20-AUG-19 @ 15:51 Matrix: SOIL							
Volatile Organic Compounds							
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-17 BH203-7.5-9.5 Sampled By: ANDREW V on 20-AUG-19 @ 15:51 Matrix: SOIL							
Volatile Organic Compounds							
Surrogate: 4-Bromofluorobenzene	88.4		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	108.1		50-140	%	26-AUG-19	28-AUG-19	R4774229
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	26-AUG-19	28-AUG-19	R4774229
F1-BTEX	<5.0		5.0	ug/g		28-AUG-19	
F2 (C10-C16)	<10		10	ug/g	22-AUG-19	26-AUG-19	R4769692
F2-Naphth	<10		10	ug/g		28-AUG-19	
F3 (C16-C34)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
F3-PAH	<50		50	ug/g		28-AUG-19	
F4 (C34-C50)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
Total Hydrocarbons (C6-C50)	<72		72	ug/g		28-AUG-19	
Chrom. to baseline at nC50	YES				22-AUG-19	26-AUG-19	R4769692
Surrogate: 2-Bromobenzotrifluoride	89.9		60-140	%	22-AUG-19	26-AUG-19	R4769692
Surrogate: 3,4-Dichlorotoluene	62.8		60-140	%	26-AUG-19	28-AUG-19	R4774229
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Acenaphthylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(b)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(k)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Chrysene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluorene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		28-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
2-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
Naphthalene	<0.013		0.013	ug/g	22-AUG-19	28-AUG-19	R4772851
Phenanthrene	<0.046		0.046	ug/g	22-AUG-19	28-AUG-19	R4772851
Pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Surrogate: 2-Fluorobiphenyl	100.5		50-140	%	22-AUG-19	28-AUG-19	R4772851
Surrogate: p-Terphenyl d14	90.7		50-140	%	22-AUG-19	28-AUG-19	R4772851
L2333129-19 BH203-15-17 Sampled By: ANDREW V on 20-AUG-19 @ 16:19 Matrix: SOIL							
Physical Tests							
Conductivity	1.31		0.0040	mS/cm		06-SEP-19	R4784808
Saturated Paste Extractables							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-19 BH203-15-17 Sampled By: ANDREW V on 20-AUG-19 @ 16:19 Matrix: SOIL							
Saturated Paste Extractables							
SAR	16.2		0.10	SAR		06-SEP-19	R4784493
Calcium (Ca)	7.03		0.50	mg/L		06-SEP-19	R4784493
Magnesium (Mg)	5.64		0.50	mg/L		06-SEP-19	R4784493
Sodium (Na)	238		0.50	mg/L		06-SEP-19	R4784493
L2333129-20 TRIP BLANK-20180821 Sampled By: ANDREW V on 21-AUG-19 Matrix: SOIL							
Physical Tests							
% Moisture	<0.10		0.10	%	21-AUG-19	22-AUG-19	R4762874
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-20 TRIP BLANK-20180821 Sampled By: ANDREW V on 21-AUG-19 Matrix: SOIL							
Volatile Organic Compounds							
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	
Surrogate: 4-Bromofluorobenzene	91.6		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	107.7		50-140	%	26-AUG-19	28-AUG-19	R4774229
L2333129-21 MW101-7.5-9.5 Sampled By: ANDREW V on 21-AUG-19 @ 08:54 Matrix: SOIL							
Physical Tests							
Conductivity	0.303		0.0040	mS/cm		29-AUG-19	R4777617
% Moisture	7.89		0.10	%	21-AUG-19	22-AUG-19	R4762874
pH	8.12		0.10	pH units		23-AUG-19	R4767069
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	23-AUG-19	27-AUG-19	R4769677
Saturated Paste Extractables							
SAR	9.00	SAR:M	0.10	SAR		29-AUG-19	R4777669
Calcium (Ca)	2.75		0.50	mg/L		29-AUG-19	R4777669
Magnesium (Mg)	<0.50		0.50	mg/L		29-AUG-19	R4777669
Sodium (Na)	54.2		0.50	mg/L		29-AUG-19	R4777669
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Arsenic (As)	2.2		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Barium (Ba)	21.3		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Beryllium (Be)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B)	6.8		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Boron (B), Hot Water Ext.	0.17		0.10	ug/g	29-AUG-19	29-AUG-19	R4777833
Cadmium (Cd)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Chromium (Cr)	9.8		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Cobalt (Co)	3.2		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Copper (Cu)	9.3		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Lead (Pb)	13.4		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Mercury (Hg)	0.0138		0.0050	ug/g	29-AUG-19	29-AUG-19	R4777068
Molybdenum (Mo)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Nickel (Ni)	7.2		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Selenium (Se)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-21 MW101-7.5-9.5 Sampled By: ANDREW V on 21-AUG-19 @ 08:54 Matrix: SOIL							
Metals							
Silver (Ag)	<0.20		0.20	ug/g	29-AUG-19	29-AUG-19	R4777686
Thallium (Tl)	<0.50		0.50	ug/g	29-AUG-19	29-AUG-19	R4777686
Uranium (U)	<1.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Vanadium (V)	17.0		1.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Zinc (Zn)	94.2		5.0	ug/g	29-AUG-19	29-AUG-19	R4777686
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	22-AUG-19	27-AUG-19	R4769342
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Benzene	<0.0068		0.0068	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromodichloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromoform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Bromomethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Carbon tetrachloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dibromochloromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Chloroform	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dibromoethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methylene Chloride	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,2-Dichloropropane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		28-AUG-19	
Ethylbenzene	<0.018		0.018	ug/g	26-AUG-19	28-AUG-19	R4774229
n-Hexane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-AUG-19	28-AUG-19	R4774229
MTBE	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Styrene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Tetrachloroethylene	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-21 MW101-7.5-9.5 Sampled By: ANDREW V on 21-AUG-19 @ 08:54 Matrix: SOIL							
Volatile Organic Compounds							
Toluene	<0.080		0.080	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichloroethylene	<0.010		0.010	ug/g	26-AUG-19	28-AUG-19	R4774229
Trichlorofluoromethane	<0.050		0.050	ug/g	26-AUG-19	28-AUG-19	R4774229
Vinyl chloride	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
o-Xylene	<0.020		0.020	ug/g	26-AUG-19	28-AUG-19	R4774229
m+p-Xylenes	<0.030		0.030	ug/g	26-AUG-19	28-AUG-19	R4774229
Xylenes (Total)	<0.050		0.050	ug/g		28-AUG-19	
Surrogate: 4-Bromofluorobenzene	93.3		50-140	%	26-AUG-19	28-AUG-19	R4774229
Surrogate: 1,4-Difluorobenzene	113.0		50-140	%	26-AUG-19	28-AUG-19	R4774229
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	26-AUG-19	28-AUG-19	R4774229
F1-BTEX	<5.0		5.0	ug/g		28-AUG-19	
F2 (C10-C16)	<10		10	ug/g	22-AUG-19	26-AUG-19	R4769692
F2-Naphth	<10		10	ug/g		28-AUG-19	
F3 (C16-C34)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
F3-PAH	<50		50	ug/g		28-AUG-19	
F4 (C34-C50)	<50		50	ug/g	22-AUG-19	26-AUG-19	R4769692
Total Hydrocarbons (C6-C50)	<72		72	ug/g		28-AUG-19	
Chrom. to baseline at nC50	YES				22-AUG-19	26-AUG-19	R4769692
Surrogate: 2-Bromobenzotrifluoride	91.5		60-140	%	22-AUG-19	26-AUG-19	R4769692
Surrogate: 3,4-Dichlorotoluene	65.2		60-140	%	26-AUG-19	28-AUG-19	R4774229
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Acenaphthylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(a)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(b)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Benzo(k)fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Chrysene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluoranthene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Fluorene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		28-AUG-19	
1-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
2-Methylnaphthalene	<0.030		0.030	ug/g	22-AUG-19	28-AUG-19	R4772851
Naphthalene	<0.013		0.013	ug/g	22-AUG-19	28-AUG-19	R4772851

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2333129-21 MW101-7.5-9.5 Sampled By: ANDREW V on 21-AUG-19 @ 08:54 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Phenanthrene	<0.046		0.046	ug/g	22-AUG-19	28-AUG-19	R4772851
Pyrene	<0.050		0.050	ug/g	22-AUG-19	28-AUG-19	R4772851
Surrogate: 2-Fluorobiphenyl	101.5		50-140	%	22-AUG-19	28-AUG-19	R4772851
Surrogate: p-Terphenyl d14	94.1		50-140	%	22-AUG-19	28-AUG-19	R4772851
L2333129-23 MW101-20-20.5 Sampled By: ANDREW V on 21-AUG-19 @ 09:37 Matrix: SOIL							
Saturated Paste Extractables							
SAR	14.3		0.10	SAR		06-SEP-19	R4784493
Calcium (Ca)	2.45		0.50	mg/L		06-SEP-19	R4784493
Magnesium (Mg)	1.22		0.50	mg/L		06-SEP-19	R4784493
Sodium (Na)	110		0.50	mg/L		06-SEP-19	R4784493

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
RRR	Refer to Report Remarks for issues regarding this analysis
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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.

Reference Information

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).

MEHG-GCAF-VA Soil Methylmercury in Soil by GCAFS DeWild et al. (2004)

This method follows procedures published by DeWild, Olund, Olsen and Tate (2004) for the US Geological Survey (Techniques and Methods 5A-7). Samples are leached with an acidic copper sulphate solution to solubilize methylmercury for inorganic complexes. The methylmercury is then extracted into dichloromethane and then an aliquot is back extracted into ultra-pure water. The extract is analyzed by aqueous phase ethylation, purge and trap, desorption and GC separation. The separated species are then pyrolized to elemental Hg and quantified by cold vapour atomic flourescence spectroscopy. Results are reported "as MeHg".

MET-200.2-CCMS-WT Soil Metals in Soil by CRC ICPMS EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT Soil ABN-Calculated Parameters SW846 8270

MOISTURE-VA Soil Moisture content CCME PHC in Soil - Tier 1 (mod)

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of two hours.

MOISTURE-WT Soil % Moisture CCME PHC in Soil - Tier 1 (mod)

Reference Information

PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	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.

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).

SAR-R511-WT	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 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).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

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.

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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

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 weight of sample
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.

Quality Control Report

Workorder: L2333129 Report Date: 11-NOV-19

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4776610								
WG3146500-4 DUP		**L2332993-1**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	29-AUG-19
WG3146500-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			95.4		%		70-130	29-AUG-19
WG3146500-3 LCS								
Boron (B), Hot Water Ext.			91.4		%		70-130	29-AUG-19
WG3146500-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	29-AUG-19
Batch R4777576								
WG3146503-4 DUP		**L2331567-15**						
Boron (B), Hot Water Ext.		0.25	0.27		ug/g	6.9	30	29-AUG-19
WG3146503-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			105.1		%		70-130	29-AUG-19
WG3146503-3 LCS								
Boron (B), Hot Water Ext.			91.5		%		70-130	29-AUG-19
WG3146503-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	29-AUG-19
Batch R4777833								
WG3146741-4 DUP		**L2333560-1**						
Boron (B), Hot Water Ext.		3.32	3.31		ug/g	0.3	30	29-AUG-19
WG3146741-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			102.4		%		70-130	29-AUG-19
WG3146741-3 LCS								
Boron (B), Hot Water Ext.			80.0		%		70-130	29-AUG-19
WG3146741-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	29-AUG-19
CN-WAD-R511-WT	**Soil**							
Batch R4768449								
WG3140475-3 DUP		**L2332408-2**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	23-AUG-19
WG3140475-2 LCS								
Cyanide, Weak Acid Diss			98.0		%		80-120	23-AUG-19
WG3140475-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	23-AUG-19
WG3140475-4 MS		**L2332408-2**						
Cyanide, Weak Acid Diss			106.1		%		70-130	23-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-WAD-R511-WT	**Soil**							
Batch R4769677								
WG3141063-3 DUP		**L2333629-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	27-AUG-19
WG3141063-2 LCS								
Cyanide, Weak Acid Diss			100.9		%		80-120	27-AUG-19
WG3141063-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	27-AUG-19
WG3141063-4 MS		**L2333629-1**						
Cyanide, Weak Acid Diss			93.1		%		70-130	27-AUG-19
CR-CR6-IC-WT	**Soil**							
Batch R4769342								
WG3140579-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			103.1		%		70-130	27-AUG-19
WG3140579-3 DUP		**L2333409-10**						
Chromium, Hexavalent		0.23	0.30		ug/g	26	35	27-AUG-19
WG3140579-2 LCS								
Chromium, Hexavalent			103.8		%		80-120	27-AUG-19
WG3140579-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	27-AUG-19
EC-WT	**Soil**							
Batch R4776634								
WG3146522-4 DUP		**WG3146522-3**						
Conductivity		0.618	0.603		mS/cm	2.5	20	29-AUG-19
WG3146522-2 IRM		**WT SAR3**						
Conductivity			90.0		%		70-130	29-AUG-19
WG3146764-1 LCS								
Conductivity			99.6		%		90-110	29-AUG-19
WG3146522-1 MB								
Conductivity			<0.0040		mS/cm		0.004	29-AUG-19
Batch R4776668								
WG3146514-4 DUP		**WG3146514-3**						
Conductivity		0.0820	0.0760		mS/cm	7.6	20	29-AUG-19
WG3146514-2 IRM		**WT SAR3**						
Conductivity			99.0		%		70-130	29-AUG-19
WG3146775-1 LCS								
Conductivity			101.0		%		90-110	29-AUG-19
WG3146514-1 MB								
Conductivity			<0.0040		mS/cm		0.004	29-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4777617								
WG3146724-4 DUP		**WG3146724-3**						
Conductivity		0.224	0.208		mS/cm	7.4	20	29-AUG-19
WG3146724-2 IRM		**WT SAR3**						
Conductivity			100.0		%		70-130	29-AUG-19
WG3147642-1 LCS								
Conductivity			101.6		%		90-110	29-AUG-19
WG3146724-1 MB								
Conductivity			<0.0040		mS/cm		0.004	29-AUG-19
Batch R4778337								
WG3147350-7 DUP		**WG3147350-6**						
Conductivity		0.750	0.744		mS/cm	0.8	20	30-AUG-19
WG3147350-2 IRM		**WT SAR3**						
Conductivity			92.8		%		70-130	30-AUG-19
WG3147636-1 LCS								
Conductivity			98.4		%		90-110	30-AUG-19
WG3147350-1 MB								
Conductivity			<0.0040		mS/cm		0.004	30-AUG-19
Batch R4784808								
WG3153567-4 DUP		**WG3153567-3**						
Conductivity		0.263	0.246		mS/cm	6.7	20	06-SEP-19
WG3153567-2 IRM		**WT SAR3**						
Conductivity			89.4		%		70-130	06-SEP-19
WG3153770-1 LCS								
Conductivity			96.5		%		90-110	06-SEP-19
WG3153567-1 MB								
Conductivity			<0.0040		mS/cm		0.004	06-SEP-19
F1-HS-511-WT	**Soil**							
Batch R4774229								
WG3143298-4 DUP		**WG3143298-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	28-AUG-19
WG3143298-2 LCS								
F1 (C6-C10)			109.3		%		80-120	28-AUG-19
WG3143298-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	28-AUG-19
Surrogate: 3,4-Dichlorotoluene			73.4		%		60-140	28-AUG-19
WG3143298-6 MS		**L2333129-17**						
F1 (C6-C10)			76.9		%		60-140	28-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4769692								
WG3140412-3 DUP		**WG3140412-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	26-AUG-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	26-AUG-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	26-AUG-19
COMMENTS: Surrogate exceeds ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.								
WG3140412-2 LCS								
F2 (C10-C16)			101.1		%		80-120	26-AUG-19
F3 (C16-C34)			99.2		%		80-120	26-AUG-19
F4 (C34-C50)			100.9		%		80-120	26-AUG-19
WG3140412-1 MB								
F2 (C10-C16)			<10		ug/g		10	26-AUG-19
F3 (C16-C34)			<50		ug/g		50	26-AUG-19
F4 (C34-C50)			<50		ug/g		50	26-AUG-19
Surrogate: 2-Bromobenzotrifluoride			89.6		%		60-140	26-AUG-19
WG3140412-4 MS		**WG3140412-5**						
F2 (C10-C16)			99.98		%		60-140	26-AUG-19
F3 (C16-C34)			97.9		%		60-140	26-AUG-19
F4 (C34-C50)			101.3		%		60-140	26-AUG-19
F4G-ADD-511-WT	**Soil**							
Batch R4773168								
WG3146183-2 LCS								
F4G-SG (GHH-Silica)			76.0		%		60-140	24-AUG-19
WG3146183-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	24-AUG-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4777068								
WG3146481-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			95.0		%		70-130	29-AUG-19
WG3146481-6 DUP		**WG3146481-5**						
Mercury (Hg)		0.0138	0.0221	J	ug/g	0.0083	0.01	29-AUG-19
WG3146481-3 LCS								
Mercury (Hg)			100.0		%		80-120	29-AUG-19
WG3146481-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	29-AUG-19
MEHG-GCAF-VA	**Soil**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MEHG-GCAF-VA	**Soil**							
Batch R4820510								
WG3163133-2 CRM		**SQC-MEHG-RM**						
Methylmercury (as MeHg)			100.1		%		70-130	17-SEP-19
WG3163133-4 DUP		**L2336633-4**						
Methylmercury (as MeHg)		0.000086	0.000093		mg/kg	8.5	30	17-SEP-19
WG3163133-3 LCS								
Methylmercury (as MeHg)			78.0		%		70-130	17-SEP-19
WG3163133-1 MB								
Methylmercury (as MeHg)			<0.000050		mg/kg wwt		0.00005	17-SEP-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4777686								
WG3146481-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			96.5		%		70-130	29-AUG-19
Arsenic (As)			96.8		%		70-130	29-AUG-19
Barium (Ba)			84.8		%		70-130	29-AUG-19
Beryllium (Be)			90.8		%		70-130	29-AUG-19
Boron (B)			2.5		mg/kg		0-8.2	29-AUG-19
Cadmium (Cd)			92.4		%		70-130	29-AUG-19
Chromium (Cr)			96.6		%		70-130	29-AUG-19
Cobalt (Co)			95.7		%		70-130	29-AUG-19
Copper (Cu)			97.2		%		70-130	29-AUG-19
Lead (Pb)			89.1		%		70-130	29-AUG-19
Molybdenum (Mo)			95.0		%		70-130	29-AUG-19
Nickel (Ni)			96.4		%		70-130	29-AUG-19
Selenium (Se)			0.29		mg/kg		0.11-0.51	29-AUG-19
Silver (Ag)			0.21		mg/kg		0.13-0.33	29-AUG-19
Thallium (Tl)			0.105		mg/kg		0.077-0.18	29-AUG-19
Uranium (U)			87.9		%		70-130	29-AUG-19
Vanadium (V)			96.5		%		70-130	29-AUG-19
Zinc (Zn)			90.7		%		70-130	29-AUG-19
WG3146481-6 DUP		**WG3146481-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	29-AUG-19
Arsenic (As)		2.17	2.14		ug/g	1.0	30	29-AUG-19
Barium (Ba)		20.1	19.9		ug/g	1.0	40	29-AUG-19
Beryllium (Be)		0.21	0.21		ug/g	1.0	30	29-AUG-19
Boron (B)		6.8	6.7		ug/g	1.0	30	29-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4777686								
WG3146481-6 DUP		**WG3146481-5**						
Cadmium (Cd)		0.247	0.244		ug/g	1.0	30	29-AUG-19
Chromium (Cr)		8.90	8.81		ug/g	1.0	30	29-AUG-19
Cobalt (Co)		3.00	2.97		ug/g	1.0	30	29-AUG-19
Copper (Cu)		8.97	8.87		ug/g	1.0	30	29-AUG-19
Lead (Pb)		12.9	12.8		ug/g	1.0	40	29-AUG-19
Molybdenum (Mo)		0.29	0.29		ug/g	1.0	40	29-AUG-19
Nickel (Ni)		6.90	6.83		ug/g	1.0	30	29-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	29-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	29-AUG-19
Thallium (Tl)		0.058	0.057		ug/g	1.0	30	29-AUG-19
Uranium (U)		0.405	0.401		ug/g	1.0	30	29-AUG-19
Vanadium (V)		15.7	15.6		ug/g	1.0	30	29-AUG-19
Zinc (Zn)		91.9	91.0		ug/g	1.0	30	29-AUG-19
WG3146481-4 LCS								
Antimony (Sb)			97.4		%		80-120	29-AUG-19
Arsenic (As)			94.6		%		80-120	29-AUG-19
Barium (Ba)			87.9		%		80-120	29-AUG-19
Beryllium (Be)			93.1		%		80-120	29-AUG-19
Boron (B)			90.5		%		80-120	29-AUG-19
Cadmium (Cd)			93.9		%		80-120	29-AUG-19
Chromium (Cr)			94.2		%		80-120	29-AUG-19
Cobalt (Co)			92.9		%		80-120	29-AUG-19
Copper (Cu)			92.7		%		80-120	29-AUG-19
Lead (Pb)			90.9		%		80-120	29-AUG-19
Molybdenum (Mo)			94.2		%		80-120	29-AUG-19
Nickel (Ni)			93.0		%		80-120	29-AUG-19
Selenium (Se)			95.8		%		80-120	29-AUG-19
Silver (Ag)			85.2		%		80-120	29-AUG-19
Thallium (Tl)			89.4		%		80-120	29-AUG-19
Uranium (U)			90.4		%		80-120	29-AUG-19
Vanadium (V)			96.7		%		80-120	29-AUG-19
Zinc (Zn)			89.6		%		80-120	29-AUG-19
WG3146481-1 MB								
							0.1	

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4777686								
WG3146481-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	29-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	29-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	29-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	29-AUG-19
Boron (B)			<5.0		mg/kg		5	29-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	29-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	29-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	29-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	29-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	29-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	29-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	29-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	29-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	29-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	29-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	29-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	29-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	29-AUG-19
MOISTURE-VA	**Soil**							
Batch R4791293								
WG3156039-3 DUP		**L2341597-3**						
Moisture		2.42	2.28		%	6.3	20	09-SEP-19
WG3156039-2 LCS								
Moisture			99.6		%		90-110	09-SEP-19
WG3156039-1 MB								
Moisture			<0.25		%		0.25	09-SEP-19
MOISTURE-WT	**Soil**							
Batch R4762874								
WG3139637-3 DUP		**L2333138-6**						
% Moisture		17.0	17.0		%	0.0	20	22-AUG-19
WG3139637-2 LCS								
% Moisture			100.3		%		90-110	22-AUG-19
WG3139637-1 MB								
% Moisture			<0.10		%		0.1	22-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT	**Soil**							
Batch R4764565								
WG3140117-3 DUP		**L2328007-2**						
% Moisture		28.9	29.1		%	0.7	20	22-AUG-19
WG3140117-2 LCS								
% Moisture			101.0		%		90-110	22-AUG-19
WG3140117-1 MB								
% Moisture			<0.10		%		0.1	22-AUG-19
PAH-511-WT	**Soil**							
Batch R4771436								
WG3143063-3 DUP		**WG3143063-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	28-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	28-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
WG3143063-2 LCS								
1-Methylnaphthalene			97.2		%		50-140	28-AUG-19
2-Methylnaphthalene			92.4		%		50-140	28-AUG-19
Acenaphthene			96.7		%		50-140	28-AUG-19
Acenaphthylene			96.2		%		50-140	28-AUG-19
Anthracene			96.8		%		50-140	28-AUG-19
Benzo(a)anthracene			96.2		%		50-140	28-AUG-19
Benzo(a)pyrene			96.5		%		50-140	28-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4771436								
WG3143063-2 LCS								
Benzo(b)fluoranthene			101.6		%		50-140	28-AUG-19
Benzo(g,h,i)perylene			93.8		%		50-140	28-AUG-19
Benzo(k)fluoranthene			100.6		%		50-140	28-AUG-19
Chrysene			107.0		%		50-140	28-AUG-19
Dibenzo(ah)anthracene			92.3		%		50-140	28-AUG-19
Fluoranthene			95.5		%		50-140	28-AUG-19
Fluorene			93.8		%		50-140	28-AUG-19
Indeno(1,2,3-cd)pyrene			89.6		%		50-140	28-AUG-19
Naphthalene			96.2		%		50-140	28-AUG-19
Phenanthrene			100.3		%		50-140	28-AUG-19
Pyrene			95.8		%		50-140	28-AUG-19
WG3143063-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	28-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	28-AUG-19
Acenaphthene			<0.050		ug/g		0.05	28-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	28-AUG-19
Anthracene			<0.050		ug/g		0.05	28-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	28-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	28-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	28-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	28-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	28-AUG-19
Chrysene			<0.050		ug/g		0.05	28-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	28-AUG-19
Fluoranthene			<0.050		ug/g		0.05	28-AUG-19
Fluorene			<0.050		ug/g		0.05	28-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	28-AUG-19
Naphthalene			<0.013		ug/g		0.013	28-AUG-19
Phenanthrene			<0.046		ug/g		0.046	28-AUG-19
Pyrene			<0.050		ug/g		0.05	28-AUG-19
Surrogate: 2-Fluorobiphenyl			98.2		%		50-140	28-AUG-19
Surrogate: p-Terphenyl d14			85.6		%		50-140	28-AUG-19
WG3143063-4 MS		**WG3143063-5**						
1-Methylnaphthalene			97.5		%		50-140	28-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4771436								
WG3143063-4 MS		**WG3143063-5**						
2-Methylnaphthalene			92.6		%		50-140	28-AUG-19
Acenaphthene			97.3		%		50-140	28-AUG-19
Acenaphthylene			97.1		%		50-140	28-AUG-19
Anthracene			98.3		%		50-140	28-AUG-19
Benzo(a)anthracene			98.6		%		50-140	28-AUG-19
Benzo(a)pyrene			98.0		%		50-140	28-AUG-19
Benzo(b)fluoranthene			101.2		%		50-140	28-AUG-19
Benzo(g,h,i)perylene			95.9		%		50-140	28-AUG-19
Benzo(k)fluoranthene			101.4		%		50-140	28-AUG-19
Chrysene			108.1		%		50-140	28-AUG-19
Dibenzo(ah)anthracene			95.7		%		50-140	28-AUG-19
Fluoranthene			96.5		%		50-140	28-AUG-19
Fluorene			94.4		%		50-140	28-AUG-19
Indeno(1,2,3-cd)pyrene			94.4		%		50-140	28-AUG-19
Naphthalene			96.7		%		50-140	28-AUG-19
Phenanthrene			101.0		%		50-140	28-AUG-19
Pyrene			96.6		%		50-140	28-AUG-19
Batch R4772851								
WG3140421-3 DUP		**WG3140421-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4772851								
WG3140421-3 DUP		**WG3140421-5**						
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	28-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	28-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
WG3140421-2 LCS								
1-Methylnaphthalene			102.5		%		50-140	27-AUG-19
2-Methylnaphthalene			97.1		%		50-140	27-AUG-19
Acenaphthene			104.1		%		50-140	27-AUG-19
Acenaphthylene			103.4		%		50-140	27-AUG-19
Anthracene			100.5		%		50-140	27-AUG-19
Benzo(a)anthracene			102.5		%		50-140	27-AUG-19
Benzo(a)pyrene			96.1		%		50-140	27-AUG-19
Benzo(b)fluoranthene			107.6		%		50-140	27-AUG-19
Benzo(g,h,i)perylene			108.2		%		50-140	27-AUG-19
Benzo(k)fluoranthene			88.3		%		50-140	27-AUG-19
Chrysene			108.9		%		50-140	27-AUG-19
Dibenzo(ah)anthracene			103.4		%		50-140	27-AUG-19
Fluoranthene			96.0		%		50-140	27-AUG-19
Fluorene			101.9		%		50-140	27-AUG-19
Indeno(1,2,3-cd)pyrene			98.9		%		50-140	27-AUG-19
Naphthalene			101.1		%		50-140	27-AUG-19
Phenanthrene			103.4		%		50-140	27-AUG-19
Pyrene			95.1		%		50-140	27-AUG-19
WG3140421-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	27-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	27-AUG-19
Acenaphthene			<0.050		ug/g		0.05	27-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	27-AUG-19
Anthracene			<0.050		ug/g		0.05	27-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	27-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	27-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	27-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	27-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	27-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4772851								
WG3140421-1 MB								
Chrysene			<0.050		ug/g		0.05	27-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	27-AUG-19
Fluoranthene			<0.050		ug/g		0.05	27-AUG-19
Fluorene			<0.050		ug/g		0.05	27-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	27-AUG-19
Naphthalene			<0.013		ug/g		0.013	27-AUG-19
Phenanthrene			<0.046		ug/g		0.046	27-AUG-19
Pyrene			<0.050		ug/g		0.05	27-AUG-19
Surrogate: 2-Fluorobiphenyl			104.0		%		50-140	27-AUG-19
Surrogate: p-Terphenyl d14			91.9		%		50-140	27-AUG-19
WG3140421-4 MS		**WG3140421-5**						
1-Methylnaphthalene			98.8		%		50-140	28-AUG-19
2-Methylnaphthalene			93.7		%		50-140	28-AUG-19
Acenaphthene			100.8		%		50-140	28-AUG-19
Acenaphthylene			99.5		%		50-140	28-AUG-19
Anthracene			98.4		%		50-140	28-AUG-19
Benzo(a)anthracene			98.6		%		50-140	28-AUG-19
Benzo(a)pyrene			93.9		%		50-140	28-AUG-19
Benzo(b)fluoranthene			104.2		%		50-140	28-AUG-19
Benzo(g,h,i)perylene			92.1		%		50-140	28-AUG-19
Benzo(k)fluoranthene			91.7		%		50-140	28-AUG-19
Chrysene			106.4		%		50-140	28-AUG-19
Dibenzo(ah)anthracene			91.7		%		50-140	28-AUG-19
Fluoranthene			96.5		%		50-140	28-AUG-19
Fluorene			97.5		%		50-140	28-AUG-19
Indeno(1,2,3-cd)pyrene			94.9		%		50-140	28-AUG-19
Naphthalene			97.8		%		50-140	28-AUG-19
Phenanthrene			100.9		%		50-140	28-AUG-19
Pyrene			96.0		%		50-140	28-AUG-19
PH-WT	**Soil**							
Batch R4766910								
WG3140870-1 DUP		**L2331127-1**						
pH		7.76	7.77	J	pH units	0.01	0.3	23-AUG-19
WG3141310-1 LCS								

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WT	**Soil**							
Batch R4766910								
WG3141310-1 LCS								
pH			6.96		pH units		6.9-7.1	23-AUG-19
Batch R4767069								
WG3141036-1 DUP		**L2333456-2**						
pH		8.03	8.05	J	pH units	0.02	0.3	23-AUG-19
WG3141319-1 LCS								
pH			7.00		pH units		6.9-7.1	23-AUG-19
SAR-R511-WT	**Soil**							
Batch R4775892								
WG3146514-4 DUP		**WG3146514-3**						
Calcium (Ca)		7.25	7.97		mg/L	9.5	30	29-AUG-19
Sodium (Na)		10.6	11.0		mg/L	3.7	30	29-AUG-19
Magnesium (Mg)		<0.50	0.51	RPD-NA	mg/L	N/A	30	29-AUG-19
WG3146514-2 IRM		**WT SAR3**						
Calcium (Ca)			98.2		%		70-130	29-AUG-19
Sodium (Na)			103.2		%		70-130	29-AUG-19
Magnesium (Mg)			100.5		%		70-130	29-AUG-19
WG3146514-5 LCS								
Calcium (Ca)			102.7		%		70-130	29-AUG-19
Sodium (Na)			99.6		%		70-130	29-AUG-19
Magnesium (Mg)			97.8		%		70-130	29-AUG-19
WG3146514-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	29-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	29-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	29-AUG-19
Batch R4776328								
WG3146522-4 DUP		**WG3146522-3**						
Calcium (Ca)		10.1	10.8		mg/L	6.7	30	29-AUG-19
Sodium (Na)		143	143		mg/L	0.0	30	29-AUG-19
Magnesium (Mg)		10.7	12.2		mg/L	13	30	29-AUG-19
WG3146522-2 IRM		**WT SAR3**						
Calcium (Ca)			87.4		%		70-130	29-AUG-19
Sodium (Na)			92.3		%		70-130	29-AUG-19
Magnesium (Mg)			88.7		%		70-130	29-AUG-19
WG3146522-5 LCS								

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4776328								
WG3146522-5 LCS								
Calcium (Ca)			114.3		%		70-130	29-AUG-19
Sodium (Na)			111.0		%		70-130	29-AUG-19
Magnesium (Mg)			109.4		%		70-130	29-AUG-19
WG3146522-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	29-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	29-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	29-AUG-19
Batch R4776908								
WG3146526-4 DUP		**WG3146526-3**						
Calcium (Ca)		3.00	3.15		mg/L	4.9	30	29-AUG-19
Sodium (Na)		88.7	70.1		mg/L	23	30	29-AUG-19
Magnesium (Mg)		8.17	6.32		mg/L	26	30	29-AUG-19
WG3146526-2 IRM		**WT SAR3**						
Calcium (Ca)			92.5		%		70-130	29-AUG-19
Sodium (Na)			95.4		%		70-130	29-AUG-19
Magnesium (Mg)			93.5		%		70-130	29-AUG-19
WG3146526-5 LCS								
Calcium (Ca)			103.7		%		70-130	29-AUG-19
Sodium (Na)			100.2		%		70-130	29-AUG-19
Magnesium (Mg)			99.0		%		70-130	29-AUG-19
WG3146526-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	29-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	29-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	29-AUG-19
Batch R4777669								
WG3146724-4 DUP		**WG3146724-3**						
Calcium (Ca)		2.40	2.47		mg/L	2.9	30	29-AUG-19
Sodium (Na)		42.6	45.4		mg/L	6.4	30	29-AUG-19
Magnesium (Mg)		1.20	1.13		mg/L	6.0	30	29-AUG-19
WG3146724-2 IRM		**WT SAR3**						
Calcium (Ca)			93.7		%		70-130	29-AUG-19
Sodium (Na)			107.1		%		70-130	29-AUG-19
Magnesium (Mg)			98.9		%		70-130	29-AUG-19
WG3146724-5 LCS								
Calcium (Ca)			101.0		%		70-130	29-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4777669								
WG3146724-5 LCS								
Sodium (Na)			97.4		%		70-130	29-AUG-19
Magnesium (Mg)			96.6		%		70-130	29-AUG-19
WG3146724-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	29-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	29-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	29-AUG-19
Batch R4784493								
WG3153567-4 DUP		**WG3153567-3**						
Calcium (Ca)		34.9	37.9		mg/L	8.2	30	06-SEP-19
Sodium (Na)		1.06	1.14		mg/L	7.3	30	06-SEP-19
Magnesium (Mg)		3.06	3.27		mg/L	6.6	30	06-SEP-19
WG3153567-2 IRM		**WT SAR3**						
Calcium (Ca)			83.1		%		70-130	06-SEP-19
Sodium (Na)			95.4		%		70-130	06-SEP-19
Magnesium (Mg)			89.8		%		70-130	06-SEP-19
WG3153567-5 LCS								
Calcium (Ca)			102.0		%		70-130	06-SEP-19
Sodium (Na)			100.0		%		70-130	06-SEP-19
Magnesium (Mg)			100.6		%		70-130	06-SEP-19
WG3153567-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	06-SEP-19
Sodium (Na)			<0.50		mg/L		0.5	06-SEP-19
Magnesium (Mg)			<0.50		mg/L		0.5	06-SEP-19
VOC-511-HS-WT	**Soil**							
Batch R4774229								
WG3143298-4 DUP		**WG3143298-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4774229								
WG3143298-4 DUP		**WG3143298-3**						
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	28-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	28-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	28-AUG-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	28-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	28-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	28-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	28-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	28-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	28-AUG-19
WG3143298-2 LCS								

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4774229								
WG3143298-2 LCS								
1,1,1,2-Tetrachloroethane			113.3		%		60-130	28-AUG-19
1,1,2,2-Tetrachloroethane			111.0		%		60-130	28-AUG-19
1,1,1-Trichloroethane			113.8		%		60-130	28-AUG-19
1,1,2-Trichloroethane			112.9		%		60-130	28-AUG-19
1,1-Dichloroethane			112.4		%		60-130	28-AUG-19
1,1-Dichloroethylene			105.1		%		60-130	28-AUG-19
1,2-Dibromoethane			112.1		%		70-130	28-AUG-19
1,2-Dichlorobenzene			112.8		%		70-130	28-AUG-19
1,2-Dichloroethane			115.9		%		60-130	28-AUG-19
1,2-Dichloropropane			117.9		%		70-130	28-AUG-19
1,3-Dichlorobenzene			107.6		%		70-130	28-AUG-19
1,4-Dichlorobenzene			108.4		%		70-130	28-AUG-19
Acetone			112.7		%		60-140	28-AUG-19
Benzene			116.7		%		70-130	28-AUG-19
Bromodichloromethane			120.5		%		50-140	28-AUG-19
Bromoform			115.2		%		70-130	28-AUG-19
Bromomethane			97.1		%		50-140	28-AUG-19
Carbon tetrachloride			118.0		%		70-130	28-AUG-19
Chlorobenzene			112.8		%		70-130	28-AUG-19
Chloroform			117.3		%		70-130	28-AUG-19
cis-1,2-Dichloroethylene			109.4		%		70-130	28-AUG-19
cis-1,3-Dichloropropene			107.6		%		70-130	28-AUG-19
Dibromochloromethane			112.9		%		60-130	28-AUG-19
Dichlorodifluoromethane			84.2		%		50-140	28-AUG-19
Ethylbenzene			105.7		%		70-130	28-AUG-19
n-Hexane			98.7		%		70-130	28-AUG-19
Methylene Chloride			113.7		%		70-130	28-AUG-19
MTBE			112.5		%		70-130	28-AUG-19
m+p-Xylenes			106.7		%		70-130	28-AUG-19
Methyl Ethyl Ketone			102.1		%		60-140	28-AUG-19
Methyl Isobutyl Ketone			107.0		%		60-140	28-AUG-19
o-Xylene			107.1		%		70-130	28-AUG-19
Styrene			107.8		%		70-130	28-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4774229								
WG3143298-2 LCS								
Tetrachloroethylene			107.5		%		60-130	28-AUG-19
Toluene			110.3		%		70-130	28-AUG-19
trans-1,2-Dichloroethylene			105.3		%		60-130	28-AUG-19
trans-1,3-Dichloropropene			101.5		%		70-130	28-AUG-19
Trichloroethylene			114.3		%		60-130	28-AUG-19
Trichlorofluoromethane			111.3		%		50-140	28-AUG-19
Vinyl chloride			114.0		%		60-140	28-AUG-19
WG3143298-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	28-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	28-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	28-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	28-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	28-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	28-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	28-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	28-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	28-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	28-AUG-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	28-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	28-AUG-19
Acetone			<0.50		ug/g		0.5	28-AUG-19
Benzene			<0.0068		ug/g		0.0068	28-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	28-AUG-19
Bromoform			<0.050		ug/g		0.05	28-AUG-19
Bromomethane			<0.050		ug/g		0.05	28-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	28-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	28-AUG-19
Chloroform			<0.050		ug/g		0.05	28-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	28-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	28-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	28-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	28-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	28-AUG-19
n-Hexane			<0.050		ug/g		0.05	28-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4774229								
WG3143298-1 MB								
Methylene Chloride			<0.050		ug/g		0.05	28-AUG-19
MTBE			<0.050		ug/g		0.05	28-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	28-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	28-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	28-AUG-19
o-Xylene			<0.020		ug/g		0.02	28-AUG-19
Styrene			<0.050		ug/g		0.05	28-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	28-AUG-19
Toluene			<0.080		ug/g		0.08	28-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	28-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	28-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	28-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	28-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	28-AUG-19
Surrogate: 1,4-Difluorobenzene			106.3		%		50-140	28-AUG-19
Surrogate: 4-Bromofluorobenzene			89.2		%		50-140	28-AUG-19
WG3143298-5 MS		**L2333129-1**						
1,1,1,2-Tetrachloroethane			108.2		%		50-140	28-AUG-19
1,1,2,2-Tetrachloroethane			111.3		%		50-140	28-AUG-19
1,1,1-Trichloroethane			109.3		%		50-140	28-AUG-19
1,1,2-Trichloroethane			109.9		%		50-140	28-AUG-19
1,1-Dichloroethane			106.8		%		50-140	28-AUG-19
1,1-Dichloroethylene			99.4		%		50-140	28-AUG-19
1,2-Dibromoethane			107.3		%		50-140	28-AUG-19
1,2-Dichlorobenzene			104.1		%		50-140	28-AUG-19
1,2-Dichloroethane			110.1		%		50-140	28-AUG-19
1,2-Dichloropropane			111.0		%		50-140	28-AUG-19
1,3-Dichlorobenzene			96.1		%		50-140	28-AUG-19
1,4-Dichlorobenzene			95.6		%		50-140	28-AUG-19
Acetone			110.5		%		50-140	28-AUG-19
Benzene			109.7		%		50-140	28-AUG-19
Bromodichloromethane			113.9		%		50-140	28-AUG-19
Bromoform			113.4		%		50-140	28-AUG-19
Bromomethane			85.8		%		50-140	28-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4774229								
WG3143298-5 MS		**L2333129-1**						
Carbon tetrachloride			111.5		%		50-140	28-AUG-19
Chlorobenzene			104.7		%		50-140	28-AUG-19
Chloroform			110.7		%		50-140	28-AUG-19
cis-1,2-Dichloroethylene			101.9		%		50-140	28-AUG-19
cis-1,3-Dichloropropene			83.1		%		50-140	28-AUG-19
Dibromochloromethane			109.0		%		50-140	28-AUG-19
Dichlorodifluoromethane			87.8		%		50-140	28-AUG-19
Ethylbenzene			98.2		%		50-140	28-AUG-19
n-Hexane			94.6		%		50-140	28-AUG-19
Methylene Chloride			106.6		%		50-140	28-AUG-19
MTBE			103.5		%		50-140	28-AUG-19
m+p-Xylenes			98.0		%		50-140	28-AUG-19
Methyl Ethyl Ketone			98.7		%		50-140	28-AUG-19
Methyl Isobutyl Ketone			104.6		%		50-140	28-AUG-19
o-Xylene			99.8		%		50-140	28-AUG-19
Styrene			96.5		%		50-140	28-AUG-19
Tetrachloroethylene			98.9		%		50-140	28-AUG-19
Toluene			103.4		%		50-140	28-AUG-19
trans-1,2-Dichloroethylene			95.0		%		50-140	28-AUG-19
trans-1,3-Dichloropropene			76.2		%		50-140	28-AUG-19
Trichloroethylene			103.8		%		50-140	28-AUG-19
Trichlorofluoromethane			107.3		%		50-140	28-AUG-19
Vinyl chloride			109.4		%		50-140	28-AUG-19

Quality Control Report

Workorder: L2333129 Report Date: 11-NOV-19

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

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.
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.

Quality Control Report

Workorder: L2333129 Report Date: 11-NOV-19

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Moisture content							
	16	20-AUG-19 15:25	09-SEP-19 13:59	14	20	days	EHT

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 L2333129 were received on 21-AUG-19 14:30.

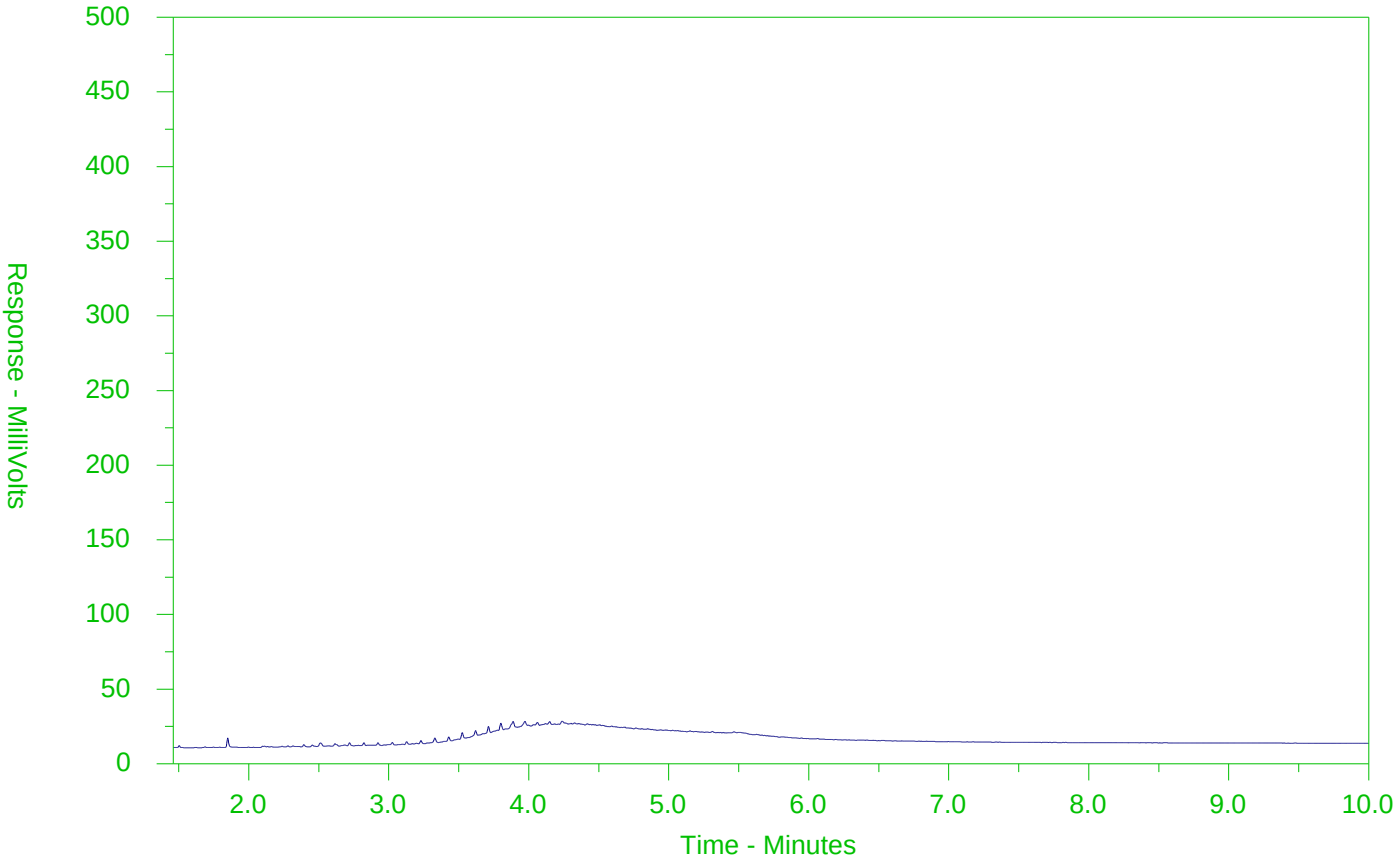
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2333129-1
Client Sample ID: BH206-7.5-9.5



←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.

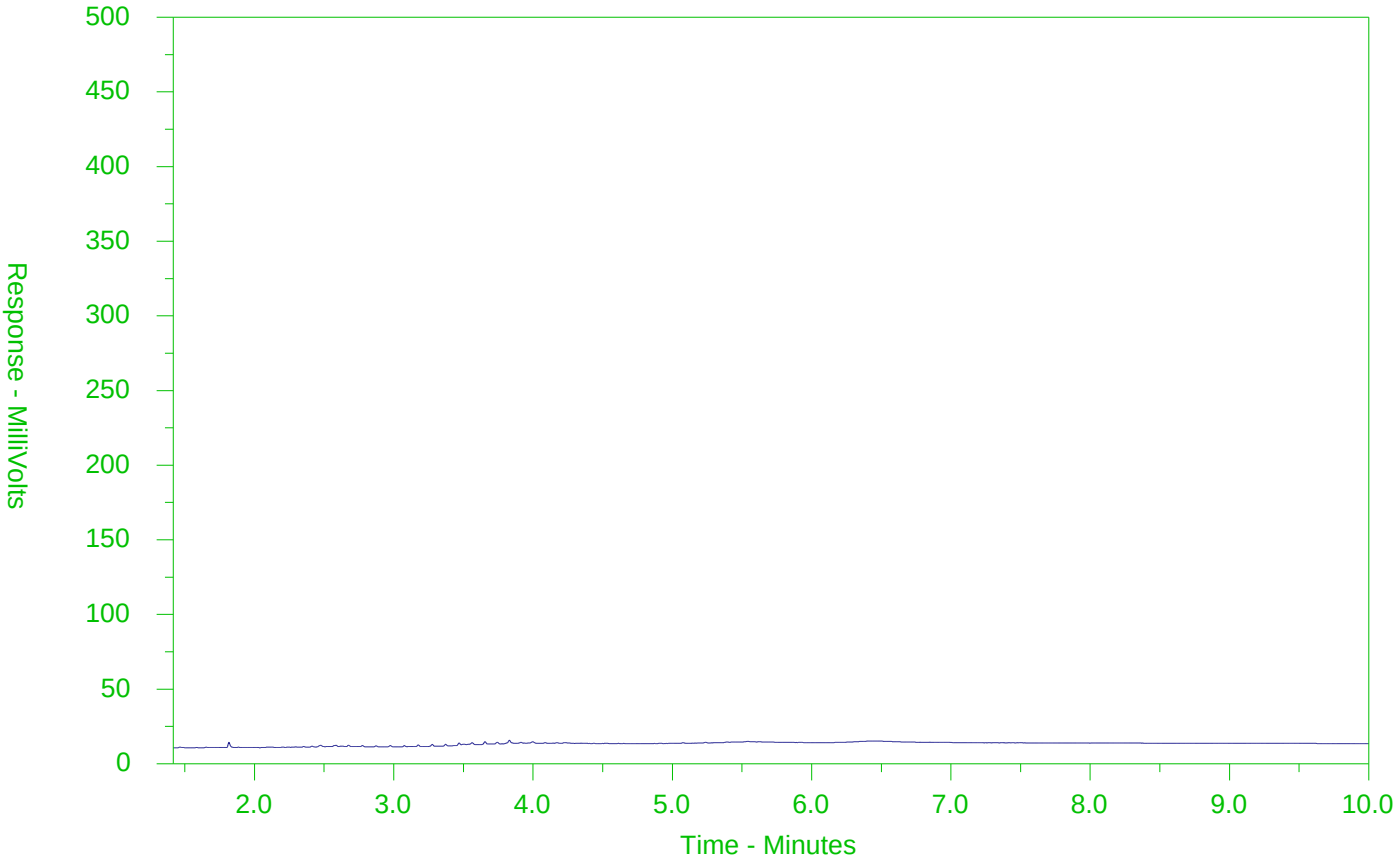
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2333129-3
Client Sample ID: BH206-12.5-14.5



←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.

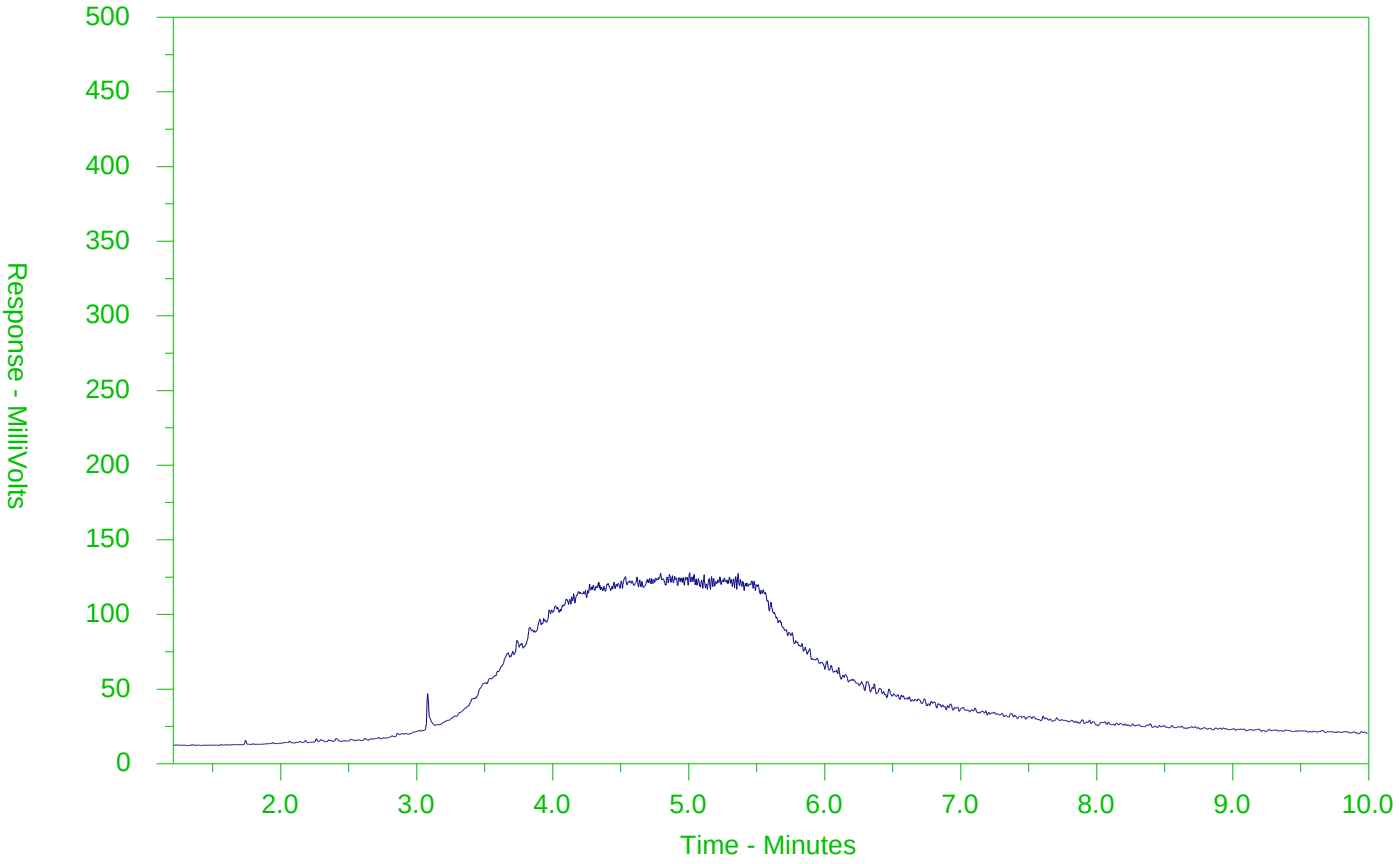
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2333129-6
Client Sample ID: MW107-2.5-4.5



←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.

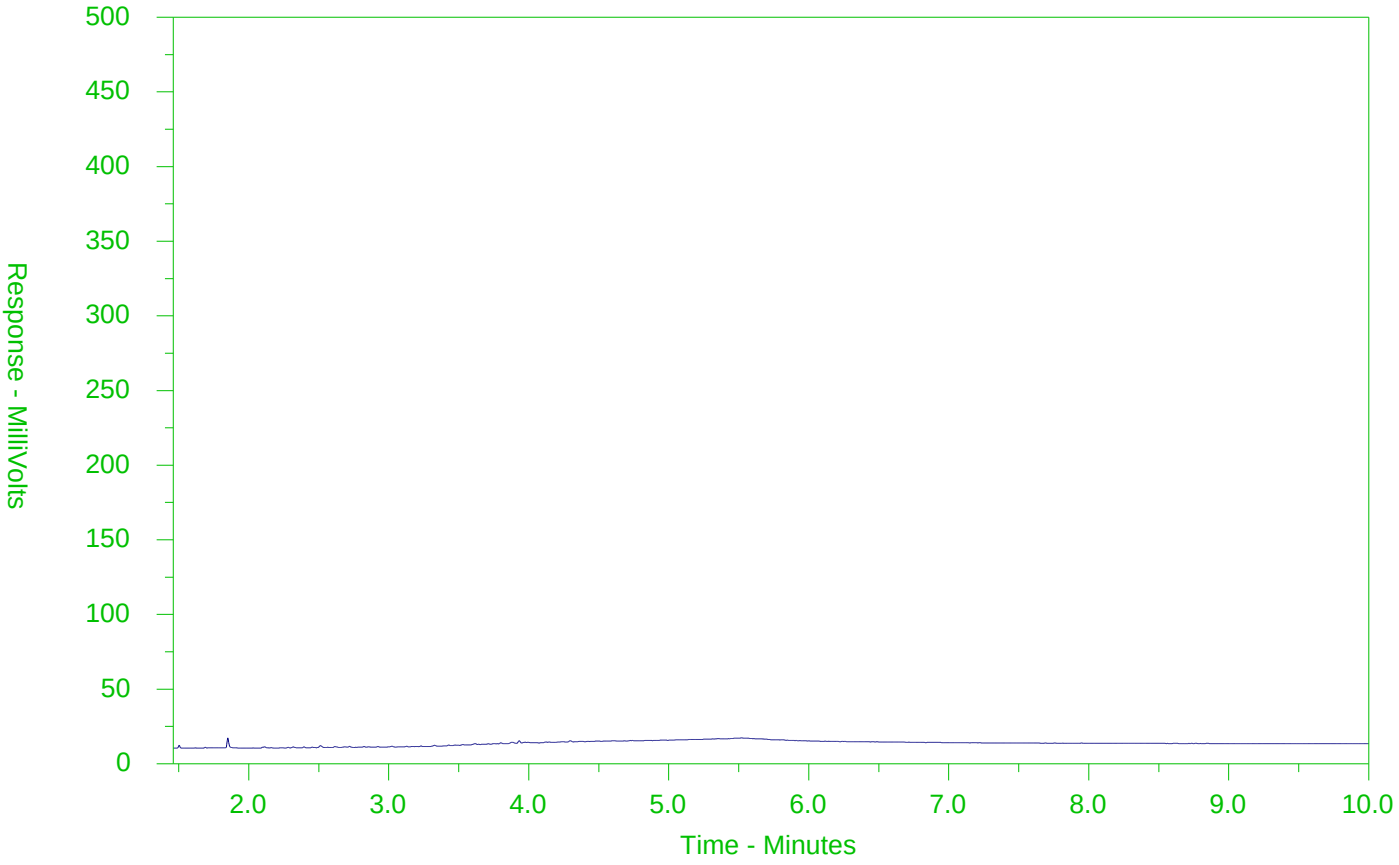
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2333129-8
Client Sample ID: MW107-7.5-9.5



←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.

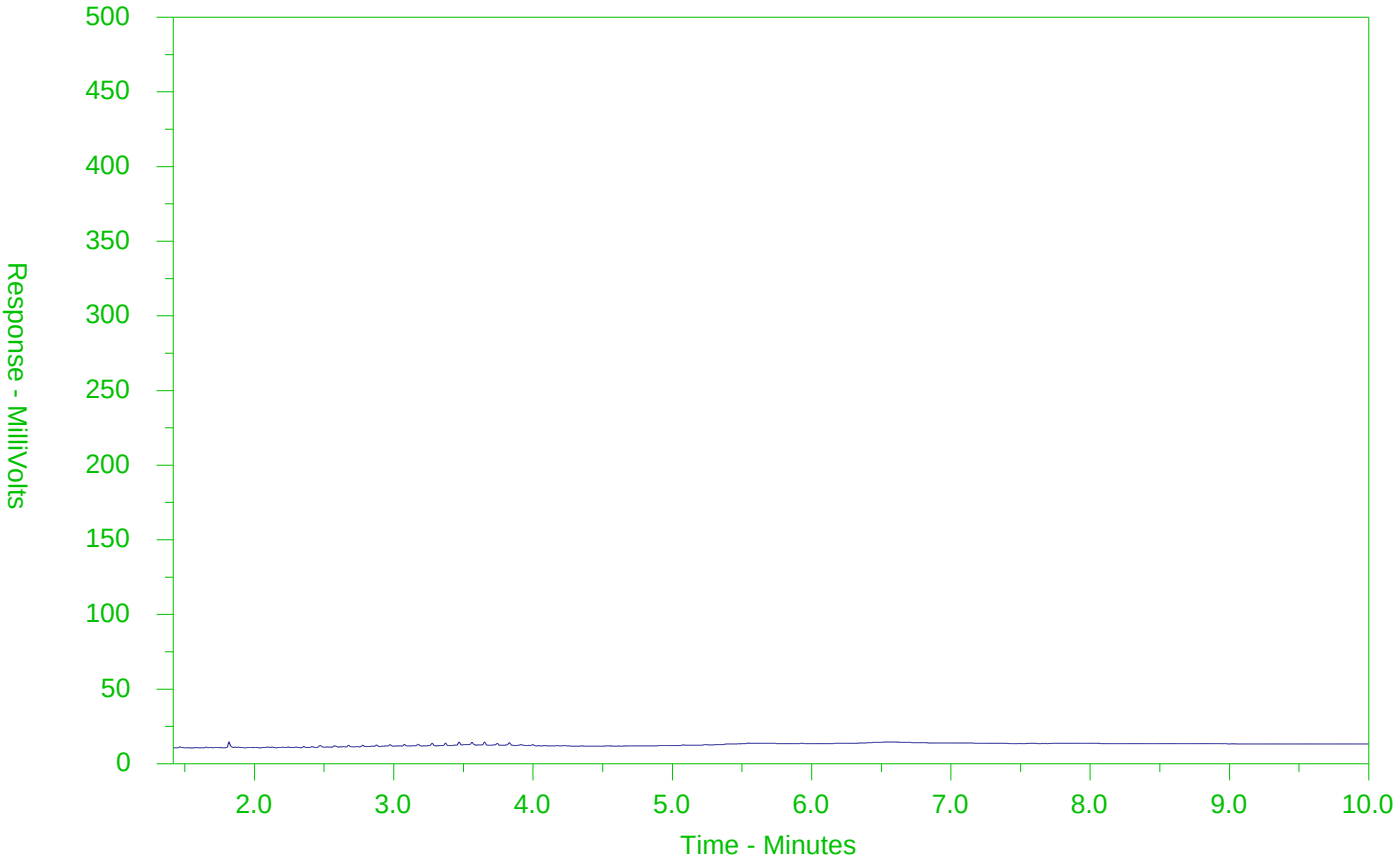
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2333129-11
Client Sample ID: DUP15



←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.

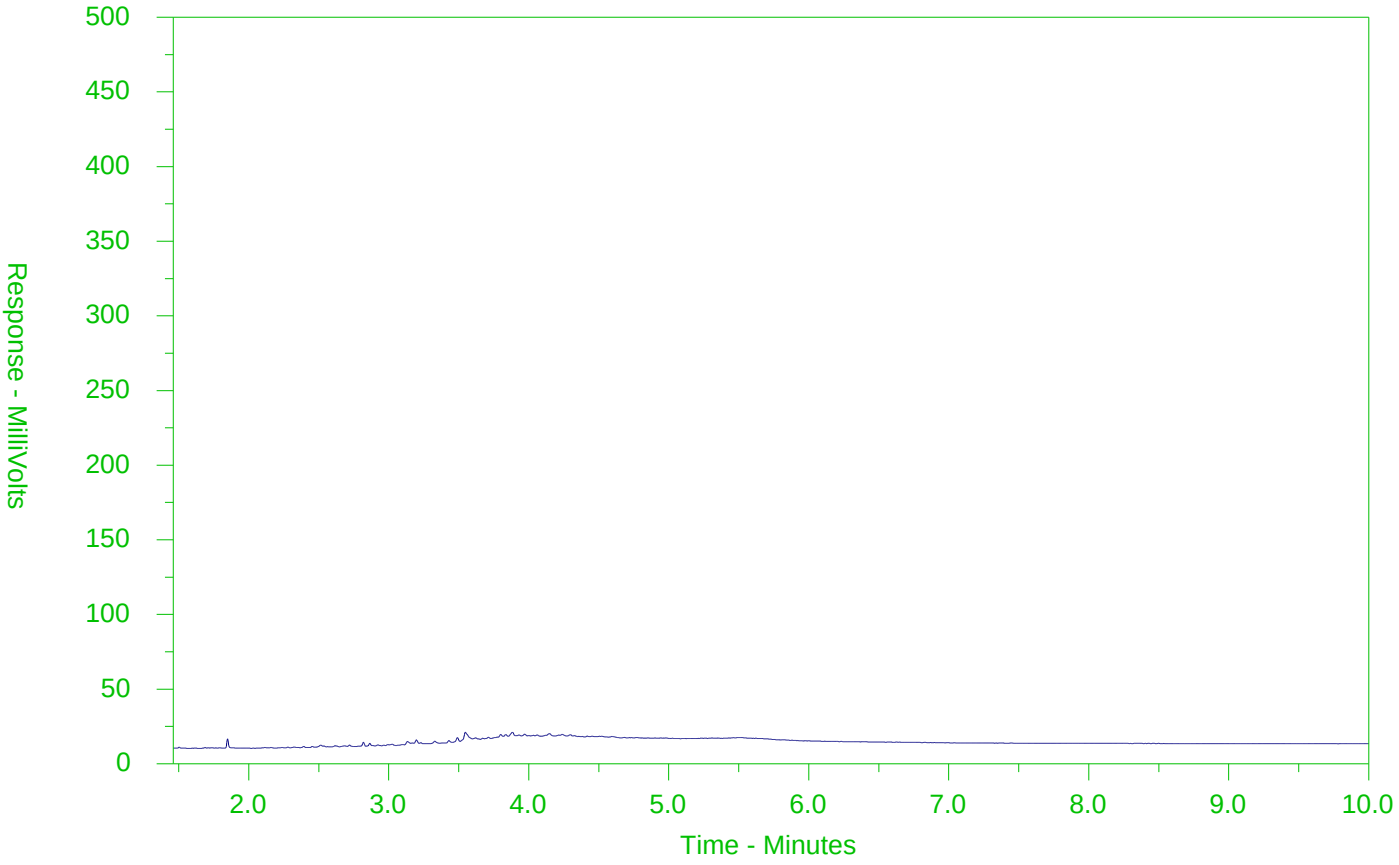
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2333129-12
Client Sample ID: MW106-7.5-8.5



←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.

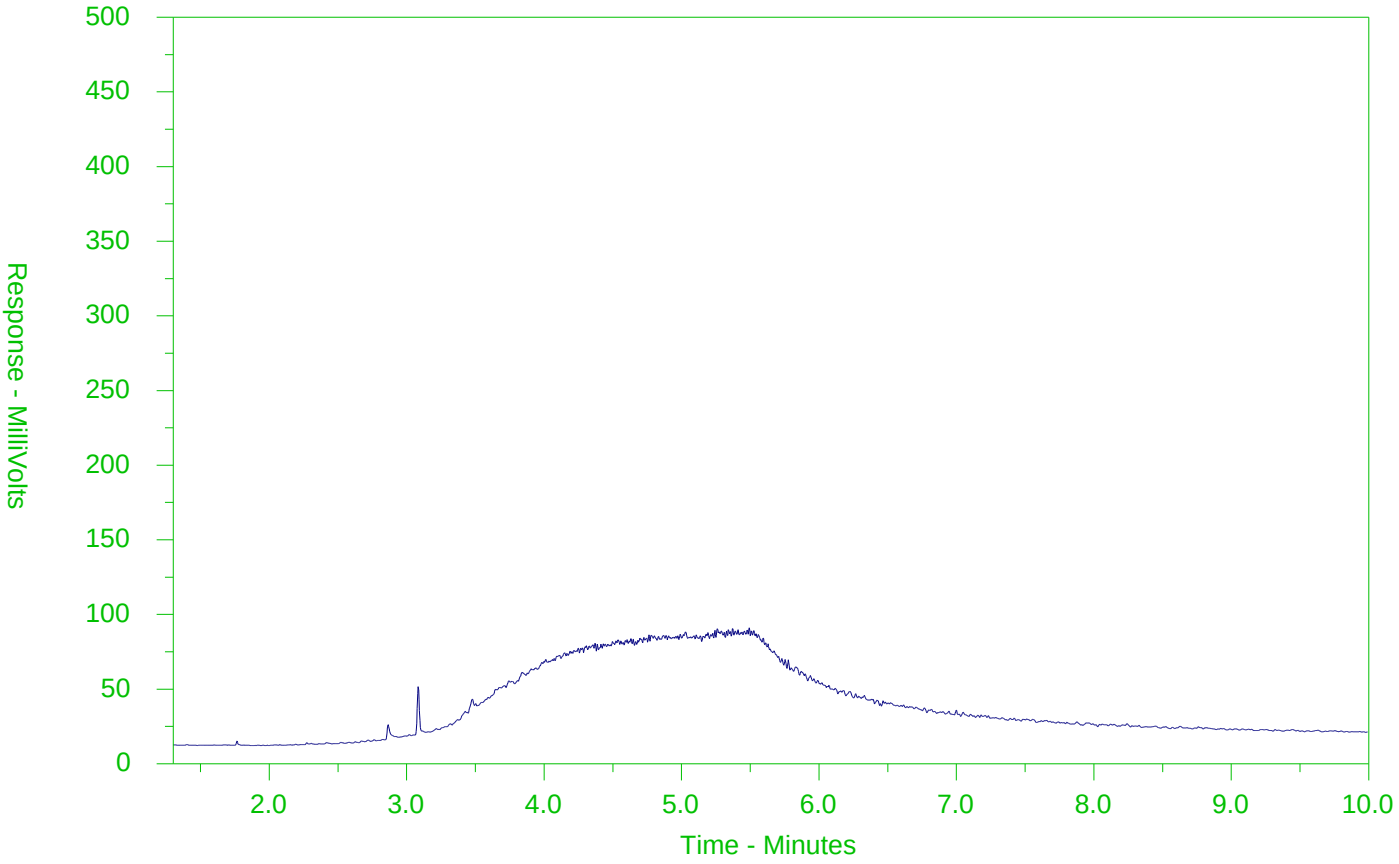
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2333129-15
Client Sample ID: BH203-0.5-2



←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.

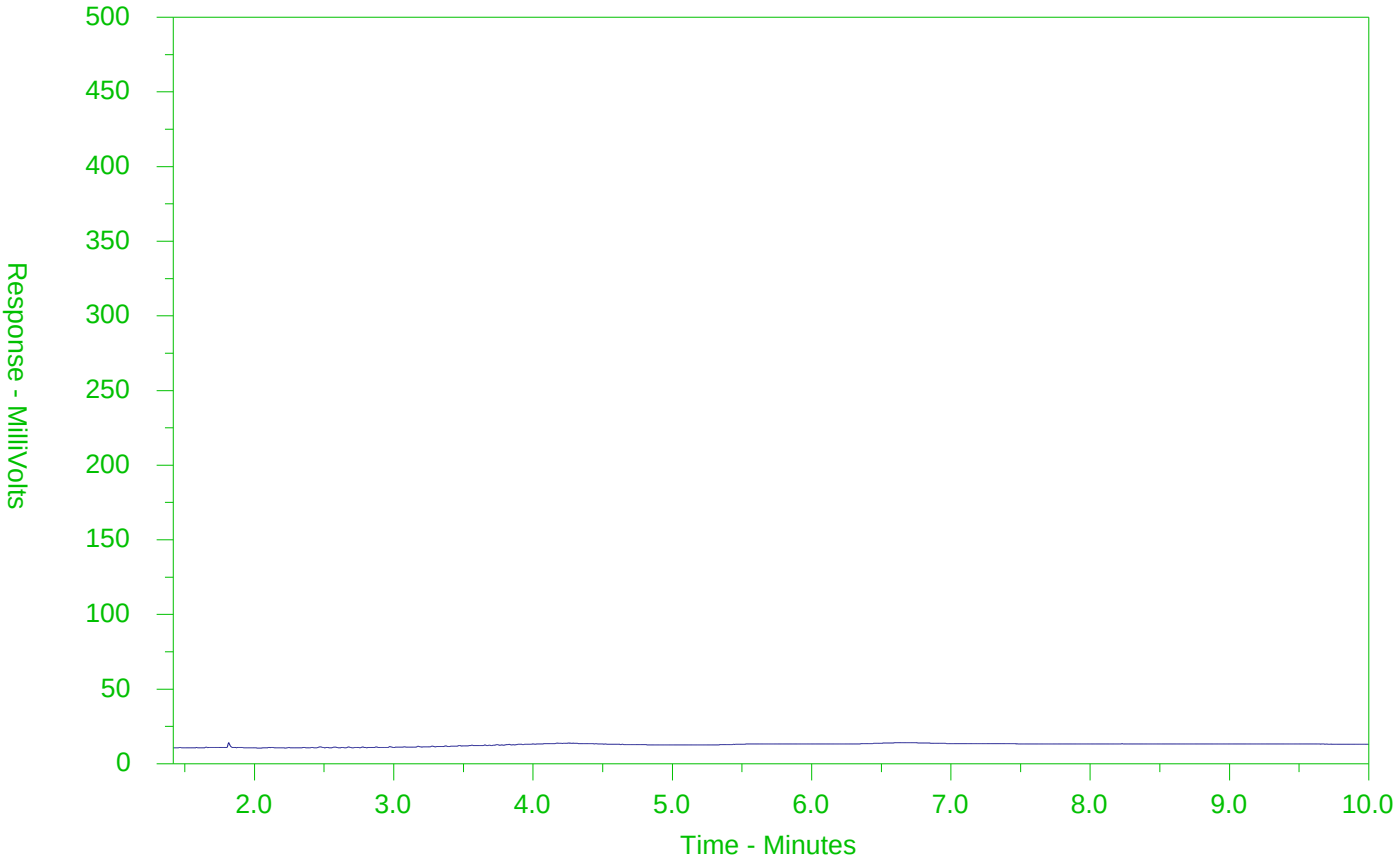
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2333129-17
Client Sample ID: BH203-7.5-9.5



←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.

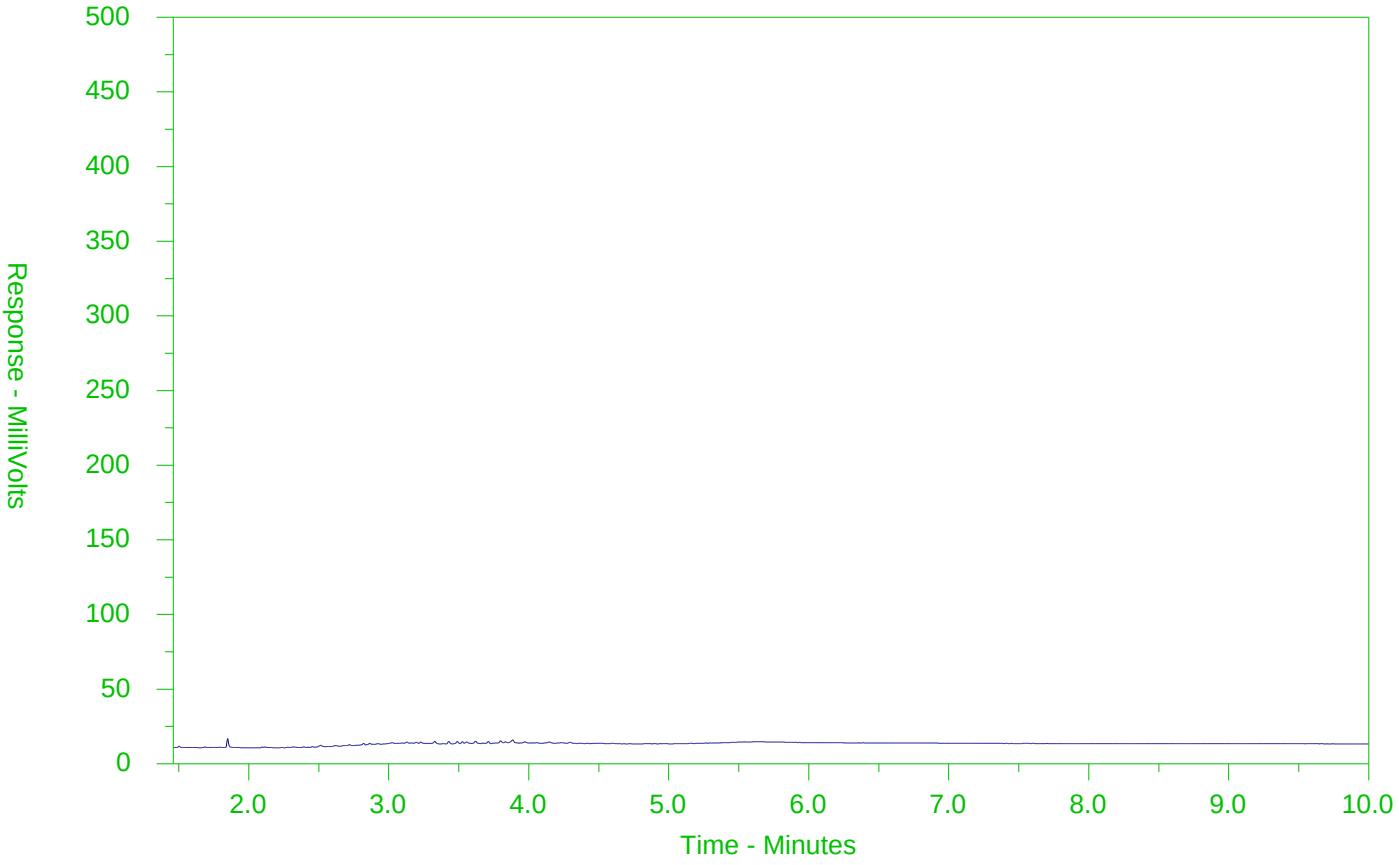
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2333129-21
Client Sample ID: MW101-7.5-9.5



←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.

Chain of Custody (COC) / Analytical Request Form

L2333129-COFC

lumber 17 -

Page 1 of 2

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	CH2M Hill/Jacobs	Select Report Format: ☑ PDF ☐ EXCEL ☑ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact	Andrew Vermeersch	Quality Control (QC) Report with Report ☑ YES ☐ NO	Delivery (Business days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519 579 3500 x 73247	☑ Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E1 - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Street:	72 Victoria Street South, Suite 300	Email 1 or Fax Andrew.Vermeersch@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener/Ontario	Email 2 michael.shirey@jacobs.com	
Postal Code:	N2G 4Y9	Email 3 Katherine.appleby@jacobs.com	
Invoice To	Same as Report To ☐ YES ☐ NO	Invoice Distribution	
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company	CH2M Hill Kitchener	Email 1 or Fax Accounts Payable	
Contact:	Accounts Payable	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q72980	AFE/Cost Center:	PO#:
Job #:	CE751900.A.CS EV.A2	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2333129

ALS Contact: Mathy Sampler: Andrew V.

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BU)	PCB	TOC	ABN	MeHg / Mercury	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
					P	P											
1	BH206-7.5-9.5	19-Aug-19	8:30	Soil	X	X	X	X	X								4
2	BH206-7.5-9.5	"	"	"										X	1		
3	BH206-12.5-14.5	"	8:50	"	X	X	X	X	X								4
4	BH206-12.5-14.5	"	"	"										X	1		
5	BH206-15-16.5	"	8:58	"	X	X	X	X	X						4		
6	MW107-2.5-4.5	"	11:29	"	X	X	X	X	X								4
7	MW107-2.5-4.5	"	"	"										X	1		
8	MW107-7.5-9.5	"	11:46	"	X	X	X	X	X								4
9	MW107-7.5-9.5	"	"	"										X	1		
10	MW107-15-16.5	"	12:10	"	X	X	X	X	X					X	5		
11	DUP15	"	—	"	X	X	X	X	X								4
12	MW106-7.5-9.5	20-Aug-19	8:35	"	X	X	X	X	X								4

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	Please compare to Table 1 standards - criteria not on report
Are samples for human consumption/ use? ☐ YES ☑ NO	Some samples on HOLD

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C			
			8.9			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Andrew Vermeersch	Date: 21-Aug-19	Time: 11:10	Received by:	Date:	Time:	Received by: AP	Date: 21-8-19	Time: 14:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

SIF

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2333129-COFC

COC Number 17 -

Page 2 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	CH2M Hill/Jacobs	Select Report Format: PDF ☒ EXCEL ☒ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact	Andrew Vermeersch	Quality Control (QC) Report with Report ☒ YES ☐ NO	Priority (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519 579 3500 x 73247	Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E1 - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Street:	72 Victoria Street South, Suite 300	Email 1 or Fax: Andrew.Vermeersch@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener/Ontario	Email 2: michael.shirey@jacobs.com	
Postal Code:	N2G 4Y9	Email 3: Katherine.appleby@jacobs.com	
Invoice To	Same as Report To ☐ YES ☐ NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:	CH2M Hill Kitchener	Email 1 or Fax: Accounts Payable	
Contact:	Accounts Payable	Email 2:	

Project Information		Oil and Gas Required Fields (client use)		
ALS Account # / Quote #:	Q72960	AFE/Cost Center:	PO#:	
Job #:	CE751900 A CS EV.A2	Major/Minor Code:	Routing Code:	
PO / AFE:		Requisitioner:		
LSD:		Location:		
ALS Lab Work Order # (lab use only):	L2333129	ALS Contact: Mathy	Sampler: Andrew V.	

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BL)	PCB	TOC	ABN	Methyl mercury						SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
13	MW106-7.5-8.5	20-Aug-19	8:35	Soil										X						1		
14	MW106-17.5-18.5	"	9:22	"	X	X	X	X	X											4		
15	BH203-0.5-2 *	"	15:25	"	X	X	X	X	X													4
16	BH203-0.5-2	"	"	"										X						1		
17	BH203-7.5-9.5	"	15:51	"	X	X	X	X	X													4
18	BH203-7.5-9.5	"	"	"										X						1		
19	BH203-15-17	"	16:19	"	X	X	X	X	X					X						5		
20	TRIPBLANK-20190821	21-Aug-19	-	Methanol		X	X															1
21	MW101-7.5-9.5	"	8:54	Soil	X	X	X	X	X													4
22	MW101-7.5-9.5	"	"	"										X						1		
23	MW101-20-20.5	"	9:37	"	X	X	X	X	X											4		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☒ NO	Do not analyze for pH Please compare to Table 1 standards - criteria not on report - Some samples on HOLD
Are samples for human consumption/ use? ☐ YES ☒ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				8	9		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Andrew Vermeersch	Date: 21-Aug-19	Time: 11:15	Received by:	Date:	Time:	Received by: AP	Date: 21-8-19	Time: 14:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FINAL

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If drinking water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: Andrew Vermeersch
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 22-AUG-19
Report Date: 25-SEP-19 12:43 (MT)
Version: FINAL REV. 2

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2334358

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV.A2
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 18-SEP-19 06:27
ADDITIONAL 11-SEP-19 07:58

Emily Hansen
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2334358-1 BH201-7.5-9.5							
Sampled By: ANDREW V. on 21-AUG-19 @ 15::							
Matrix: SOIL							
Physical Tests							
Conductivity	1.04		0.0040	mS/cm	30-AUG-19	*0.47	*0.57
% Moisture	11.0		0.10	%	26-AUG-19		
pH	8.09		0.10	pH units	27-AUG-19		
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	27-AUG-19	0.051	0.051
Saturated Paste Extractables							
SAR	23.3		0.10	SAR	30-AUG-19	*1	*2.4
Calcium (Ca)	3.09		0.50	mg/L	30-AUG-19		
Magnesium (Mg)	1.00		0.50	mg/L	30-AUG-19		
Sodium (Na)	184		0.50	mg/L	30-AUG-19		
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	30-AUG-19	1	1.3
Arsenic (As)	1.6		1.0	ug/g	30-AUG-19	11	18
Barium (Ba)	17.6		1.0	ug/g	30-AUG-19	210	220
Beryllium (Be)	<0.50		0.50	ug/g	30-AUG-19	2.5	2.5
Boron (B)	<5.0		5.0	ug/g	30-AUG-19	36	36
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	30-AUG-19	36	36
Cadmium (Cd)	<0.50		0.50	ug/g	30-AUG-19	1	1.2
Chromium (Cr)	6.9		1.0	ug/g	30-AUG-19	67	70
Cobalt (Co)	2.5		1.0	ug/g	30-AUG-19	19	21
Copper (Cu)	6.2		1.0	ug/g	30-AUG-19	62	92
Lead (Pb)	6.8		1.0	ug/g	30-AUG-19	45	120
Mercury (Hg)	0.0057		0.0050	ug/g	30-AUG-19	0.16	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	30-AUG-19	2	2
Nickel (Ni)	5.5		1.0	ug/g	30-AUG-19	37	82
Selenium (Se)	<1.0		1.0	ug/g	30-AUG-19	1.2	1.5
Silver (Ag)	<0.20		0.20	ug/g	30-AUG-19	0.5	0.5
Thallium (Tl)	<0.50		0.50	ug/g	30-AUG-19	1	1
Uranium (U)	<1.0		1.0	ug/g	30-AUG-19	1.9	2.5
Vanadium (V)	13.2		1.0	ug/g	30-AUG-19	86	86
Zinc (Zn)	41.5		5.0	ug/g	30-AUG-19	290	290
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	28-AUG-19	0.66	0.66
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	30-AUG-19	0.5	0.5
Benzene	<0.0068		0.0068	ug/g	30-AUG-19	0.02	0.02
Bromodichloromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Bromoform	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Bromomethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Chlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Dibromochloromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Chloroform	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2334358-1 BH201-7.5-9.5									
Sampled By: ANDREW V. on 21-AUG-19 @ 15::									
Matrix: SOIL									
Volatile Organic Compounds									
1,3-Dichlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
1,4-Dichlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Dichlorodifluoromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
1,1-Dichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
1,2-Dichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
1,1-Dichloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Methylene Chloride	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
1,2-Dichloropropane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	30-AUG-19				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	30-AUG-19				
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-AUG-19	0.05	0.05		
Ethylbenzene	<0.018		0.018	ug/g	30-AUG-19	0.05	0.05		
n-Hexane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-AUG-19	0.5	0.5		
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	30-AUG-19	0.5	0.5		
MTBE	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Styrene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Tetrachloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Toluene	<0.080		0.080	ug/g	30-AUG-19	0.2	0.2		
1,1,1-Trichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
1,1,2-Trichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Trichloroethylene	<0.010		0.010	ug/g	30-AUG-19	0.05	0.05		
Trichlorofluoromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.25		
Vinyl chloride	<0.020		0.020	ug/g	30-AUG-19	0.02	0.02		
o-Xylene	<0.020		0.020	ug/g	30-AUG-19				
m+p-Xylenes	<0.030		0.030	ug/g	30-AUG-19				
Xylenes (Total)	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Surrogate: 4-Bromofluorobenzene	87.8		50-140	%	30-AUG-19				
Surrogate: 1,4-Difluorobenzene	101.6		50-140	%	30-AUG-19				
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	30-AUG-19	17	25		
F1-BTEX	<5.0		5.0	ug/g	30-AUG-19	17	25		
F2 (C10-C16)	<10		10	ug/g	28-AUG-19	10	10		
F2-Naphth	<10		10	ug/g	30-AUG-19				
F3 (C16-C34)	<50		50	ug/g	28-AUG-19	240	240		
F3-PAH	<50		50	ug/g	30-AUG-19				
F4 (C34-C50)	<50		50	ug/g	28-AUG-19	120	120		
Total Hydrocarbons (C6-C50)	<72		72	ug/g	30-AUG-19				
Chrom. to baseline at nC50	YES			No Unit	28-AUG-19				
Surrogate: 2-Bromobenzotrifluoride	87.0		60-140	%	28-AUG-19				
Surrogate: 3,4-Dichlorotoluene	70.6		60-140	%	30-AUG-19				
Polycyclic Aromatic Hydrocarbons									

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2334358-1 BH201-7.5-9.5							
Sampled By: ANDREW V. on 21-AUG-19 @ 15:							
Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.072
Acenaphthylene	<0.050		0.050	ug/g	29-AUG-19	0.093	0.093
Anthracene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.16
Benzo(a)anthracene	<0.050		0.050	ug/g	29-AUG-19	0.095	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	29-AUG-19	0.3	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	29-AUG-19	0.2	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.48
Chrysene	<0.050		0.050	ug/g	29-AUG-19	0.18	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	29-AUG-19	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	29-AUG-19	0.24	0.56
Fluorene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.12
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	29-AUG-19	0.11	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	29-AUG-19	0.05	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	29-AUG-19	0.05	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	29-AUG-19	0.05	0.59
Naphthalene	<0.013		0.013	ug/g	29-AUG-19	0.05	0.09
Phenanthrene	<0.046		0.046	ug/g	29-AUG-19	0.19	0.69
Pyrene	<0.050		0.050	ug/g	29-AUG-19	0.19	1
Surrogate: 2-Fluorobiphenyl	118.9		50-140	%	29-AUG-19		
Surrogate: p-Terphenyl d14	107.6		50-140	%	29-AUG-19		
L2334358-3 BH201-12.5-12.11"							
Sampled By: ANDREW V. on 21-AUG-19 @ 15:							
Matrix: SOIL							
Physical Tests							
% Moisture	8.05		0.10	%	26-AUG-19		
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	30-AUG-19	0.5	0.5
Benzene	<0.0068		0.0068	ug/g	30-AUG-19	0.02	0.02
Bromodichloromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Bromoform	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Bromomethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Chlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Dibromochloromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Chloroform	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2334358-3	BH201-12.5-12.11"									
Sampled By:	ANDREW V. on 21-AUG-19 @ 15:									
Matrix:	SOIL						#1	#2		
Volatile Organic Compounds										
	cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	Methylene Chloride	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	1,2-Dichloropropane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	cis-1,3-Dichloropropene	<0.030		0.030	ug/g	30-AUG-19				
	trans-1,3-Dichloropropene	<0.030		0.030	ug/g	30-AUG-19				
	1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-AUG-19	0.05	0.05		
	Ethylbenzene	<0.018		0.018	ug/g	30-AUG-19	0.05	0.05		
	n-Hexane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-AUG-19	0.5	0.5		
	Methyl Isobutyl Ketone	<0.50		0.50	ug/g	30-AUG-19	0.5	0.5		
	MTBE	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	Styrene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	Tetrachloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	Toluene	<0.080		0.080	ug/g	30-AUG-19	0.2	0.2		
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	Trichloroethylene	<0.010		0.010	ug/g	30-AUG-19	0.05	0.05		
	Trichlorofluoromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.25		
	Vinyl chloride	<0.020		0.020	ug/g	30-AUG-19	0.02	0.02		
	o-Xylene	<0.020		0.020	ug/g	30-AUG-19				
	m+p-Xylenes	<0.030		0.030	ug/g	30-AUG-19				
	Xylenes (Total)	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
	Surrogate: 4-Bromofluorobenzene	88.6		50-140	%	30-AUG-19				
	Surrogate: 1,4-Difluorobenzene	101.6		50-140	%	30-AUG-19				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	30-AUG-19	17	25		
	F1-BTEX	<5.0		5.0	ug/g	30-AUG-19	17	25		
	F2 (C10-C16)	<10		10	ug/g	28-AUG-19	10	10		
	F3 (C16-C34)	290		50	ug/g	28-AUG-19	*240	*240		
	F4 (C34-C50)	535		50	ug/g	28-AUG-19	*120	*120		
	F4G-SG (GHH-Silica)	1290		250	ug/g	28-AUG-19	*120	*120		
	Total Hydrocarbons (C6-C50)	826		72	ug/g	30-AUG-19				
	Chrom. to baseline at nC50	NO			No Unit	28-AUG-19				
	Surrogate: 2-Bromobenzotrifluoride	84.4		60-140	%	28-AUG-19				
	Surrogate: 3,4-Dichlorotoluene	70.0		60-140	%	30-AUG-19				
L2334358-5	BH201-12.11"-13.2"									
Sampled By:	ANDREW V. on 21-AUG-19 @ 15:									
Matrix:	SOIL						#1	#2		
Physical Tests										
	Conductivity	1.03		0.0040	mS/cm	17-SEP-19	*0.47	*0.57		
Saturated Paste Extractables										
	SAR	47.6	SAR:M	0.10	SAR	17-SEP-19	*1	*2.4		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2334358-5 BH201-12.11"-13.2"									
Sampled By: ANDREW V. on 21-AUG-19 @ 15:									
Matrix: SOIL									
Saturated Paste Extractables									
Calcium (Ca)	1.31		0.50	mg/L	17-SEP-19				
Magnesium (Mg)	<0.50		0.50	mg/L	17-SEP-19				
Sodium (Na)	198		0.50	mg/L	17-SEP-19				
L2334358-7 BH201-25-27									
Sampled By: ANDREW V. on 21-AUG-19 @ 16:									
Matrix: SOIL						#1	#2		
Physical Tests									
Conductivity	0.553		0.0040	mS/cm	19-SEP-19	*0.47	0.57		
Saturated Paste Extractables									
SAR	4.27		0.10	SAR	19-SEP-19	*1	*2.4		
Calcium (Ca)	15.8		0.50	mg/L	19-SEP-19				
Magnesium (Mg)	4.77		0.50	mg/L	19-SEP-19				
Sodium (Na)	75.5		0.50	mg/L	19-SEP-19				
L2334358-8 MW100-7.5-9.5									
Sampled By: ANDREW V. on 22-AUG-19 @ 08:									
Matrix: SOIL						#1	#2		
Physical Tests									
Conductivity	1.31		0.0040	mS/cm	30-AUG-19	*0.47	*0.57		
% Moisture	6.59		0.10	%	26-AUG-19				
pH	8.28		0.10	pH units	27-AUG-19				
Cyanides									
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	27-AUG-19	0.051	0.051		
Organic / Inorganic Carbon									
Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19				
Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19				
Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19				
Average Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19				
Total Organic Carbon	<0.10		0.10	%	01-SEP-19				
Total Organic Carbon	<0.10		0.10	%	01-SEP-19				
Total Organic Carbon	<0.10		0.10	%	01-SEP-19				
Saturated Paste Extractables									
SAR	65.9	SAR:M	0.10	SAR	30-AUG-19	*1	*2.4		
Calcium (Ca)	1.03		0.50	mg/L	30-AUG-19				
Magnesium (Mg)	<0.50		0.50	mg/L	30-AUG-19				
Sodium (Na)	243		0.50	mg/L	30-AUG-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2334358-8 MW100-7.5-9.5									
Sampled By: ANDREW V. on 22-AUG-19 @ 08:									
Matrix: SOIL									
Metals									
Antimony (Sb)	<1.0		1.0	ug/g	30-AUG-19	1	1.3		
Arsenic (As)	1.2		1.0	ug/g	30-AUG-19	11	18		
Barium (Ba)	8.8		1.0	ug/g	30-AUG-19	210	220		
Beryllium (Be)	<0.50		0.50	ug/g	30-AUG-19	2.5	2.5		
Boron (B)	<5.0		5.0	ug/g	30-AUG-19	36	36		
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	30-AUG-19	36	36		
Cadmium (Cd)	<0.50		0.50	ug/g	30-AUG-19	1	1.2		
Chromium (Cr)	4.9		1.0	ug/g	30-AUG-19	67	70		
Cobalt (Co)	1.4		1.0	ug/g	30-AUG-19	19	21		
Copper (Cu)	4.0		1.0	ug/g	30-AUG-19	62	92		
Lead (Pb)	6.5		1.0	ug/g	30-AUG-19	45	120		
Mercury (Hg)	<0.0050		0.0050	ug/g	30-AUG-19	0.16	0.27		
Molybdenum (Mo)	<1.0		1.0	ug/g	30-AUG-19	2	2		
Nickel (Ni)	3.3		1.0	ug/g	30-AUG-19	37	82		
Selenium (Se)	<1.0		1.0	ug/g	30-AUG-19	1.2	1.5		
Silver (Ag)	<0.20		0.20	ug/g	30-AUG-19	0.5	0.5		
Thallium (Tl)	<0.50		0.50	ug/g	30-AUG-19	1	1		
Uranium (U)	<1.0		1.0	ug/g	30-AUG-19	1.9	2.5		
Vanadium (V)	8.9		1.0	ug/g	30-AUG-19	86	86		
Zinc (Zn)	42.1		5.0	ug/g	30-AUG-19	290	290		
Speciated Metals									
Chromium, Hexavalent	<0.20		0.20	ug/g	28-AUG-19	0.66	0.66		
Volatile Organic Compounds									
Acetone	<0.50		0.50	ug/g	31-AUG-19	0.5	0.5		
Benzene	<0.0068		0.0068	ug/g	31-AUG-19	0.02	0.02		
Bromodichloromethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
Bromoform	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
Bromomethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
Carbon tetrachloride	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
Chlorobenzene	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
Dibromochloromethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
Chloroform	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
1,2-Dibromoethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
1,2-Dichlorobenzene	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
1,3-Dichlorobenzene	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
1,4-Dichlorobenzene	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
Dichlorodifluoromethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
1,1-Dichloroethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
1,2-Dichloroethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
1,1-Dichloroethylene	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
Methylene Chloride	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
1,2-Dichloropropane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05		
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	31-AUG-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2
L2334358-8 MW100-7.5-9.5							
Sampled By: ANDREW V. on 22-AUG-19 @ 08:							
Matrix: SOIL							
Volatile Organic Compounds							
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	31-AUG-19		
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	31-AUG-19	0.05	0.05
Ethylbenzene	<0.018		0.018	ug/g	31-AUG-19	0.05	0.05
n-Hexane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	31-AUG-19	0.5	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	31-AUG-19	0.5	0.5
MTBE	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05
Styrene	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05
Toluene	<0.080		0.080	ug/g	31-AUG-19	0.2	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	31-AUG-19	0.05	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	31-AUG-19	0.05	0.25
Vinyl chloride	<0.020		0.020	ug/g	31-AUG-19	0.02	0.02
o-Xylene	<0.020		0.020	ug/g	31-AUG-19		
m+p-Xylenes	<0.030		0.030	ug/g	31-AUG-19		
Xylenes (Total)	<0.050		0.050	ug/g	31-AUG-19	0.05	0.05
Surrogate: 4-Bromofluorobenzene	88.2		50-140	%	31-AUG-19		
Surrogate: 1,4-Difluorobenzene	107.0		50-140	%	31-AUG-19		
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	04-SEP-19	17	25
F1-BTEX	<5.0		5.0	ug/g	04-SEP-19	17	25
F2 (C10-C16)	<10		10	ug/g	28-AUG-19	10	10
F2-Naphth	<10		10	ug/g	04-SEP-19		
F3 (C16-C34)	<50		50	ug/g	28-AUG-19	240	240
F3-PAH	<50		50	ug/g	04-SEP-19		
F4 (C34-C50)	<50		50	ug/g	28-AUG-19	120	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	04-SEP-19		
Chrom. to baseline at nC50	YES			No Unit	28-AUG-19		
Surrogate: 2-Bromobenzotrifluoride	85.6		60-140	%	28-AUG-19		
Surrogate: 3,4-Dichlorotoluene	85.5		60-140	%	04-SEP-19		
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.072
Acenaphthylene	<0.050		0.050	ug/g	30-AUG-19	0.093	0.093
Anthracene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.16
Benzo(a)anthracene	<0.050		0.050	ug/g	30-AUG-19	0.095	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	30-AUG-19	0.3	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	30-AUG-19	0.2	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.48
Chrysene	<0.050		0.050	ug/g	30-AUG-19	0.18	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	30-AUG-19	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	30-AUG-19	0.24	0.56

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2334358-8 MW100-7.5-9.5							
Sampled By: ANDREW V. on 22-AUG-19 @ 08:							
Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Fluorene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.12
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	30-AUG-19	0.11	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	30-AUG-19	0.05	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	30-AUG-19	0.05	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	30-AUG-19	0.05	0.59
Naphthalene	<0.013		0.013	ug/g	30-AUG-19	0.05	0.09
Phenanthrene	<0.046		0.046	ug/g	30-AUG-19	0.19	0.69
Pyrene	<0.050		0.050	ug/g	30-AUG-19	0.19	1
Surrogate: 2-Fluorobiphenyl	85.5		50-140	%	30-AUG-19		
Surrogate: p-Terphenyl d14	80.0		50-140	%	30-AUG-19		
L2334358-10 MW100-15-17							
Sampled By: ANDREW V. on 22-AUG-19 @ 09:							
Matrix: SOIL						#1	#2
Physical Tests							
Conductivity	1.40		0.0040	mS/cm	17-SEP-19	*0.47	*0.57
Organic / Inorganic Carbon							
Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19		
Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19		
Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19		
Average Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19		
Total Organic Carbon	<0.10		0.10	%	01-SEP-19		
Total Organic Carbon	<0.10		0.10	%	01-SEP-19		
Total Organic Carbon	<0.10		0.10	%	01-SEP-19		
Saturated Paste Extractables							
SAR	16.3		0.10	SAR	17-SEP-19	*1	*2.4
Calcium (Ca)	9.93		0.50	mg/L	17-SEP-19		
Magnesium (Mg)	4.90		0.50	mg/L	17-SEP-19		
Sodium (Na)	251		0.50	mg/L	17-SEP-19		
L2334358-12 BH204-11-12							
Sampled By: ANDREW V. on 22-AUG-19 @ 15:							
Matrix: SOIL						#1	#2
Physical Tests							
Conductivity	0.508		0.0040	mS/cm	03-SEP-19	*0.47	0.57
% Moisture	6.34		0.10	%	26-AUG-19		
pH	8.06		0.10	pH units	29-AUG-19		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2334358-12 BH204-11-12							
Sampled By: ANDREW V. on 22-AUG-19 @ 15::							
Matrix: SOIL							
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	27-AUG-19	0.051	0.051
Organic / Inorganic Carbon							
Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19		
Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19		
Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19		
Average Fraction Organic Carbon	<0.0010		0.0010	No Unit	01-SEP-19		
Total Organic Carbon	<0.10		0.10	%	01-SEP-19		
Total Organic Carbon	<0.10		0.10	%	01-SEP-19		
Total Organic Carbon	<0.10		0.10	%	01-SEP-19		
Saturated Paste Extractables							
SAR	7.51		0.10	SAR	30-AUG-19	*1	*2.4
Calcium (Ca)	6.34		0.50	mg/L	30-AUG-19		
Magnesium (Mg)	1.10		0.50	mg/L	30-AUG-19		
Sodium (Na)	77.9		0.50	mg/L	30-AUG-19		
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	30-AUG-19	1	1.3
Arsenic (As)	1.8		1.0	ug/g	30-AUG-19	11	18
Barium (Ba)	12.2		1.0	ug/g	30-AUG-19	210	220
Beryllium (Be)	<0.50		0.50	ug/g	30-AUG-19	2.5	2.5
Boron (B)	<5.0		5.0	ug/g	30-AUG-19	36	36
Boron (B), Hot Water Ext.	0.12		0.10	ug/g	30-AUG-19	36	36
Cadmium (Cd)	<0.50		0.50	ug/g	30-AUG-19	1	1.2
Chromium (Cr)	6.5		1.0	ug/g	30-AUG-19	67	70
Cobalt (Co)	2.2		1.0	ug/g	30-AUG-19	19	21
Copper (Cu)	5.9		1.0	ug/g	30-AUG-19	62	92
Lead (Pb)	15.4		1.0	ug/g	30-AUG-19	45	120
Mercury (Hg)	<0.0050		0.0050	ug/g	30-AUG-19	0.16	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	30-AUG-19	2	2
Nickel (Ni)	5.0		1.0	ug/g	30-AUG-19	37	82
Selenium (Se)	<1.0		1.0	ug/g	30-AUG-19	1.2	1.5
Silver (Ag)	<0.20		0.20	ug/g	30-AUG-19	0.5	0.5
Thallium (Tl)	<0.50		0.50	ug/g	30-AUG-19	1	1
Uranium (U)	<1.0		1.0	ug/g	30-AUG-19	1.9	2.5
Vanadium (V)	13.8		1.0	ug/g	30-AUG-19	86	86
Zinc (Zn)	53.5		5.0	ug/g	30-AUG-19	290	290
Speciated Metals							

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2		
L2334358-12 BH204-11-12									
Sampled By: ANDREW V. on 22-AUG-19 @ 15::									
Matrix: SOIL									
Speciated Metals									
Chromium, Hexavalent	<0.20		0.20	ug/g	28-AUG-19	0.66	0.66		
Volatile Organic Compounds									
Acetone	<0.50		0.50	ug/g	02-SEP-19	0.5	0.5		
Benzene	<0.0068		0.0068	ug/g	02-SEP-19	0.02	0.02		
Bromodichloromethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Bromoform	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Bromomethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Carbon tetrachloride	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Chlorobenzene	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Dibromochloromethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Chloroform	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,2-Dibromoethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,2-Dichlorobenzene	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,3-Dichlorobenzene	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,4-Dichlorobenzene	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Dichlorodifluoromethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,1-Dichloroethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,2-Dichloroethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,1-Dichloroethylene	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Methylene Chloride	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,2-Dichloropropane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	02-SEP-19				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	02-SEP-19				
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	02-SEP-19	0.05	0.05		
Ethylbenzene	<0.018		0.018	ug/g	02-SEP-19	0.05	0.05		
n-Hexane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Methyl Ethyl Ketone	<0.50		0.50	ug/g	02-SEP-19	0.5	0.5		
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	02-SEP-19	0.5	0.5		
MTBE	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Styrene	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Tetrachloroethylene	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Toluene	<0.080		0.080	ug/g	02-SEP-19	0.2	0.2		
1,1,1-Trichloroethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
1,1,2-Trichloroethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Trichloroethylene	<0.010		0.010	ug/g	02-SEP-19	0.05	0.05		
Trichlorofluoromethane	<0.050		0.050	ug/g	02-SEP-19	0.05	0.25		
Vinyl chloride	<0.020		0.020	ug/g	02-SEP-19	0.02	0.02		
o-Xylene	<0.020		0.020	ug/g	02-SEP-19				
m+p-Xylenes	<0.030		0.030	ug/g	02-SEP-19				
Xylenes (Total)	<0.050		0.050	ug/g	02-SEP-19	0.05	0.05		
Surrogate: 4-Bromofluorobenzene	91.9		50-140	%	02-SEP-19				
Surrogate: 1,4-Difluorobenzene	110.2		50-140	%	02-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2334358-12 BH204-11-12									
Sampled By: ANDREW V. on 22-AUG-19 @ 15:									
Matrix: SOIL									
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	02-SEP-19	17	25		
F1-BTEX	<5.0		5.0	ug/g	02-SEP-19	17	25		
F2 (C10-C16)	<10		10	ug/g	28-AUG-19	10	10		
F2-Naphth	<10		10	ug/g	02-SEP-19				
F3 (C16-C34)	<50		50	ug/g	28-AUG-19	240	240		
F3-PAH	<50		50	ug/g	02-SEP-19				
F4 (C34-C50)	<50		50	ug/g	28-AUG-19	120	120		
Total Hydrocarbons (C6-C50)	<72		72	ug/g	02-SEP-19				
Chrom. to baseline at nC50	YES			No Unit	28-AUG-19				
Surrogate: 2-Bromobenzotrifluoride	84.8		60-140	%	28-AUG-19				
Surrogate: 3,4-Dichlorotoluene	75.5		60-140	%	02-SEP-19				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.072		
Acenaphthylene	<0.050		0.050	ug/g	29-AUG-19	0.093	0.093		
Anthracene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.16		
Benzo(a)anthracene	<0.050		0.050	ug/g	29-AUG-19	0.095	0.36		
Benzo(a)pyrene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.3		
Benzo(b)fluoranthene	<0.050		0.050	ug/g	29-AUG-19	0.3	0.47		
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	29-AUG-19	0.2	0.68		
Benzo(k)fluoranthene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.48		
Chrysene	<0.050		0.050	ug/g	29-AUG-19	0.18	2.8		
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	29-AUG-19	0.1	0.1		
Fluoranthene	<0.050		0.050	ug/g	29-AUG-19	0.24	0.56		
Fluorene	<0.050		0.050	ug/g	29-AUG-19	0.05	0.12		
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	29-AUG-19	0.11	0.23		
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	29-AUG-19	0.05	0.59		
1-Methylnaphthalene	<0.030		0.030	ug/g	29-AUG-19	0.05	0.59		
2-Methylnaphthalene	<0.030		0.030	ug/g	29-AUG-19	0.05	0.59		
Naphthalene	<0.013		0.013	ug/g	29-AUG-19	0.05	0.09		
Phenanthrene	<0.046		0.046	ug/g	29-AUG-19	0.19	0.69		
Pyrene	<0.050		0.050	ug/g	29-AUG-19	0.19	1		
Surrogate: 2-Fluorobiphenyl	104.4		50-140	%	29-AUG-19				
Surrogate: p-Terphenyl d14	97.8		50-140	%	29-AUG-19				
L2334358-14 BH204-15-15.11"									
Sampled By: ANDREW V. on 22-AUG-19 @ 15:									
Matrix: SOIL						#1	#2		
Saturated Paste Extractables									
SAR	6.49		0.10	SAR	17-SEP-19	*1	*2.4		
Calcium (Ca)	4.37		0.50	mg/L	17-SEP-19				
Magnesium (Mg)	1.37		0.50	mg/L	17-SEP-19				
Sodium (Na)	60.7		0.50	mg/L	17-SEP-19				
L2334358-15 BH204-17.5-18.9"									
Sampled By: ANDREW V. on 22-AUG-19 @ 16:									
Matrix: SOIL						#1	#2		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2334358-15 BH204-17.5-18.9"							
Sampled By: ANDREW V. on 22-AUG-19 @ 16:							
Matrix: SOIL							
Saturated Paste Extractables							
SAR	8.40		0.10	SAR	23-SEP-19	*1	*2.4
Calcium (Ca)	3.90		0.50	mg/L	23-SEP-19		
Magnesium (Mg)	0.85		0.50	mg/L	23-SEP-19		
Sodium (Na)	70.2		0.50	mg/L	23-SEP-19		
L2334358-16 TRIP BLANK - 20190822							
Sampled By: ANDREW V. on 22-AUG-19							
Matrix: SOIL						#1	#2
Physical Tests							
% Moisture	<0.10		0.10	%	26-AUG-19		
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	30-AUG-19	0.5	0.5
Benzene	<0.0068		0.0068	ug/g	30-AUG-19	0.02	0.02
Bromodichloromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Bromoform	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Bromomethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Chlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Dibromochloromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Chloroform	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Methylene Chloride	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	30-AUG-19		
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	30-AUG-19		
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-AUG-19	0.05	0.05
Ethylbenzene	<0.018		0.018	ug/g	30-AUG-19	0.05	0.05
n-Hexane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-AUG-19	0.5	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	30-AUG-19	0.5	0.5
MTBE	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Styrene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05
Toluene	<0.080		0.080	ug/g	30-AUG-19	0.2	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2		
L2334358-16 TRIP BLANK - 20190822 Sampled By: ANDREW V. on 22-AUG-19 Matrix: SOIL									
Volatile Organic Compounds									
1,1,2-Trichloroethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Trichloroethylene	<0.010		0.010	ug/g	30-AUG-19	0.05	0.05		
Trichlorofluoromethane	<0.050		0.050	ug/g	30-AUG-19	0.05	0.25		
Vinyl chloride	<0.020		0.020	ug/g	30-AUG-19	0.02	0.02		
o-Xylene	<0.020		0.020	ug/g	30-AUG-19				
m+p-Xylenes	<0.030		0.030	ug/g	30-AUG-19				
Xylenes (Total)	<0.050		0.050	ug/g	30-AUG-19	0.05	0.05		
Surrogate: 4-Bromofluorobenzene	96.4		50-140	%	30-AUG-19				
Surrogate: 1,4-Difluorobenzene	110.2		50-140	%	30-AUG-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
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.

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).

Reference Information

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)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	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.

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).

Reference Information

SAR-R511-WT	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 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).

TOC-R511-WT	Soil	TOC & FOC-O.Reg 153/04 (July 2011)	CARTER 21.3.2

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).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

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:

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	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: L2334358 Report Date: 25-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4778014								
WG3147944-4 DUP		**L2334881-4**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	30-AUG-19
WG3147944-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			89.1		%		70-130	30-AUG-19
WG3147944-3 LCS								
Boron (B), Hot Water Ext.			90.3		%		70-130	30-AUG-19
WG3147944-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	30-AUG-19
Batch R4778084								
WG3147947-4 DUP		**L2334909-8**						
Boron (B), Hot Water Ext.		0.61	0.42	J	ug/g	0.18	0.2	30-AUG-19
WG3147947-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			96.4		%		70-130	30-AUG-19
WG3147947-3 LCS								
Boron (B), Hot Water Ext.			92.7		%		70-130	30-AUG-19
WG3147947-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	30-AUG-19
Batch R4778708								
WG3148173-4 DUP		**L2335221-1**						
Boron (B), Hot Water Ext.		0.10	<0.10	RPD-NA	ug/g	N/A	30	30-AUG-19
WG3148173-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			108.2		%		70-130	30-AUG-19
WG3148173-3 LCS								
Boron (B), Hot Water Ext.			87.0		%		70-130	30-AUG-19
WG3148173-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	30-AUG-19
CN-WAD-R511-WT	**Soil**							
Batch R4769677								
WG3143125-3 DUP		**L2334162-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	27-AUG-19
WG3143125-2 LCS								
Cyanide, Weak Acid Diss			100.2		%		80-120	27-AUG-19
WG3143125-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	27-AUG-19
WG3143125-4 MS		**L2334162-1**						
Cyanide, Weak Acid Diss			99.0		%		70-130	27-AUG-19
CR-CR6-IC-WT	**Soil**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT	**Soil**							
Batch R4776371								
WG3144604-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			93.1		%		70-130	28-AUG-19
WG3144943-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			108.7		%		70-130	28-AUG-19
WG3144604-3 DUP		**L2334881-10**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	28-AUG-19
WG3144943-3 DUP		**L2335834-1**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	28-AUG-19
WG3144604-2 LCS								
Chromium, Hexavalent			90.0		%		80-120	28-AUG-19
WG3144943-2 LCS								
Chromium, Hexavalent			96.2		%		80-120	28-AUG-19
WG3144604-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	28-AUG-19
WG3144943-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	28-AUG-19
EC-WT	**Soil**							
Batch R4778062								
WG3147952-4 DUP		**WG3147952-3**						
Conductivity		0.270	0.278		mS/cm	2.9	20	30-AUG-19
WG3147952-2 IRM		**WT SAR3**						
Conductivity			96.1		%		70-130	30-AUG-19
WG3148323-1 LCS								
Conductivity			98.4		%		90-110	30-AUG-19
WG3147952-1 MB								
Conductivity			<0.0040		mS/cm		0.004	30-AUG-19
Batch R4778331								
WG3147953-4 DUP		**WG3147953-3**						
Conductivity		0.755	0.782		mS/cm	3.5	20	30-AUG-19
WG3147953-2 IRM		**WT SAR3**						
Conductivity			94.2		%		70-130	30-AUG-19
WG3148320-1 LCS								
Conductivity			98.4		%		90-110	30-AUG-19
WG3147953-1 MB								
Conductivity			<0.0040		mS/cm		0.004	30-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4781750								
WG3148157-4 DUP		**WG3148157-3**						
Conductivity		0.0769	0.0905		mS/cm	16	20	03-SEP-19
WG3148157-2 IRM		**WT SAR3**						
Conductivity			121.7		%		70-130	03-SEP-19
WG3150148-1 LCS								
Conductivity			101.3		%		90-110	03-SEP-19
WG3148157-1 MB								
Conductivity			<0.0040		mS/cm		0.004	03-SEP-19
Batch R4815848								
WG3163992-4 DUP		**WG3163992-3**						
Conductivity		0.116	0.120		mS/cm	3.3	20	17-SEP-19
WG3163992-2 IRM		**WT SAR3**						
Conductivity			84.1		%		70-130	17-SEP-19
WG3164224-1 LCS								
Conductivity			98.1		%		90-110	17-SEP-19
WG3163992-1 MB								
Conductivity			<0.0040		mS/cm		0.004	17-SEP-19
Batch R4823598								
WG3166637-4 DUP		**WG3166637-3**						
Conductivity		0.553	0.547		mS/cm	1.1	20	19-SEP-19
WG3166637-2 IRM		**WT SAR3**						
Conductivity			89.8		%		70-130	19-SEP-19
WG3166867-1 LCS								
Conductivity			101.1		%		90-110	19-SEP-19
WG3166637-1 MB								
Conductivity			<0.0040		mS/cm		0.004	19-SEP-19
F1-HS-511-WT	**Soil**							
Batch R4778742								
WG3145214-4 DUP		**WG3145214-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	30-AUG-19
WG3145214-2 LCS								
F1 (C6-C10)			105.5		%		80-120	30-AUG-19
WG3145214-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	30-AUG-19
Surrogate: 3,4-Dichlorotoluene			83.9		%		60-140	30-AUG-19
WG3145214-6 MS		**L2334358-3**						
F1 (C6-C10)			95.6		%		60-140	30-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4780049								
WG3145355-4 DUP		**WG3145355-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	02-SEP-19
WG3145355-2 LCS								
F1 (C6-C10)			108.9		%		80-120	02-SEP-19
WG3145355-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	02-SEP-19
Surrogate: 3,4-Dichlorotoluene			100.9		%		60-140	02-SEP-19
WG3145355-6 MS		**L2334897-5**						
F1 (C6-C10)			99.0		%		60-140	02-SEP-19
F2-F4-511-WT	**Soil**							
Batch R4775311								
WG3143004-3 DUP		**WG3143004-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	28-AUG-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	28-AUG-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	28-AUG-19
WG3143004-2 LCS								
F2 (C10-C16)			94.1		%		80-120	28-AUG-19
F3 (C16-C34)			99.7		%		80-120	28-AUG-19
F4 (C34-C50)			93.9		%		80-120	28-AUG-19
WG3143004-1 MB								
F2 (C10-C16)			<10		ug/g		10	28-AUG-19
F3 (C16-C34)			<50		ug/g		50	28-AUG-19
F4 (C34-C50)			<50		ug/g		50	28-AUG-19
Surrogate: 2-Bromobenzotrifluoride			77.6		%		60-140	28-AUG-19
WG3143004-4 MS		**WG3143004-5**						
F2 (C10-C16)			94.3		%		60-140	28-AUG-19
F3 (C16-C34)			102.5		%		60-140	28-AUG-19
F4 (C34-C50)			95.6		%		60-140	28-AUG-19
F4G-ADD-511-WT	**Soil**							
Batch R4778026								
WG3148377-2 LCS								
F4G-SG (GHH-Silica)			72.6		%		60-140	28-AUG-19
WG3148377-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	28-AUG-19
HG-200.2-CVAA-WT	**Soil**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R4778360								
WG3147914-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			91.9		%		70-130	30-AUG-19
WG3147914-6 DUP		**WG3147914-5**						
Mercury (Hg)		0.0061	0.0061		ug/g	1.2	40	30-AUG-19
WG3147914-3 LCS								
Mercury (Hg)			99.5		%		80-120	30-AUG-19
WG3147914-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4780329								
WG3147914-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			97.1		%		70-130	30-AUG-19
Arsenic (As)			92.7		%		70-130	30-AUG-19
Barium (Ba)			93.0		%		70-130	30-AUG-19
Beryllium (Be)			89.8		%		70-130	30-AUG-19
Boron (B)			2.4		mg/kg		0-8.2	30-AUG-19
Cadmium (Cd)			92.5		%		70-130	30-AUG-19
Chromium (Cr)			93.3		%		70-130	30-AUG-19
Cobalt (Co)			92.0		%		70-130	30-AUG-19
Copper (Cu)			94.1		%		70-130	30-AUG-19
Lead (Pb)			92.2		%		70-130	30-AUG-19
Molybdenum (Mo)			93.3		%		70-130	30-AUG-19
Nickel (Ni)			92.0		%		70-130	30-AUG-19
Selenium (Se)			0.27		mg/kg		0.11-0.51	30-AUG-19
Silver (Ag)			0.22		mg/kg		0.13-0.33	30-AUG-19
Thallium (Tl)			0.113		mg/kg		0.077-0.18	30-AUG-19
Uranium (U)			92.8		%		70-130	30-AUG-19
Vanadium (V)			91.3		%		70-130	30-AUG-19
Zinc (Zn)			88.6		%		70-130	30-AUG-19
WG3147914-6 DUP		**WG3147914-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	30-AUG-19
Arsenic (As)		1.13	0.99		ug/g	13	30	30-AUG-19
Barium (Ba)		10.0	9.05		ug/g	10	40	30-AUG-19
Beryllium (Be)		0.12	0.12		ug/g	0.3	30	30-AUG-19
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	30-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4780329								
WG3147914-6 DUP		**WG3147914-5**						
Cadmium (Cd)		0.054	0.046		ug/g	16	30	30-AUG-19
Chromium (Cr)		5.10	4.49		ug/g	13	30	30-AUG-19
Cobalt (Co)		1.60	1.40		ug/g	13	30	30-AUG-19
Copper (Cu)		2.85	2.59		ug/g	9.4	30	30-AUG-19
Lead (Pb)		4.00	3.77		ug/g	6.0	40	30-AUG-19
Molybdenum (Mo)		0.11	0.11		ug/g	1.0	40	30-AUG-19
Nickel (Ni)		3.35	3.13		ug/g	6.7	30	30-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	30-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	30-AUG-19
Thallium (Tl)		<0.050	<0.050	RPD-NA	ug/g	N/A	30	30-AUG-19
Uranium (U)		0.279	0.228		ug/g	20	30	30-AUG-19
Vanadium (V)		12.5	9.67		ug/g	26	30	30-AUG-19
Zinc (Zn)		22.1	19.9		ug/g	10	30	30-AUG-19
WG3147914-4 LCS								
Antimony (Sb)			102.5		%		80-120	30-AUG-19
Arsenic (As)			97.8		%		80-120	30-AUG-19
Barium (Ba)			99.4		%		80-120	30-AUG-19
Beryllium (Be)			94.1		%		80-120	30-AUG-19
Boron (B)			88.2		%		80-120	30-AUG-19
Cadmium (Cd)			97.4		%		80-120	30-AUG-19
Chromium (Cr)			96.6		%		80-120	30-AUG-19
Cobalt (Co)			94.6		%		80-120	30-AUG-19
Copper (Cu)			93.8		%		80-120	30-AUG-19
Lead (Pb)			96.4		%		80-120	30-AUG-19
Molybdenum (Mo)			102.3		%		80-120	30-AUG-19
Nickel (Ni)			94.4		%		80-120	30-AUG-19
Selenium (Se)			96.3		%		80-120	30-AUG-19
Silver (Ag)			90.5		%		80-120	30-AUG-19
Thallium (Tl)			93.4		%		80-120	30-AUG-19
Uranium (U)			97.1		%		80-120	30-AUG-19
Vanadium (V)			97.0		%		80-120	30-AUG-19
Zinc (Zn)			92.6		%		80-120	30-AUG-19
WG3147914-1 MB								
							0.1	

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4780329								
WG3147914-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	30-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	30-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	30-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	30-AUG-19
Boron (B)			<5.0		mg/kg		5	30-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	30-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	30-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	30-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	30-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	30-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	30-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	30-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	30-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	30-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	30-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	30-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	30-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	30-AUG-19
MOISTURE-WT	**Soil**							
Batch R4768377								
WG3143001-3 DUP		**L2334389-9**						
% Moisture		8.47	8.07		%	4.8	20	26-AUG-19
WG3143001-2 LCS								
% Moisture			99.95		%		90-110	26-AUG-19
WG3143001-1 MB								
% Moisture			<0.10		%		0.1	26-AUG-19
Batch R4768382								
WG3143027-3 DUP		**L2334805-2**						
% Moisture		5.35	5.38		%	0.5	20	26-AUG-19
WG3143027-2 LCS								
% Moisture			100.5		%		90-110	26-AUG-19
WG3143027-1 MB								
% Moisture			<0.10		%		0.1	26-AUG-19
PAH-511-WT	**Soil**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4775768								
WG3141307-3 DUP		**WG3141307-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	29-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	29-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
WG3141307-2 LCS								
1-Methylnaphthalene			118.7		%		50-140	29-AUG-19
2-Methylnaphthalene			112.1		%		50-140	29-AUG-19
Acenaphthene			120.0		%		50-140	29-AUG-19
Acenaphthylene			118.6		%		50-140	29-AUG-19
Anthracene			117.8		%		50-140	29-AUG-19
Benzo(a)anthracene			116.8		%		50-140	29-AUG-19
Benzo(a)pyrene			111.9		%		50-140	29-AUG-19
Benzo(b)fluoranthene			124.3		%		50-140	29-AUG-19
Benzo(g,h,i)perylene			110.1		%		50-140	29-AUG-19
Benzo(k)fluoranthene			109.8		%		50-140	29-AUG-19
Chrysene			126.6		%		50-140	29-AUG-19
Dibenzo(ah)anthracene			108.6		%		50-140	29-AUG-19
Fluoranthene			113.3		%		50-140	29-AUG-19
Fluorene			116.6		%		50-140	29-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4775768								
WG3141307-2 LCS								
Indeno(1,2,3-cd)pyrene			98.5		%		50-140	29-AUG-19
Naphthalene			117.2		%		50-140	29-AUG-19
Phenanthrene			120.8		%		50-140	29-AUG-19
Pyrene			113.1		%		50-140	29-AUG-19
WG3141307-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	29-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	29-AUG-19
Acenaphthene			<0.050		ug/g		0.05	29-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	29-AUG-19
Anthracene			<0.050		ug/g		0.05	29-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	29-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	29-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	29-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	29-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	29-AUG-19
Chrysene			<0.050		ug/g		0.05	29-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	29-AUG-19
Fluoranthene			<0.050		ug/g		0.05	29-AUG-19
Fluorene			<0.050		ug/g		0.05	29-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	29-AUG-19
Naphthalene			<0.013		ug/g		0.013	29-AUG-19
Phenanthrene			<0.046		ug/g		0.046	29-AUG-19
Pyrene			<0.050		ug/g		0.05	29-AUG-19
Surrogate: 2-Fluorobiphenyl			96.9		%		50-140	29-AUG-19
Surrogate: p-Terphenyl d14			86.7		%		50-140	29-AUG-19
WG3141307-4 MS		**WG3141307-5**						
1-Methylnaphthalene			100.8		%		50-140	29-AUG-19
2-Methylnaphthalene			95.2		%		50-140	29-AUG-19
Acenaphthene			102.7		%		50-140	29-AUG-19
Acenaphthylene			101.6		%		50-140	29-AUG-19
Anthracene			99.6		%		50-140	29-AUG-19
Benzo(a)anthracene			101.0		%		50-140	29-AUG-19
Benzo(a)pyrene			96.3		%		50-140	29-AUG-19
Benzo(b)fluoranthene			109.4		%		50-140	29-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4775768								
WG3141307-4 MS		**WG3141307-5**						
Benzo(g,h,i)perylene			89.8		%		50-140	29-AUG-19
Benzo(k)fluoranthene			91.8		%		50-140	29-AUG-19
Chrysene			106.8		%		50-140	29-AUG-19
Dibenzo(ah)anthracene			89.5		%		50-140	29-AUG-19
Fluoranthene			99.5		%		50-140	29-AUG-19
Fluorene			99.5		%		50-140	29-AUG-19
Indeno(1,2,3-cd)pyrene			87.8		%		50-140	29-AUG-19
Naphthalene			99.2		%		50-140	29-AUG-19
Phenanthrene			102.0		%		50-140	29-AUG-19
Pyrene			99.6		%		50-140	29-AUG-19
PH-WT	**Soil**							
Batch R4769711								
WG3143009-1 DUP		**L2334162-2**						
pH		7.76	7.80	J	pH units	0.04	0.3	27-AUG-19
WG3144243-1 LCS								
pH			6.99		pH units		6.9-7.1	27-AUG-19
Batch R4777491								
WG3144422-1 DUP		**L2334863-9**						
pH		6.58	6.29	J	pH units	0.29	0.3	29-AUG-19
WG3146779-1 LCS								
pH			6.96		pH units		6.9-7.1	29-AUG-19
SAR-R511-WT	**Soil**							
Batch R4778088								
WG3147952-4 DUP		**WG3147952-3**						
Calcium (Ca)		30.4	27.9		mg/L	8.6	30	30-AUG-19
Sodium (Na)		13.6	14.0		mg/L	2.9	30	30-AUG-19
Magnesium (Mg)		1.65	1.55		mg/L	6.3	30	30-AUG-19
WG3147952-2 IRM		**WT SAR3**						
Calcium (Ca)			94.9		%		70-130	30-AUG-19
Sodium (Na)			107.8		%		70-130	30-AUG-19
Magnesium (Mg)			97.8		%		70-130	30-AUG-19
WG3147952-5 LCS								
Calcium (Ca)			103.0		%		70-130	30-AUG-19
Sodium (Na)			99.4		%		70-130	30-AUG-19
Magnesium (Mg)			98.8		%		70-130	30-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4778088								
WG3147952-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	30-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	30-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	30-AUG-19
Batch R4778108								
WG3147953-4 DUP		**WG3147953-3**						
Calcium (Ca)		5.33	5.77		mg/L	7.9	30	30-AUG-19
Sodium (Na)		156	153		mg/L	1.9	30	30-AUG-19
Magnesium (Mg)		3.15	4.24		mg/L	29	30	30-AUG-19
WG3147953-2 IRM		**WT SAR3**						
Calcium (Ca)			87.0		%		70-130	30-AUG-19
Sodium (Na)			96.2		%		70-130	30-AUG-19
Magnesium (Mg)			91.4		%		70-130	30-AUG-19
WG3147953-5 LCS								
Calcium (Ca)			103.7		%		70-130	30-AUG-19
Sodium (Na)			99.8		%		70-130	30-AUG-19
Magnesium (Mg)			98.8		%		70-130	30-AUG-19
WG3147953-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	30-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	30-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	30-AUG-19
Batch R4778723								
WG3148157-4 DUP		**WG3148157-3**						
Calcium (Ca)		1.84	1.52		mg/L	19	30	30-AUG-19
Sodium (Na)		7.24	6.35		mg/L	13	30	30-AUG-19
Magnesium (Mg)		0.55	0.59		mg/L	7.0	30	30-AUG-19
WG3148157-2 IRM		**WT SAR3**						
Calcium (Ca)			90.4		%		70-130	30-AUG-19
Sodium (Na)			102.4		%		70-130	30-AUG-19
Magnesium (Mg)			95.2		%		70-130	30-AUG-19
WG3148157-5 LCS								
Calcium (Ca)			109.3		%		70-130	30-AUG-19
Sodium (Na)			104.2		%		70-130	30-AUG-19
Magnesium (Mg)			103.8		%		70-130	30-AUG-19
WG3148157-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	30-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4778723								
WG3148157-1 MB								
Sodium (Na)			<0.50		mg/L		0.5	30-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	30-AUG-19
Batch R4815928								
WG3163992-4 DUP		**WG3163992-3**						
Calcium (Ca)		12.8	12.5		mg/L	2.4	30	17-SEP-19
Sodium (Na)		9.91	8.78		mg/L	12	30	17-SEP-19
Magnesium (Mg)		1.26	1.23		mg/L	2.4	30	17-SEP-19
WG3163992-2 IRM		**WT SAR3**						
Calcium (Ca)			76.2		%		70-130	17-SEP-19
Sodium (Na)			95.4		%		70-130	17-SEP-19
Magnesium (Mg)			84.9		%		70-130	17-SEP-19
WG3163992-5 LCS								
Calcium (Ca)			106.7		%		70-130	17-SEP-19
Sodium (Na)			104.6		%		70-130	17-SEP-19
Magnesium (Mg)			105.8		%		70-130	17-SEP-19
WG3163992-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	17-SEP-19
Sodium (Na)			<0.50		mg/L		0.5	17-SEP-19
Magnesium (Mg)			<0.50		mg/L		0.5	17-SEP-19
Batch R4823616								
WG3166637-4 DUP		**WG3166637-3**						
Calcium (Ca)		16.1	15.8		mg/L	1.9	30	19-SEP-19
Sodium (Na)		76.8	75.5		mg/L	1.7	30	19-SEP-19
Magnesium (Mg)		4.89	4.77		mg/L	2.5	30	19-SEP-19
WG3166637-2 IRM		**WT SAR3**						
Calcium (Ca)			74.7		%		70-130	19-SEP-19
Sodium (Na)			96.2		%		70-130	19-SEP-19
Magnesium (Mg)			85.5		%		70-130	19-SEP-19
WG3166637-5 LCS								
Calcium (Ca)			104.0		%		70-130	19-SEP-19
Sodium (Na)			99.2		%		70-130	19-SEP-19
Magnesium (Mg)			103.0		%		70-130	19-SEP-19
WG3166637-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	19-SEP-19
Sodium (Na)			<0.50		mg/L		0.5	19-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4823616								
WG3166637-1 MB								
Magnesium (Mg)			<0.50		mg/L		0.5	19-SEP-19
Batch R4832793								
WG3169506-4 DUP		**WG3169506-3**						
Calcium (Ca)		14.4	14.0		mg/L	2.8	30	23-SEP-19
Sodium (Na)		37.5	37.7		mg/L	0.5	30	23-SEP-19
Magnesium (Mg)		2.63	2.54		mg/L	3.5	30	23-SEP-19
WG3169506-2 IRM		**WT SAR3**						
Calcium (Ca)			77.8		%		70-130	23-SEP-19
Sodium (Na)			100.1		%		70-130	23-SEP-19
Magnesium (Mg)			89.2		%		70-130	23-SEP-19
WG3169506-5 LCS								
Calcium (Ca)			106.7		%		70-130	23-SEP-19
Sodium (Na)			102.8		%		70-130	23-SEP-19
Magnesium (Mg)			105.2		%		70-130	23-SEP-19
WG3169506-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	23-SEP-19
Sodium (Na)			<0.50		mg/L		0.5	23-SEP-19
Magnesium (Mg)			<0.50		mg/L		0.5	23-SEP-19
TOC-R511-WT	**Soil**							
Batch R4779768								
WG3149754-3 CRM		**WT-TOC-CRM**						
Total Organic Carbon			97.7		%		70-130	01-SEP-19
WG3149754-4 DUP		**L2330748-1**						
Total Organic Carbon		<0.10	<0.10	RPD-NA	%	N/A	35	01-SEP-19
WG3149754-2 LCS								
Total Organic Carbon			104.1		%		80-120	01-SEP-19
Total Organic Carbon			104.1		%		80-120	01-SEP-19
Total Organic Carbon			104.1		%		80-120	01-SEP-19
WG3149754-1 MB								
Total Organic Carbon			<0.10		%		0.1	01-SEP-19
VOC-511-HS-WT	**Soil**							
Batch R4778742								
WG3145214-4 DUP		**WG3145214-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4778742								
WG3145214-4 DUP		**WG3145214-3**						
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	30-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	30-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	30-AUG-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	30-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	30-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	30-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Tetrachloroethylene		<0.050	<0.050		ug/g			30-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4778742								
WG3145214-4 DUP		**WG3145214-3**						
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	30-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	30-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	30-AUG-19
WG3145214-2 LCS								
1,1,1,2-Tetrachloroethane			114.0		%		60-130	30-AUG-19
1,1,2,2-Tetrachloroethane			106.0		%		60-130	30-AUG-19
1,1,1-Trichloroethane			116.3		%		60-130	30-AUG-19
1,1,2-Trichloroethane			108.0		%		60-130	30-AUG-19
1,1-Dichloroethane			105.9		%		60-130	30-AUG-19
1,1-Dichloroethylene			107.2		%		60-130	30-AUG-19
1,2-Dibromoethane			108.5		%		70-130	30-AUG-19
1,2-Dichlorobenzene			104.6		%		70-130	30-AUG-19
1,2-Dichloroethane			116.1		%		60-130	30-AUG-19
1,2-Dichloropropane			104.7		%		70-130	30-AUG-19
1,3-Dichlorobenzene			101.6		%		70-130	30-AUG-19
1,4-Dichlorobenzene			101.2		%		70-130	30-AUG-19
Acetone			123.4		%		60-140	30-AUG-19
Benzene			109.5		%		70-130	30-AUG-19
Bromodichloromethane			115.3		%		50-140	30-AUG-19
Bromoform			116.5		%		70-130	30-AUG-19
Bromomethane			98.1		%		50-140	30-AUG-19
Carbon tetrachloride			120.0		%		70-130	30-AUG-19
Chlorobenzene			102.5		%		70-130	30-AUG-19
Chloroform			115.3		%		70-130	30-AUG-19
cis-1,2-Dichloroethylene			106.8		%		70-130	30-AUG-19
cis-1,3-Dichloropropene			98.2		%		70-130	30-AUG-19
Dibromochloromethane			112.7		%		60-130	30-AUG-19
Dichlorodifluoromethane			79.6		%		50-140	30-AUG-19
Ethylbenzene			102.0		%		70-130	30-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4778742								
WG3145214-2 LCS								
n-Hexane			99.5		%		70-130	30-AUG-19
Methylene Chloride			99.2		%		70-130	30-AUG-19
MTBE			109.3		%		70-130	30-AUG-19
m+p-Xylenes			102.9		%		70-130	30-AUG-19
Methyl Ethyl Ketone			97.1		%		60-140	30-AUG-19
Methyl Isobutyl Ketone			105.9		%		60-140	30-AUG-19
o-Xylene			103.4		%		70-130	30-AUG-19
Styrene			99.98		%		70-130	30-AUG-19
Tetrachloroethylene			110.9		%		60-130	30-AUG-19
Toluene			101.9		%		70-130	30-AUG-19
trans-1,2-Dichloroethylene			102.4		%		60-130	30-AUG-19
trans-1,3-Dichloropropene			94.5		%		70-130	30-AUG-19
Trichloroethylene			106.5		%		60-130	30-AUG-19
Trichlorofluoromethane			118.9		%		50-140	30-AUG-19
Vinyl chloride			114.8		%		60-140	30-AUG-19
WG3145214-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	30-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	30-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	30-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	30-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	30-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	30-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	30-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	30-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	30-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	30-AUG-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	30-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	30-AUG-19
Acetone			<0.50		ug/g		0.5	30-AUG-19
Benzene			<0.0068		ug/g		0.0068	30-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	30-AUG-19
Bromoform			<0.050		ug/g		0.05	30-AUG-19
Bromomethane			<0.050		ug/g		0.05	30-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	30-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4778742								
WG3145214-1 MB								
Chlorobenzene			<0.050		ug/g		0.05	30-AUG-19
Chloroform			<0.050		ug/g		0.05	30-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	30-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	30-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	30-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	30-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	30-AUG-19
n-Hexane			<0.050		ug/g		0.05	30-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	30-AUG-19
MTBE			<0.050		ug/g		0.05	30-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	30-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	30-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	30-AUG-19
o-Xylene			<0.020		ug/g		0.02	30-AUG-19
Styrene			<0.050		ug/g		0.05	30-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	30-AUG-19
Toluene			<0.080		ug/g		0.08	30-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	30-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	30-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	30-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	30-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	30-AUG-19
Surrogate: 1,4-Difluorobenzene			116.1		%		50-140	30-AUG-19
Surrogate: 4-Bromofluorobenzene			100.2		%		50-140	30-AUG-19
WG3145214-5 MS		**L2334358-1**						
1,1,1,2-Tetrachloroethane			104.2		%		50-140	31-AUG-19
1,1,2,2-Tetrachloroethane			95.8		%		50-140	31-AUG-19
1,1,1-Trichloroethane			112.4		%		50-140	31-AUG-19
1,1,2-Trichloroethane			97.9		%		50-140	31-AUG-19
1,1-Dichloroethane			102.4		%		50-140	31-AUG-19
1,1-Dichloroethylene			102.5		%		50-140	31-AUG-19
1,2-Dibromoethane			94.7		%		50-140	31-AUG-19
1,2-Dichlorobenzene			105.6		%		50-140	31-AUG-19
1,2-Dichloroethane			100.4		%		50-140	31-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4778742								
WG3145214-5 MS		**L2334358-1**						
1,2-Dichloropropane			105.0		%		50-140	31-AUG-19
1,3-Dichlorobenzene			104.4		%		50-140	31-AUG-19
1,4-Dichlorobenzene			106.4		%		50-140	31-AUG-19
Acetone			90.0		%		50-140	31-AUG-19
Benzene			110.8		%		50-140	31-AUG-19
Bromodichloromethane			109.2		%		50-140	31-AUG-19
Bromoform			102.3		%		50-140	31-AUG-19
Bromomethane			90.3		%		50-140	31-AUG-19
Carbon tetrachloride			117.5		%		50-140	31-AUG-19
Chlorobenzene			106.3		%		50-140	31-AUG-19
Chloroform			109.6		%		50-140	31-AUG-19
cis-1,2-Dichloroethylene			102.6		%		50-140	31-AUG-19
cis-1,3-Dichloropropene			94.3		%		50-140	31-AUG-19
Dibromochloromethane			98.9		%		50-140	31-AUG-19
Dichlorodifluoromethane			87.5		%		50-140	31-AUG-19
Ethylbenzene			98.8		%		50-140	31-AUG-19
n-Hexane			96.0		%		50-140	31-AUG-19
Methylene Chloride			104.1		%		50-140	31-AUG-19
MTBE			105.5		%		50-140	31-AUG-19
m+p-Xylenes			102.4		%		50-140	31-AUG-19
Methyl Ethyl Ketone			79.9		%		50-140	31-AUG-19
Methyl Isobutyl Ketone			81.7		%		50-140	31-AUG-19
o-Xylene			98.4		%		50-140	31-AUG-19
Styrene			99.7		%		50-140	31-AUG-19
Tetrachloroethylene			107.5		%		50-140	31-AUG-19
Toluene			102.7		%		50-140	31-AUG-19
trans-1,2-Dichloroethylene			101.3		%		50-140	31-AUG-19
trans-1,3-Dichloropropene			83.3		%		50-140	31-AUG-19
Trichloroethylene			114.5		%		50-140	31-AUG-19
Trichlorofluoromethane			110.6		%		50-140	31-AUG-19
Vinyl chloride			108.7		%		50-140	31-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4780049								
WG3145355-4 DUP		**WG3145355-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	02-SEP-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	02-SEP-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-SEP-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	02-SEP-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-SEP-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	02-SEP-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	02-SEP-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-SEP-19
Styrene		<0.050	<0.050		ug/g			02-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4780049								
WG3145355-4 DUP		**WG3145355-3**						
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	02-SEP-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-SEP-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	02-SEP-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-SEP-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-SEP-19
WG3145355-2 LCS								
1,1,1,2-Tetrachloroethane			96.1		%		60-130	02-SEP-19
1,1,2,2-Tetrachloroethane			101.2		%		60-130	02-SEP-19
1,1,1-Trichloroethane			99.6		%		60-130	02-SEP-19
1,1,2-Trichloroethane			98.9		%		60-130	02-SEP-19
1,1-Dichloroethane			97.7		%		60-130	02-SEP-19
1,1-Dichloroethylene			92.2		%		60-130	02-SEP-19
1,2-Dibromoethane			98.7		%		70-130	02-SEP-19
1,2-Dichlorobenzene			99.8		%		70-130	02-SEP-19
1,2-Dichloroethane			107.6		%		60-130	02-SEP-19
1,2-Dichloropropane			104.2		%		70-130	02-SEP-19
1,3-Dichlorobenzene			96.3		%		70-130	02-SEP-19
1,4-Dichlorobenzene			100.7		%		70-130	02-SEP-19
Acetone			102.3		%		60-140	02-SEP-19
Benzene			104.4		%		70-130	02-SEP-19
Bromodichloromethane			109.5		%		50-140	02-SEP-19
Bromoform			106.8		%		70-130	02-SEP-19
Bromomethane			90.7		%		50-140	02-SEP-19
Carbon tetrachloride			104.1		%		70-130	02-SEP-19
Chlorobenzene			99.0		%		70-130	02-SEP-19
Chloroform			105.1		%		70-130	02-SEP-19
cis-1,2-Dichloroethylene			99.9		%		70-130	02-SEP-19
cis-1,3-Dichloropropene			110.9		%		70-130	02-SEP-19
Dibromochloromethane			98.1		%		60-130	02-SEP-19
Dichlorodifluoromethane			68.8		%		50-140	02-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4780049								
WG3145355-2 LCS								
Ethylbenzene			87.4		%		70-130	02-SEP-19
n-Hexane			82.2		%		70-130	02-SEP-19
Methylene Chloride			104.7		%		70-130	02-SEP-19
MTBE			100.7		%		70-130	02-SEP-19
m+p-Xylenes			91.3		%		70-130	02-SEP-19
Methyl Ethyl Ketone			101.5		%		60-140	02-SEP-19
Methyl Isobutyl Ketone			101.0		%		60-140	02-SEP-19
o-Xylene			88.4		%		70-130	02-SEP-19
Styrene			93.3		%		70-130	02-SEP-19
Tetrachloroethylene			95.7		%		60-130	02-SEP-19
Toluene			92.2		%		70-130	02-SEP-19
trans-1,2-Dichloroethylene			98.3		%		60-130	02-SEP-19
trans-1,3-Dichloropropene			100.2		%		70-130	02-SEP-19
Trichloroethylene			105.8		%		60-130	02-SEP-19
Trichlorofluoromethane			96.0		%		50-140	02-SEP-19
Vinyl chloride			97.4		%		60-140	02-SEP-19
WG3145355-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	02-SEP-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	02-SEP-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	02-SEP-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	02-SEP-19
1,1-Dichloroethane			<0.050		ug/g		0.05	02-SEP-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	02-SEP-19
1,2-Dibromoethane			<0.050		ug/g		0.05	02-SEP-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	02-SEP-19
1,2-Dichloroethane			<0.050		ug/g		0.05	02-SEP-19
1,2-Dichloropropane			<0.050		ug/g		0.05	02-SEP-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	02-SEP-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	02-SEP-19
Acetone			<0.50		ug/g		0.5	02-SEP-19
Benzene			<0.0068		ug/g		0.0068	02-SEP-19
Bromodichloromethane			<0.050		ug/g		0.05	02-SEP-19
Bromoform			<0.050		ug/g		0.05	02-SEP-19
Bromomethane			<0.050		ug/g		0.05	02-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4780049								
WG3145355-1 MB								
Carbon tetrachloride			<0.050		ug/g		0.05	02-SEP-19
Chlorobenzene			<0.050		ug/g		0.05	02-SEP-19
Chloroform			<0.050		ug/g		0.05	02-SEP-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	02-SEP-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	02-SEP-19
Dibromochloromethane			<0.050		ug/g		0.05	02-SEP-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	02-SEP-19
Ethylbenzene			<0.018		ug/g		0.018	02-SEP-19
n-Hexane			<0.050		ug/g		0.05	02-SEP-19
Methylene Chloride			<0.050		ug/g		0.05	02-SEP-19
MTBE			<0.050		ug/g		0.05	02-SEP-19
m+p-Xylenes			<0.030		ug/g		0.03	02-SEP-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	02-SEP-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	02-SEP-19
o-Xylene			<0.020		ug/g		0.02	02-SEP-19
Styrene			<0.050		ug/g		0.05	02-SEP-19
Tetrachloroethylene			<0.050		ug/g		0.05	02-SEP-19
Toluene			<0.080		ug/g		0.08	02-SEP-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	02-SEP-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	02-SEP-19
Trichloroethylene			<0.010		ug/g		0.01	02-SEP-19
Trichlorofluoromethane			<0.050		ug/g		0.05	02-SEP-19
Vinyl chloride			<0.020		ug/g		0.02	02-SEP-19
Surrogate: 1,4-Difluorobenzene			113.8		%		50-140	02-SEP-19
Surrogate: 4-Bromofluorobenzene			93.3		%		50-140	02-SEP-19
WG3145355-5 MS		**L2334162-3**						
1,1,1,2-Tetrachloroethane			97.1		%		50-140	02-SEP-19
1,1,2,2-Tetrachloroethane			99.6		%		50-140	02-SEP-19
1,1,1-Trichloroethane			99.8		%		50-140	02-SEP-19
1,1,2-Trichloroethane			99.2		%		50-140	02-SEP-19
1,1-Dichloroethane			97.4		%		50-140	02-SEP-19
1,1-Dichloroethylene			92.5		%		50-140	02-SEP-19
1,2-Dibromoethane			99.5		%		50-140	02-SEP-19
1,2-Dichlorobenzene			99.6		%		50-140	02-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4780049								
WG3145355-5 MS		**L2334162-3**						
1,2-Dichloroethane			105.8		%		50-140	02-SEP-19
1,2-Dichloropropane			103.7		%		50-140	02-SEP-19
1,3-Dichlorobenzene			96.1		%		50-140	02-SEP-19
1,4-Dichlorobenzene			99.9		%		50-140	02-SEP-19
Acetone			103.0		%		50-140	02-SEP-19
Benzene			104.0		%		50-140	02-SEP-19
Bromodichloromethane			108.1		%		50-140	02-SEP-19
Bromoform			105.9		%		50-140	02-SEP-19
Bromomethane			90.4		%		50-140	02-SEP-19
Carbon tetrachloride			104.6		%		50-140	02-SEP-19
Chlorobenzene			100.3		%		50-140	02-SEP-19
Chloroform			104.5		%		50-140	02-SEP-19
cis-1,2-Dichloroethylene			97.6		%		50-140	02-SEP-19
cis-1,3-Dichloropropene			104.1		%		50-140	02-SEP-19
Dibromochloromethane			99.6		%		50-140	02-SEP-19
Dichlorodifluoromethane			74.9		%		50-140	02-SEP-19
Ethylbenzene			88.3		%		50-140	02-SEP-19
n-Hexane			84.4		%		50-140	02-SEP-19
Methylene Chloride			103.5		%		50-140	02-SEP-19
MTBE			100.9		%		50-140	02-SEP-19
m+p-Xylenes			92.4		%		50-140	02-SEP-19
Methyl Ethyl Ketone			96.7		%		50-140	02-SEP-19
Methyl Isobutyl Ketone			95.5		%		50-140	02-SEP-19
o-Xylene			88.8		%		50-140	02-SEP-19
Styrene			93.0		%		50-140	02-SEP-19
Tetrachloroethylene			96.8		%		50-140	02-SEP-19
Toluene			93.5		%		50-140	02-SEP-19
trans-1,2-Dichloroethylene			97.7		%		50-140	02-SEP-19
trans-1,3-Dichloropropene			96.3		%		50-140	02-SEP-19
Trichloroethylene			105.3		%		50-140	02-SEP-19
Trichlorofluoromethane			98.4		%		50-140	02-SEP-19
Vinyl chloride			99.5		%		50-140	02-SEP-19

Quality Control Report

Workorder: L2334358 Report Date: 25-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

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.
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.

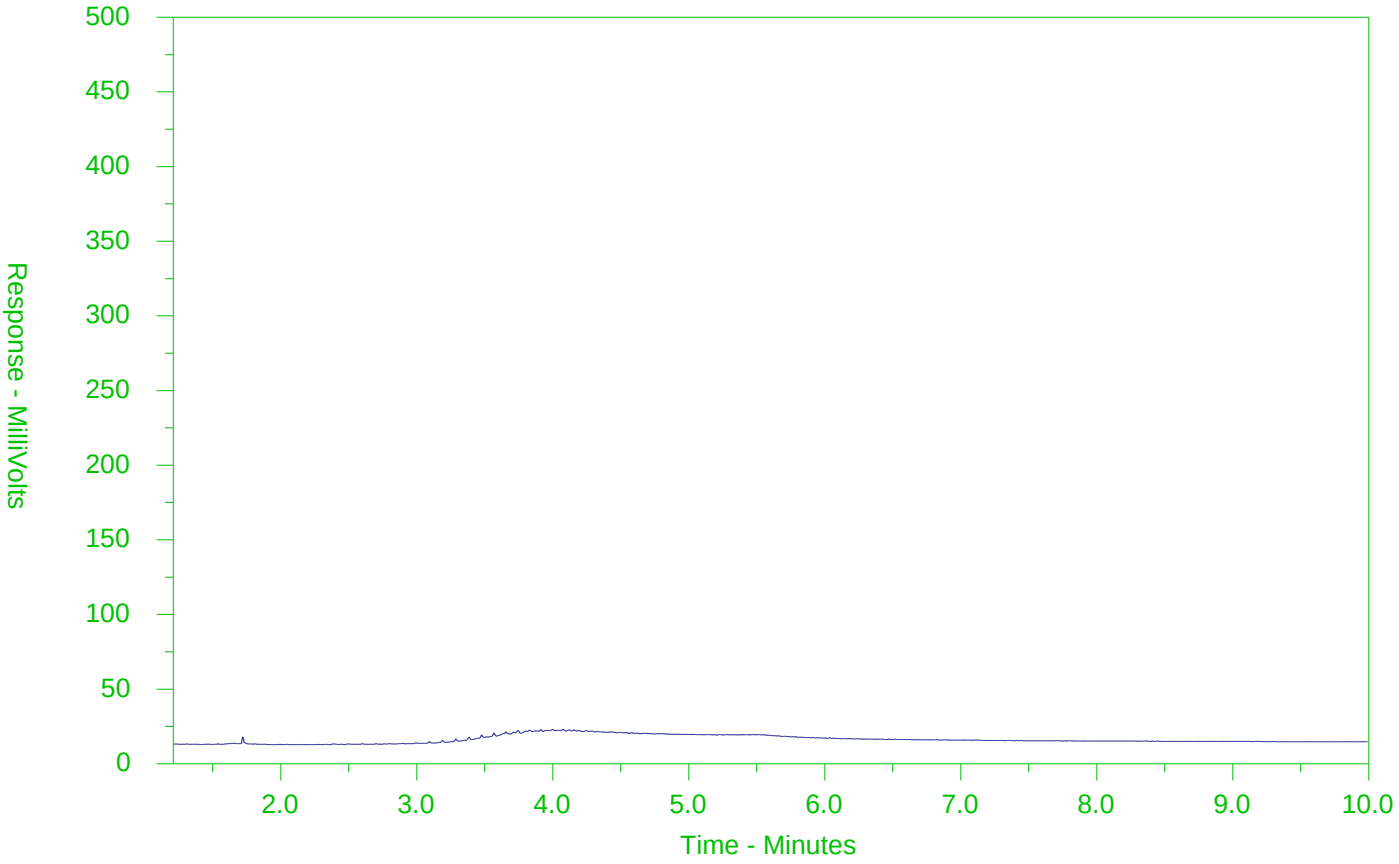
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2334358-1
Client Sample ID: BH201-7.5-9.5



←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.

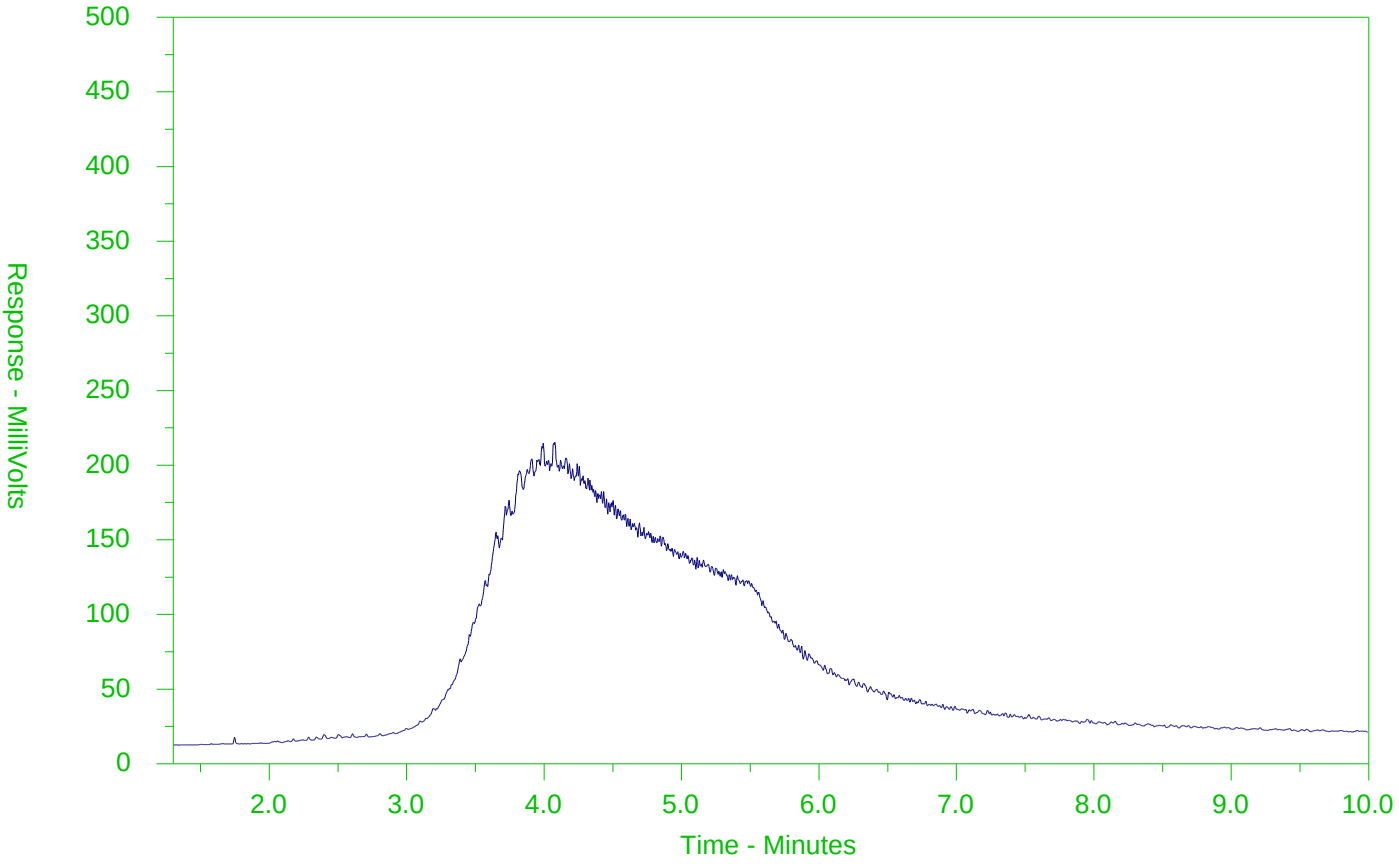
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2334358-3
Client Sample ID: BH201-12.5-12.11"



←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.

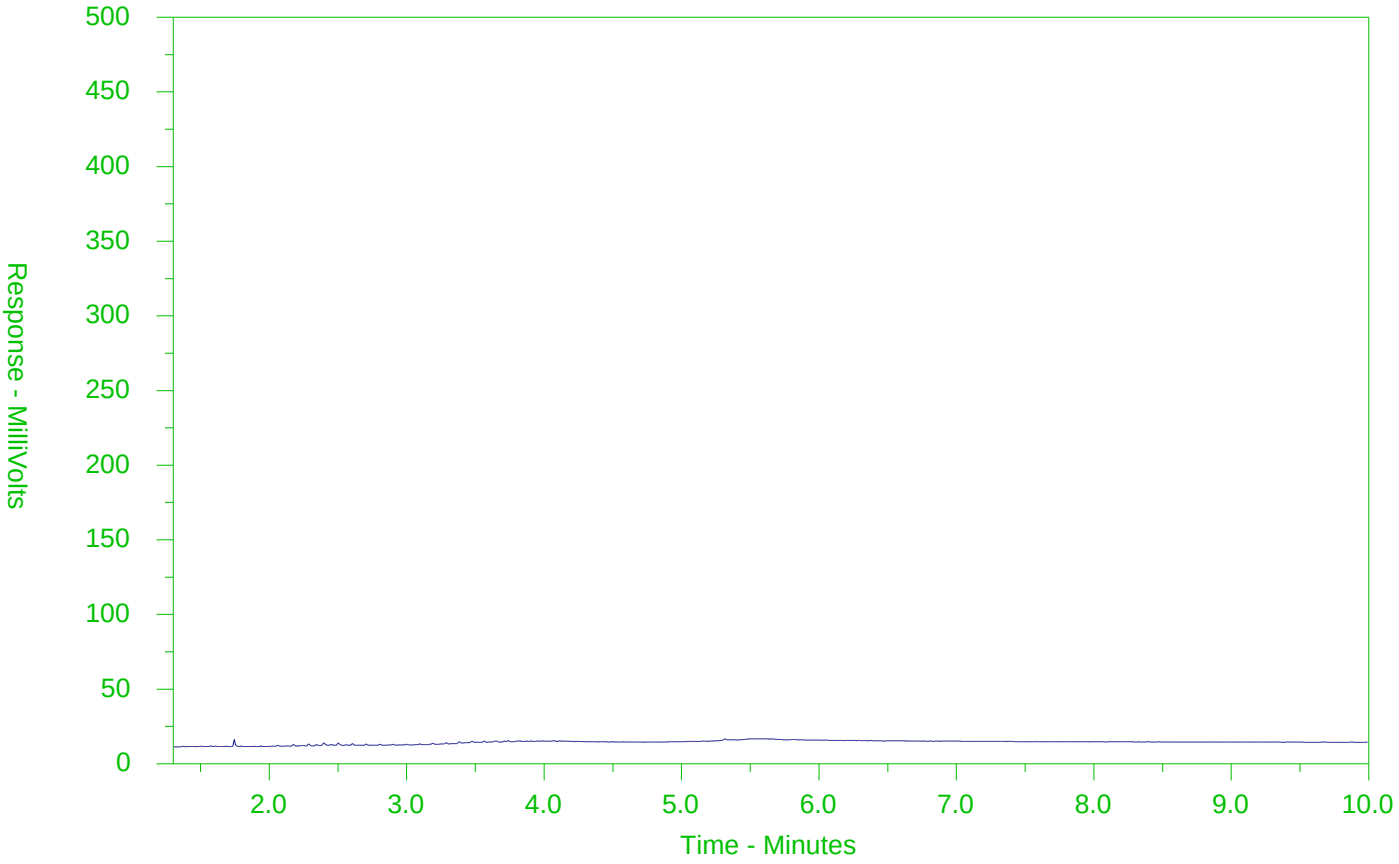
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2334358-8
Client Sample ID: MW100-7.5-9.5



←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.

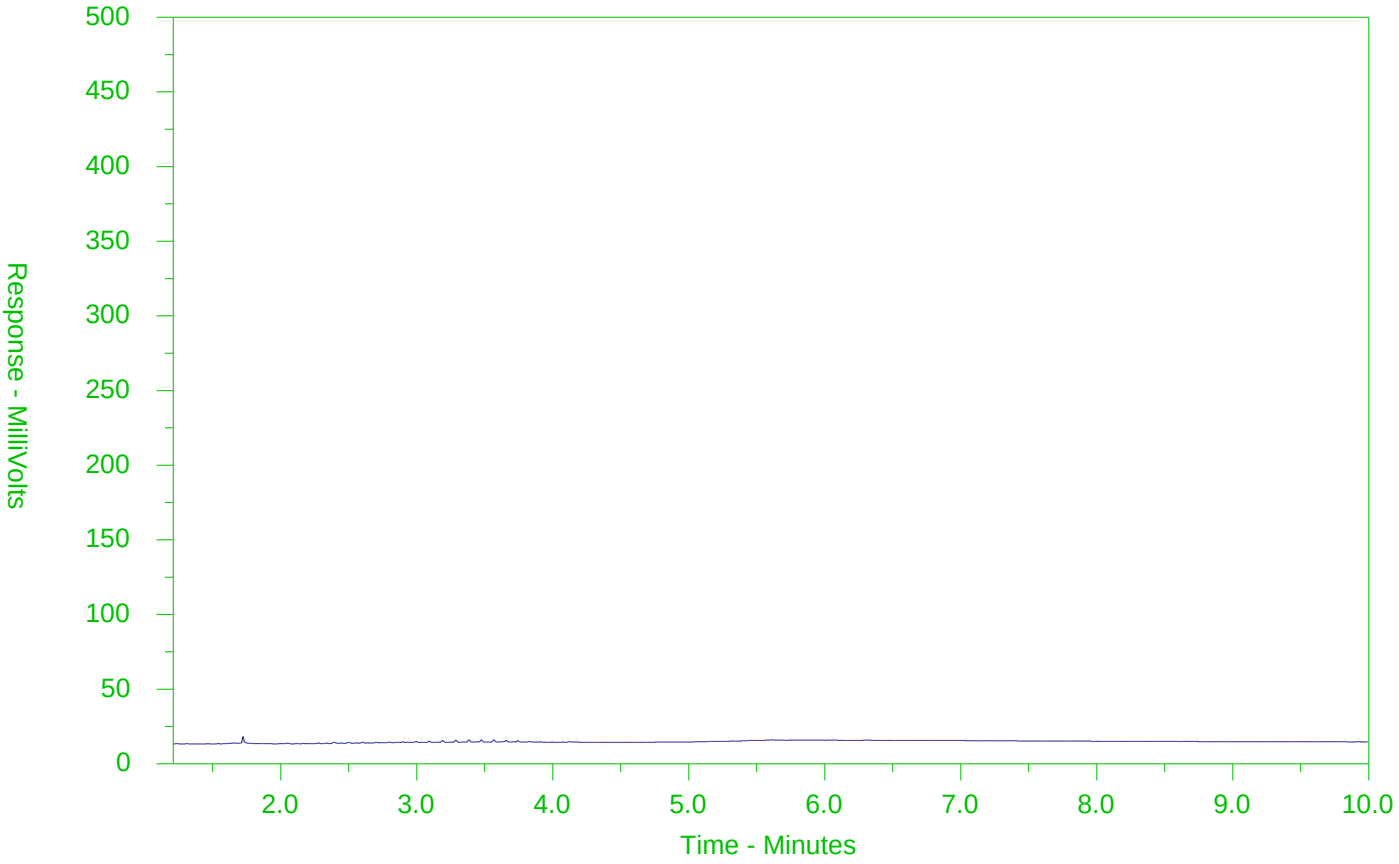
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2334358-12
Client Sample ID: BH204-11-12



←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.

Chain of Custody (COC) / Analyti Request Form

L2334358-COFC

COC Number 17 -

Page 1 of 2

ALS Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company	CH2M Hill/Jacobs
Contact	Andrew Vermeersch
Phone	519 579 3500 x 73247
	Company address below will appear on the final report
Street	72 Victoria Street South, Suite 300
City/Province	Kitchener/Ontario
Postal Code	N2G 4Y9
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company	CH2M Hill Kitchener
Contact	Accounts Payable

Report Format / Distribution	
Select Report Format	☐ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☒ YES ☐ NO
☒ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Andrew.Vermeersch@jacobs.com
Email 2	michael.shirley@jacobs.com
Email 3	Katherine.Appleby@jacobs.com

Invoice Distribution	
Select Invoice Distribution	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Accounts Payable
Email 2	

Project Information	
ALS Account # / Quote #	Q72980
Job #	CE751900.A.CS EV.A2
PO / AFE	
LSD	

Oil and Gas Required Fields (client use)	
AFE/Cost Center	PO#
Major/Minor Code	Routing Code
Requisitioner	
Location	

ALS Lab Work Order # (lab use only): L2334358 22C AG

ALS Contact: Mathy Sampler: Andrew V.

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days)		Emergency	
	4 day [P4-20%] ☐		1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☐		

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BU)	PCB	VOC	ABN	Hg (Mercury)	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
						F	F										
1	BH201-7.5-9.5	21-Aug-19	15:31	Soil	X	X	X	X	X					X	1		4
2	BH201-7.5-9.5	"	"	"													
3	BH201-12.9-13.11"	"	15:49	"		X	X	X									3
4	BH201-12.5-12.11"	"	"	"					X						1		
5	BH201-[illegible] 12.11'-13.2"	"	15:50	"	X	X	X	X	X					X	4		
6	BH204-15-16	"	16:00	"		X	X	X	X						4		
7	BH201-25-27	"	16:43	"	X	X	X	X	X					X	5		
8	MW100-7.5-9.5	22-Aug-19	8:53	"	X	X	X	X	X			X					5
9	MW100-7.5-9.5	"	"	"										X	1		
10	MW100-15-17	"	9:19	"								X					1
11	MW100-15-17	"	"	"	X	X	X	X	X						4		
	TRIP																

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☒ NO	Please compare to Table 1 standards - criteria must included on report.
Are samples for human consumption/ use? ☐ YES ☒ NO	Please note some samples on HOLD

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				4.1°			

SHIPMENT RELEASE (client use)		
Released by: Andrew Vermeersch	Date: 22-Aug-19	Time: 16:04

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date: Aug 22	Time: 16:10

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analyt Request Form

L2334358-COFC

COC Number: 17 -

Page 2 of 2

ALS Laboratory Group

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company	CH2M Hill/Jacobs
Contact:	Andrew Vermeersch
Phone:	519 579 3500 x 73247
	Company address below will appear on the final report
Street:	72 Victoria Street South, Suite 300
City/Province:	Kitchener/Ontario
Postal Code:	N2G 4Y9
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	CH2M Hill Kitchener
Contact:	Accounts Payable

Project Information	
ALS Account # / Quote #:	Q72980
Job #:	CE751900 A CS EV.A2
PO / AFE:	
LSD:	
ALS Lab Work Order # (lab use only):	

Report Format / Distribution	
Select Report Format	☒ PDF ☒ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Andrew.Vermeersch@jacobs.com
Email 2	Michael.Shortt@jacobs.com
Email 3	Katherine.appleby@jacobs.com

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	Accounts Payable
Email 2	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code
Requisitioner:	
Location:	

ALS Contact: Mathy Sampler: Andrew V.

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days)		Emergency	
	4 day [P4-20%] ☐		1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☐		

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS EU)	PCB	VOC	ABN	Methyl Mercury	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
						F	F										
12	BH204-11-12	22-Aug-19	15:31	Soil	X	X	X	X	X			X					5
13	BH204-11-12	"	15:31	"										X			
14	BH204-15-15.11"	"	15:52	"	X	X	X	X	X			X			5		
15	BH204-17.5-18.9"	"	16:21	"	X	X	X	X	X						4		
16	TRIP BLANK-20190822	"	—	Methanol		X	X										1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	Please compare to Table 1 Standards - criteria not included on report. Please note - some samples in Hold
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs	☐ Ice Cubes ☑	Custody seal intact	Yes ☐	No	☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				4.10			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Andrew Vermeersch	Date: 22-Aug-19	Time:	Received by:	Date:	Time:	Received by:	Date: Aug 22	Time: 18:10

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

[1] If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

CH2M HILL CANADA LIMITED
ATTN: Andrew Vermeersch
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 27-AUG-19
Report Date: 06-SEP-19 07:38 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2336707

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV.A2
C of C Numbers:
Legal Site Desc:

Emily Hansen
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2336707-1 TCLP- 20190827 Sampled By: AV on 27-AUG-19 @ 09:35 Matrix: WATER							
Sample Preparation							
Initial pH	9.96		0.10	pH units		04-SEP-19	R4782410
Final pH	5.76		0.10	pH units		04-SEP-19	R4782410
Physical Tests							
% Moisture	9.88		0.10	%	29-AUG-19	29-AUG-19	R4774952
TCLP Extractables							
Acenaphthene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Acenaphthylene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Anthracene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Benzo(a)anthracene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Benzo(a)pyrene	<0.00020		0.00020	mg/L	04-SEP-19	05-SEP-19	R4783558
Benzo(a)pyrene	<0.0010		0.0010	mg/L	04-SEP-19	05-SEP-19	R4783905
Benzo(b)fluoranthene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Benzo(g,h,i)perylene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Surrogate: 2-Bromobenzotrifluoride	72.2		50-150	%	04-SEP-19	05-SEP-19	R4784129
Chrom. to baseline at nC50	YES				04-SEP-19	05-SEP-19	R4784129
3&4-Methylphenol	<0.010		0.010	mg/L	04-SEP-19	05-SEP-19	R4783558
Cresols (total)	<0.015		0.015	mg/L	04-SEP-19	05-SEP-19	R4783558
Cyanide, Weak Acid Diss	<0.10		0.10	mg/L		04-SEP-19	R4782817
2,4-Dichlorophenol	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783558
2,4-Dinitrotoluene	<0.0040		0.0040	mg/L	04-SEP-19	05-SEP-19	R4783558
Fluoride (F)	<10		10	mg/L		04-SEP-19	R4783622
Hexachlorobenzene	<0.0040		0.0040	mg/L	04-SEP-19	05-SEP-19	R4783558
Hexachlorobutadiene	<0.0040		0.0040	mg/L	04-SEP-19	05-SEP-19	R4783558
Hexachloroethane	<0.0040		0.0040	mg/L	04-SEP-19	05-SEP-19	R4783558
2-Methylphenol	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783558
Nitrate and Nitrite as N	<4.0		4.0	mg/L		04-SEP-19	R4783622
Nitrate-N	<2.0		2.0	mg/L		04-SEP-19	R4783622
Nitrite-N	<2.0		2.0	mg/L		04-SEP-19	R4783622
Nitrobenzene	<0.0040		0.0040	mg/L	04-SEP-19	05-SEP-19	R4783558
Pentachlorophenol	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783558
2,3,4,6-Tetrachlorophenol	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783558
2,4,5-Trichlorophenol	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783558
2,4,6-Trichlorophenol	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783558
Surrogate: 2,4,6-Tribromophenol	99.3		50-150	%	04-SEP-19	05-SEP-19	R4783558
Surrogate: 2-Fluorobiphenyl	88.6		40-160	%	04-SEP-19	05-SEP-19	R4783558
Surrogate: Nitrobenzene d5	96.5		50-150	%	04-SEP-19	05-SEP-19	R4783558
Surrogate: p-Terphenyl d14	109.3		60-140	%	04-SEP-19	05-SEP-19	R4783558
TCLP Metals							
Arsenic (As)	<0.050		0.050	mg/L		04-SEP-19	R4783179
Barium (Ba)	<0.50		0.50	mg/L		04-SEP-19	R4783179
Boron (B)	<2.5		2.5	mg/L		04-SEP-19	R4783179
Cadmium (Cd)	<0.0050		0.0050	mg/L		04-SEP-19	R4783179

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2336707-1 TCLP- 20190827 Sampled By: AV on 27-AUG-19 @ 09:35 Matrix: WATER							
TCLP Metals							
Chromium (Cr)	<0.050		0.050	mg/L		04-SEP-19	R4783179
Lead (Pb)	<0.050		0.050	mg/L		04-SEP-19	R4783179
Mercury (Hg)	0.00051		0.00010	mg/L		04-SEP-19	R4782708
Selenium (Se)	<0.025		0.025	mg/L		04-SEP-19	R4783179
Silver (Ag)	<0.0050		0.0050	mg/L		04-SEP-19	R4783179
Uranium (U)	<0.25		0.25	mg/L		04-SEP-19	R4783179
TCLP VOCs							
1,1-Dichloroethylene	<0.025		0.025	mg/L		05-SEP-19	R4782965
1,2-Dichlorobenzene	<0.025		0.025	mg/L		05-SEP-19	R4782965
1,2-Dichloroethane	<0.025		0.025	mg/L		05-SEP-19	R4782965
1,4-Dichlorobenzene	<0.025		0.025	mg/L		05-SEP-19	R4782965
Benzene	<0.025		0.025	mg/L		05-SEP-19	R4782965
Carbon tetrachloride	<0.025		0.025	mg/L		05-SEP-19	R4782965
Chlorobenzene	<0.025		0.025	mg/L		05-SEP-19	R4782965
Chloroform	<0.10		0.10	mg/L		05-SEP-19	R4782965
Dichloromethane	<0.50		0.50	mg/L		05-SEP-19	R4782965
Methyl Ethyl Ketone	<1.0		1.0	mg/L		05-SEP-19	R4782965
Tetrachloroethylene	<0.025		0.025	mg/L		05-SEP-19	R4782965
Trichloroethylene	<0.025		0.025	mg/L		05-SEP-19	R4782965
Vinyl chloride	<0.050		0.050	mg/L		05-SEP-19	R4782965
Surrogate: 4-Bromofluorobenzene	97.8		70-130	%		05-SEP-19	R4782965
Volatile Organic Compounds							
Surrogate: 1,4-Difluorobenzene	98.9		70-130	%		05-SEP-19	R4782965
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	mg/L		05-SEP-19	
F1-BTEX	<5.0		5.0	mg/L		05-SEP-19	
F2 (C10-C16)	<0.10		0.10	mg/L		05-SEP-19	
F2-Naphth	<0.10		0.10	mg/L		05-SEP-19	
F3 (C16-C34)	<0.25		0.25	mg/L		05-SEP-19	
F3-PAH	<0.25		0.25	mg/L		05-SEP-19	
F4 (C34-C50)	<0.25		0.25	mg/L		05-SEP-19	
Total Hydrocarbons (C6-C50)	<5.0		5.0	mg/L		05-SEP-19	
Polycyclic Aromatic Hydrocarbons							
Benzo(k)fluoranthene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Chrysene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Dibenzo(ah)anthracene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Fluoranthene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Fluorene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Indeno(1,2,3-cd)pyrene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Naphthalene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Phenanthrene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Pyrene	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2336707-1 TCLP- 20190827 Sampled By: AV on 27-AUG-19 @ 09:35 Matrix: WATER							
Polycyclic Aromatic Hydrocarbons							
Quinoline	<0.0050		0.0050	mg/L	04-SEP-19	05-SEP-19	R4783905
Surrogate: d10-Acenaphthene	87.3		50-150	%	04-SEP-19	05-SEP-19	R4783905
Surrogate: d12-Chrysene	90.6		50-150	%	04-SEP-19	05-SEP-19	R4783905
Surrogate: d8-Naphthalene	89.0		50-150	%	04-SEP-19	05-SEP-19	R4783905
Surrogate: d10-Phenanthrene	93.2		50-150	%	04-SEP-19	05-SEP-19	R4783905
Polychlorinated Biphenyls							
Aroclor 1242	<0.010		0.010	ug/g	05-SEP-19	05-SEP-19	R4783362
Aroclor 1248	<0.010		0.010	ug/g	05-SEP-19	05-SEP-19	R4783362
Aroclor 1254	<0.010		0.010	ug/g	05-SEP-19	05-SEP-19	R4783362
Aroclor 1260	<0.010		0.010	ug/g	05-SEP-19	05-SEP-19	R4783362
Total PCBs	<0.020		0.020	ug/g	05-SEP-19	05-SEP-19	R4783362
Surrogate: d14-Terphenyl	103.0		60-140	%	05-SEP-19	05-SEP-19	R4783362

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Quinoline	MS-B	L2336707-1

Sample Parameter Qualifier key listed:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BNA-TCLP-WT	Waste	BNAs for O. Reg 347	SW846 8270

Samples are leached according to TCLP protocol and then the aqueous leachate is extracted and the resulting extracts are analyzed on GC/MSD

CN-TCLP-WT	Waste	Cyanide for O. Reg 347	APHA 4500CN I

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fiber filter. The extract is then analyzed using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

ETL-TVH,TEH-TCLP-WT	Waste	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001
F-TCLP-WT	Waste	Fluoride (F) for O. Reg 347	EPA 300.1

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fiber filter. The extract is then analyzed using procedures adapted from EPA 300.1 and is analyzed by Ion Chromatography with conductivity and/or UV detection.

F1-TCLP-WT	Waste	O. Reg 347 TCLP leachable F1	SW846 8260
F2-F4-TCLP-WT	Waste	O. Reg 347 TCLP leachable F2-F4	MOE DECPH-E3398/CCME TIER 1
HG-TCLP-WT	Waste	Mercury (CVAA) for O.Reg 347	EPA 1631E

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry (EPA 1631E).

LEACH-TCLP-WT	Waste	Leachate Procedure for Reg 347	EPA 1311

Inorganic and Semi-Volatile Organic contaminants are leached from waste samples in strict accordance with US EPA Method 1311, "Toxicity Characteristic Leaching Procedure" (TCLP). Test results are reported in leachate concentration units (normally mg/L).

MET-TCLP-WT	Waste	O.Reg 347 TCLP Leachable Metals	EPA 6020B

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020B).

MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
N2N3-TCLP-WT	Waste	Nitrate/Nitrite-N for O. Reg 347	EPA 300.1

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fiber filter. The extract is then analyzed using procedures adapted from EPA 300.1 and is analyzed by Ion Chromatography with conductivity and/or UV detection.

PAH-TCLP-WT	Waste	PAH for O. Reg 347	SW846 8270 (PAH)

Samples are leached according to TCLP protocol and then the aqueous leachate is extracted and the resulting extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

Reference Information

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).

VOC-TCLP-WT Waste VOC for O. Reg 347 SW846 8260

A sample of waste is leached in a zero headspace extractor at 30–2 rpm for 18–2.0 hours with the appropriate leaching solution. After tumbling the leachate is analyzed directly by headspace technology, followed by GC/MS using internal standard quantitation.

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

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

Chain of Custody Numbers:

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 weight of sample
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.

Quality Control Report

Workorder: L2336707 Report Date: 06-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT	**Soil**							
Batch R4774952								
WG3146518-3 DUP		**L2337674-3**						
% Moisture		4.03	3.93		%	2.7	20	29-AUG-19
WG3146518-2 LCS								
% Moisture			100.8		%		90-110	29-AUG-19
WG3146518-1 MB								
% Moisture			<0.10		%		0.1	29-AUG-19
PCB-511-WT	**Soil**							
Batch R4783362								
WG3146466-3 DUP		**WG3146466-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	05-SEP-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	05-SEP-19
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	05-SEP-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	05-SEP-19
WG3146466-2 LCS								
Aroclor 1242			106.9		%		60-140	05-SEP-19
Aroclor 1248			90.8		%		60-140	05-SEP-19
Aroclor 1254			102.6		%		60-140	05-SEP-19
Aroclor 1260			109.4		%		60-140	05-SEP-19
WG3146466-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	05-SEP-19
Aroclor 1248			<0.010		ug/g		0.01	05-SEP-19
Aroclor 1254			<0.010		ug/g		0.01	05-SEP-19
Aroclor 1260			<0.010		ug/g		0.01	05-SEP-19
Surrogate: d14-Terphenyl			88.4		%		60-140	05-SEP-19
WG3146466-4 MS		**WG3146466-5**						
Aroclor 1242			106.3		%		60-140	05-SEP-19
Aroclor 1254			102.6		%		60-140	05-SEP-19
Aroclor 1260			107.1		%		60-140	05-SEP-19
BNA-TCLP-WT	**Waste**							
Batch R4783558								
WG3151696-4 DUP		**WG3151696-3**						
2,3,4,6-Tetrachlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
2,4,5-Trichlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
2,4,6-Trichlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
2,4-Dichlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
2,4-Dinitrotoluene		<0.0040	<0.0040		mg/L			05-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BNA-TCLP-WT	**Waste**							
Batch R4783558								
WG3151696-4 DUP		**WG3151696-3**						
2,4-Dinitrotoluene		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	05-SEP-19
2-Methylphenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
3&4-Methylphenol		<0.010	<0.010	RPD-NA	mg/L	N/A	50	05-SEP-19
Benzo(a)pyrene		<0.00020	<0.00020	RPD-NA	mg/L	N/A	50	05-SEP-19
Hexachlorobenzene		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	05-SEP-19
Hexachlorobutadiene		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	05-SEP-19
Hexachloroethane		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	05-SEP-19
Nitrobenzene		<0.0040	<0.0040	RPD-NA	mg/L	N/A	50	05-SEP-19
Pentachlorophenol		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
WG3151696-2 LCS								
2,3,4,6-Tetrachlorophenol			123.1		%		60-140	05-SEP-19
2,4,5-Trichlorophenol			119.6		%		60-140	05-SEP-19
2,4,6-Trichlorophenol			118.3		%		60-140	05-SEP-19
2,4-Dichlorophenol			114.4		%		60-140	05-SEP-19
2,4-Dinitrotoluene			129.4		%		50-150	05-SEP-19
2-Methylphenol			97.6		%		60-140	05-SEP-19
3&4-Methylphenol			95.7		%		60-140	05-SEP-19
Benzo(a)pyrene			101.1		%		60-140	05-SEP-19
Hexachlorobenzene			99.6		%		60-140	05-SEP-19
Hexachlorobutadiene			94.8		%		40-130	05-SEP-19
Hexachloroethane			90.8		%		40-130	05-SEP-19
Nitrobenzene			103.5		%		60-140	05-SEP-19
Pentachlorophenol			148.4		%		50-160	05-SEP-19
WG3151696-1 MB								
2,3,4,6-Tetrachlorophenol			<0.0050		mg/L		0.005	05-SEP-19
2,4,5-Trichlorophenol			<0.0050		mg/L		0.005	05-SEP-19
2,4,6-Trichlorophenol			<0.0050		mg/L		0.005	05-SEP-19
2,4-Dichlorophenol			<0.0050		mg/L		0.005	05-SEP-19
2,4-Dinitrotoluene			<0.0040		mg/L		0.004	05-SEP-19
2-Methylphenol			<0.0050		mg/L		0.005	05-SEP-19
3&4-Methylphenol			<0.010		mg/L		0.01	05-SEP-19
Benzo(a)pyrene			<0.00020		mg/L		0.0002	05-SEP-19
Hexachlorobenzene			<0.0040		mg/L		0.004	05-SEP-19
Hexachlorobutadiene			<0.0040		mg/L		0.004	05-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BNA-TCLP-WT	**Waste**							
Batch R4783558								
WG3151696-1 MB								
Hexachloroethane			<0.0040		mg/L		0.004	05-SEP-19
Nitrobenzene			<0.0040		mg/L		0.004	05-SEP-19
Pentachlorophenol			<0.0050		mg/L		0.005	05-SEP-19
Surrogate: Nitrobenzene d5			96.0		%		50-150	05-SEP-19
Surrogate: 2-Fluorobiphenyl			92.0		%		40-160	05-SEP-19
Surrogate: p-Terphenyl d14			112.1		%		60-140	05-SEP-19
Surrogate: 2,4,6-Tribromophenol			98.8		%		50-150	05-SEP-19
WG3151696-5 MS		**WG3151696-3**						
2,3,4,6-Tetrachlorophenol			124.9		%		50-150	06-SEP-19
2,4,5-Trichlorophenol			122.5		%		50-150	06-SEP-19
2,4,6-Trichlorophenol			122.0		%		50-150	06-SEP-19
2,4-Dichlorophenol			116.4		%		50-150	06-SEP-19
2,4-Dinitrotoluene			132.7		%		50-150	06-SEP-19
2-Methylphenol			99.1		%		50-150	06-SEP-19
3&4-Methylphenol			98.4		%		50-150	06-SEP-19
Benzo(a)pyrene			113.8		%		50-150	06-SEP-19
Hexachlorobenzene			95.8		%		40-150	06-SEP-19
Hexachlorobutadiene			89.1		%		40-150	06-SEP-19
Hexachloroethane			86.2		%		40-150	06-SEP-19
Nitrobenzene			109.3		%		50-150	06-SEP-19
Pentachlorophenol			137.1		%		50-150	06-SEP-19
CN-TCLP-WT	**Waste**							
Batch R4782817								
WG3151276-3 DUP		**L2339020-1**						
Cyanide, Weak Acid Diss		<0.10	<0.10	RPD-NA	mg/L	N/A	50	04-SEP-19
WG3151276-2 LCS								
Cyanide, Weak Acid Diss			103.1		%		70-130	04-SEP-19
WG3151276-1 MB								
Cyanide, Weak Acid Diss			<0.10		mg/L		0.1	04-SEP-19
WG3151276-4 MS		**L2339020-1**						
Cyanide, Weak Acid Diss			100.3		%		50-140	04-SEP-19
F-TCLP-WT	**Waste**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-TCLP-WT	**Waste**							
Batch R4783622								
WG3151929-3 DUP		**L2336707-1**						
Fluoride (F)		<10	<10	RPD-NA	mg/L	N/A	30	04-SEP-19
WG3151929-2 LCS								
Fluoride (F)			100.6		%		70-130	04-SEP-19
WG3151929-1 MB								
Fluoride (F)			<10		mg/L		10	04-SEP-19
WG3151929-4 MS		**L2336707-1**						
Fluoride (F)			100.9		%		50-150	04-SEP-19
F2-F4-TCLP-WT	**Waste**							
Batch R4784129								
WG3152253-1 MB								
Surrogate: 2-Bromobenzotrifluoride			78.3		%		50-150	05-SEP-19
WG3152253-3 MB								
Surrogate: 2-Bromobenzotrifluoride			77.2		%		50-150	05-SEP-19
HG-TCLP-WT	**Waste**							
Batch R4782708								
WG3151282-3 DUP		**L2337745-1**						
Mercury (Hg)		<0.00010	<0.00010	RPD-NA	mg/L	N/A	50	04-SEP-19
WG3151282-2 LCS								
Mercury (Hg)			98.1		%		70-130	04-SEP-19
WG3151282-1 MB								
Mercury (Hg)			<0.00010		mg/L		0.0001	04-SEP-19
WG3151282-4 MS		**L2337745-1**						
Mercury (Hg)			96.5		%		50-140	04-SEP-19
MET-TCLP-WT	**Waste**							
Batch R4783179								
WG3151284-4 DUP		**WG3151284-3**						
Silver (Ag)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	04-SEP-19
Arsenic (As)		<0.050	<0.050	RPD-NA	mg/L	N/A	50	04-SEP-19
Boron (B)		<2.5	<2.5	RPD-NA	mg/L	N/A	50	04-SEP-19
Barium (Ba)		0.61	0.61		mg/L	0.4	50	04-SEP-19
Cadmium (Cd)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	04-SEP-19
Chromium (Cr)		<0.050	<0.050	RPD-NA	mg/L	N/A	50	04-SEP-19
Lead (Pb)		<0.050	<0.050	RPD-NA	mg/L	N/A	50	04-SEP-19
Selenium (Se)		<0.025	<0.025	RPD-NA	mg/L	N/A	50	04-SEP-19
Uranium (U)		<0.25	<0.25	RPD-NA	mg/L	N/A	50	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-WT	**Waste**							
Batch R4783179								
WG3151284-2 LCS								
Silver (Ag)			97.4		%		70-130	04-SEP-19
Arsenic (As)			98.1		%		70-130	04-SEP-19
Boron (B)			90.6		%		70-130	04-SEP-19
Barium (Ba)			100.6		%		70-130	04-SEP-19
Cadmium (Cd)			95.3		%		70-130	04-SEP-19
Chromium (Cr)			98.0		%		70-130	04-SEP-19
Lead (Pb)			98.5		%		70-130	04-SEP-19
Selenium (Se)			94.0		%		70-130	04-SEP-19
Uranium (U)			96.0		%		70-130	04-SEP-19
WG3151284-1 MB								
Silver (Ag)			<0.0050		mg/L		0.005	04-SEP-19
Arsenic (As)			<0.050		mg/L		0.05	04-SEP-19
Boron (B)			<2.5		mg/L		2.5	04-SEP-19
Barium (Ba)			<0.50		mg/L		0.5	04-SEP-19
Cadmium (Cd)			<0.0050		mg/L		0.005	04-SEP-19
Chromium (Cr)			<0.050		mg/L		0.05	04-SEP-19
Lead (Pb)			<0.050		mg/L		0.05	04-SEP-19
Selenium (Se)			<0.025		mg/L		0.025	04-SEP-19
Uranium (U)			<0.25		mg/L		0.25	04-SEP-19
WG3151284-5 MS		**WG3151284-3**						
Silver (Ag)			116.5		%		50-140	04-SEP-19
Arsenic (As)			100.9		%		50-140	04-SEP-19
Boron (B)			89.5		%		50-140	04-SEP-19
Barium (Ba)			106.2		%		50-140	04-SEP-19
Cadmium (Cd)			99.0		%		50-140	04-SEP-19
Chromium (Cr)			101.3		%		50-140	04-SEP-19
Lead (Pb)			101.6		%		50-140	04-SEP-19
Selenium (Se)			99.8		%		50-140	04-SEP-19
Uranium (U)			99.6		%		50-140	04-SEP-19
N2N3-TCLP-WT	**Waste**							
Batch R4783622								
WG3151929-3 DUP		**L2336707-1**						
Nitrate-N		<2.0	<2.0	RPD-NA	mg/L	N/A	25	04-SEP-19
Nitrite-N		<2.0	<2.0	RPD-NA	mg/L	N/A	25	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
N2N3-TCLP-WT	**Waste**							
Batch R4783622								
WG3151929-2 LCS								
Nitrate-N			101.4		%		70-130	04-SEP-19
Nitrite-N			99.9		%		70-130	04-SEP-19
WG3151929-1 MB								
Nitrate-N			<2.0		mg/L		2	04-SEP-19
Nitrite-N			<2.0		mg/L		2	04-SEP-19
WG3151929-4 MS		**L2336707-1**						
Nitrate-N			102.4		%		50-150	04-SEP-19
Nitrite-N			100.2		%		50-150	04-SEP-19
PAH-TCLP-WT	**Waste**							
Batch R4783905								
WG3152253-5 DUP		**WG3152253-4**						
Acenaphthene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Acenaphthylene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Anthracene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Benzo(a)anthracene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Benzo(a)pyrene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	50	05-SEP-19
Benzo(b)fluoranthene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Benzo(g,h,i)perylene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Benzo(k)fluoranthene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Chrysene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Dibenzo(ah)anthracene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Fluoranthene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Fluorene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Indeno(1,2,3-cd)pyrene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Naphthalene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Phenanthrene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Pyrene		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
Quinoline		<0.0050	<0.0050	RPD-NA	mg/L	N/A	50	05-SEP-19
WG3152253-2 LCS								
Acenaphthene			106.2		%		50-130	05-SEP-19
Acenaphthylene			104.9		%		50-130	05-SEP-19
Anthracene			101.8		%		50-130	05-SEP-19
Benzo(a)anthracene			104.9		%		50-140	05-SEP-19
Benzo(a)pyrene			95.6		%		60-140	05-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TCLP-WT	**Waste**							
Batch R4783905								
WG3152253-2 LCS								
Benzo(b)fluoranthene			98.4		%		50-140	05-SEP-19
Benzo(g,h,i)perylene			107.1		%		50-140	05-SEP-19
Benzo(k)fluoranthene			104.9		%		50-150	05-SEP-19
Chrysene			105.2		%		50-140	05-SEP-19
Dibenzo(ah)anthracene			104.1		%		50-140	05-SEP-19
Fluoranthene			101.8		%		50-150	05-SEP-19
Fluorene			105.5		%		50-150	05-SEP-19
Indeno(1,2,3-cd)pyrene			108.3		%		50-140	05-SEP-19
Naphthalene			103.0		%		50-130	05-SEP-19
Phenanthrene			104.6		%		50-130	05-SEP-19
Pyrene			102.9		%		50-140	05-SEP-19
Quinoline			147.8		%		50-150	05-SEP-19
WG3152253-1 MB								
Acenaphthene			<0.0050		mg/L		0.005	05-SEP-19
Acenaphthylene			<0.0050		mg/L		0.005	05-SEP-19
Anthracene			<0.0050		mg/L		0.005	05-SEP-19
Benzo(a)anthracene			<0.0050		mg/L		0.005	05-SEP-19
Benzo(a)pyrene			<0.0010		mg/L		0.001	05-SEP-19
Benzo(b)fluoranthene			<0.0050		mg/L		0.005	05-SEP-19
Benzo(g,h,i)perylene			<0.0050		mg/L		0.005	05-SEP-19
Benzo(k)fluoranthene			<0.0050		mg/L		0.005	05-SEP-19
Chrysene			<0.0050		mg/L		0.005	05-SEP-19
Dibenzo(ah)anthracene			<0.0050		mg/L		0.005	05-SEP-19
Fluoranthene			<0.0050		mg/L		0.005	05-SEP-19
Fluorene			<0.0050		mg/L		0.005	05-SEP-19
Indeno(1,2,3-cd)pyrene			<0.0050		mg/L		0.005	05-SEP-19
Naphthalene			<0.0050		mg/L		0.005	05-SEP-19
Phenanthrene			<0.0050		mg/L		0.005	05-SEP-19
Pyrene			<0.0050		mg/L		0.005	05-SEP-19
Quinoline			<0.0050		mg/L		0.005	05-SEP-19
Surrogate: d8-Naphthalene			103.2		%		50-150	05-SEP-19
Surrogate: d10-Phenanthrene			107.8		%		50-150	05-SEP-19
Surrogate: d12-Chrysene			102.0		%		50-150	05-SEP-19
Surrogate: d10-Acenaphthene			99.2		%		50-150	05-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TCLP-WT	**Waste**							
Batch R4783905								
WG3152253-3 MB								
Acenaphthene			<0.0050		mg/L		0.005	05-SEP-19
Acenaphthylene			<0.0050		mg/L		0.005	05-SEP-19
Anthracene			<0.0050		mg/L		0.005	05-SEP-19
Benzo(a)anthracene			<0.0050		mg/L		0.005	05-SEP-19
Benzo(a)pyrene			<0.0010		mg/L		0.001	05-SEP-19
Benzo(b)fluoranthene			<0.0050		mg/L		0.005	05-SEP-19
Benzo(g,h,i)perylene			<0.0050		mg/L		0.005	05-SEP-19
Benzo(k)fluoranthene			<0.0050		mg/L		0.005	05-SEP-19
Chrysene			<0.0050		mg/L		0.005	05-SEP-19
Dibenzo(ah)anthracene			<0.0050		mg/L		0.005	05-SEP-19
Fluoranthene			<0.0050		mg/L		0.005	05-SEP-19
Fluorene			<0.0050		mg/L		0.005	05-SEP-19
Indeno(1,2,3-cd)pyrene			<0.0050		mg/L		0.005	05-SEP-19
Naphthalene			<0.0050		mg/L		0.005	05-SEP-19
Phenanthrene			<0.0050		mg/L		0.005	05-SEP-19
Pyrene			<0.0050		mg/L		0.005	05-SEP-19
Quinoline			<0.0050		mg/L		0.005	05-SEP-19
Surrogate: d8-Naphthalene			94.3		%		50-150	05-SEP-19
Surrogate: d10-Phenanthrene			98.7		%		50-150	05-SEP-19
Surrogate: d12-Chrysene			93.3		%		50-150	05-SEP-19
Surrogate: d10-Acenaphthene			91.3		%		50-150	05-SEP-19
WG3152253-6 MS		**WG3152253-4**						
Acenaphthene			107.8		%		50-150	05-SEP-19
Acenaphthylene			108.2		%		50-150	05-SEP-19
Anthracene			111.5		%		50-150	05-SEP-19
Benzo(a)anthracene			90.8		%		50-150	05-SEP-19
Benzo(a)pyrene			77.4		%		50-150	05-SEP-19
Benzo(b)fluoranthene			80.6		%		50-150	05-SEP-19
Benzo(g,h,i)perylene			80.3		%		50-150	05-SEP-19
Benzo(k)fluoranthene			83.4		%		50-150	05-SEP-19
Chrysene			93.5		%		50-150	05-SEP-19
Dibenzo(ah)anthracene			77.7		%		50-150	05-SEP-19
Fluoranthene			99.9		%		50-150	05-SEP-19
Fluorene			106.1		%		50-150	05-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TCLP-WT	**Waste**							
Batch R4783905								
WG3152253-6 MS		**WG3152253-4**						
Indeno(1,2,3-cd)pyrene			81.8		%		50-150	05-SEP-19
Naphthalene			110.4		%		50-150	05-SEP-19
Phenanthrene			108.4		%		50-150	05-SEP-19
Pyrene			100.9		%		50-150	05-SEP-19
Quinoline			N/A	MS-B	%		50-150	05-SEP-19
VOC-TCLP-WT	**Waste**							
Batch R4782965								
WG3150015-1 LCS								
1,1-Dichloroethylene			100.8		%		70-130	04-SEP-19
1,2-Dichlorobenzene			106.0		%		70-130	04-SEP-19
1,2-Dichloroethane			92.8		%		70-130	04-SEP-19
1,4-Dichlorobenzene			111.9		%		70-130	04-SEP-19
Benzene			106.8		%		70-130	04-SEP-19
Carbon tetrachloride			119.2		%		60-140	04-SEP-19
Chlorobenzene			105.2		%		70-130	04-SEP-19
Chloroform			104.8		%		70-130	04-SEP-19
Dichloromethane			98.4		%		70-130	04-SEP-19
Methyl Ethyl Ketone			72.8		%		50-150	04-SEP-19
Tetrachloroethylene			116.5		%		70-130	04-SEP-19
Trichloroethylene			119.7		%		70-130	04-SEP-19
Vinyl chloride			114.4		%		60-130	04-SEP-19
WG3150015-2 MB								
1,1-Dichloroethylene			<0.025		mg/L		0.025	04-SEP-19
1,2-Dichlorobenzene			<0.025		mg/L		0.025	04-SEP-19
1,2-Dichloroethane			<0.025		mg/L		0.025	04-SEP-19
1,4-Dichlorobenzene			<0.025		mg/L		0.025	04-SEP-19
Benzene			<0.025		mg/L		0.025	04-SEP-19
Carbon tetrachloride			<0.025		mg/L		0.025	04-SEP-19
Chlorobenzene			<0.025		mg/L		0.025	04-SEP-19
Chloroform			<0.10		mg/L		0.1	04-SEP-19
Dichloromethane			<0.50		mg/L		0.5	04-SEP-19
Methyl Ethyl Ketone			<1.0		mg/L		1	04-SEP-19
Tetrachloroethylene			<0.025		mg/L		0.025	04-SEP-19
Trichloroethylene			<0.025		mg/L		0.025	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-TCLP-WT	**Waste**							
Batch R4782965								
WG3150015-2 MB								
Vinyl chloride			<0.050		mg/L		0.05	04-SEP-19
Surrogate: 1,4-Difluorobenzene			99.8		%		70-130	04-SEP-19
Surrogate: 4-Bromofluorobenzene			95.9		%		70-130	04-SEP-19
WG3150015-3 MS		**L2336707-1**						
1,1-Dichloroethylene			98.3		%		50-140	05-SEP-19
1,2-Dichlorobenzene			98.1		%		50-140	05-SEP-19
1,2-Dichloroethane			85.9		%		50-140	05-SEP-19
1,4-Dichlorobenzene			104.9		%		50-140	05-SEP-19
Benzene			102.7		%		50-140	05-SEP-19
Carbon tetrachloride			120.6		%		50-140	05-SEP-19
Chlorobenzene			99.9		%		50-140	05-SEP-19
Chloroform			101.5		%		50-140	05-SEP-19
Dichloromethane			89.0		%		50-140	05-SEP-19
Methyl Ethyl Ketone			64.5		%		50-140	05-SEP-19
Tetrachloroethylene			113.5		%		50-140	05-SEP-19
Trichloroethylene			117.8		%		50-140	05-SEP-19
Vinyl chloride			107.5		%		50-140	05-SEP-19

Quality Control Report

Workorder: L2336707 Report Date: 06-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

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
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.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

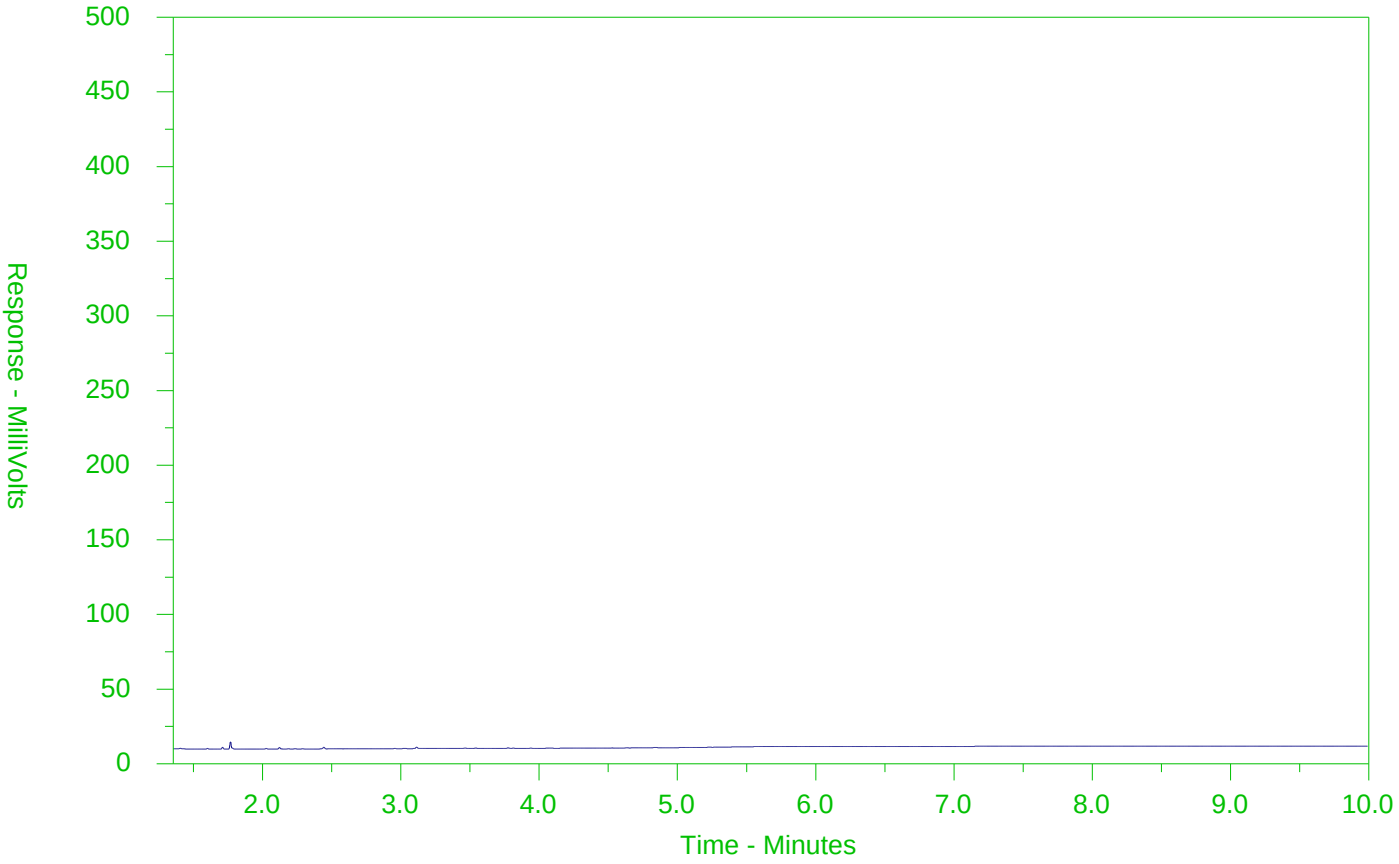
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2336707-1
Client Sample ID: TCLP- 20190827



←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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2336707-COFC

COC Number: 17 -

Page 1 of 1

78

Report To	Contact and company name below will appear on the final report	Report Format / L...
Company:	CH2M Hill/Jacobs	Select Report Format: ☑ PDF ☑ EXCEL ☑ CDD (DIGITAL)
Contact:	Andrew Vermeersch	Quality Control (QC) Report with Report: ☑ YES ☐ NO
Phone:	519 579 3500 x 73247	☑ Compare Results to Criteria on Report - provide details below if box checked
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Street:	72 Victoria Street South, Suite 300	Email 1 or Fax: Andrew.Vermeersch@jacobs.com
City/Province:	Kitchener/Ontario	Email 2: michael.shing@jacobs.com
Postal Code:	N2G 4Y9	Email 3: kathleen.ryder@jacobs.com
Invoice To	Same as Report To ☐ YES ☐ NO	**Invoice Distribution**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Company:	CH2M Hill Kitchener	Email 1 or Fax: Accounts Payable
Contact:	Accounts Payable	Email 2:

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q72880	AFE/Cost Center:	PO#:
Job #:	CE751900 A.CS.EV.A2	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2336707	ALS Contact: Mathy	Sampler: Andrew V.

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4-20%] ☐		1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☐		

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC TCLP	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BU)	PCB bulk	TOC	ASN	Conventionals TCLP	Semivolatile PAHs TCLP	TCLP metals			SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	TCLP-20190827	27-Aug-19	9:35	Waste		X					X			X	X	X					6

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☑ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☑

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				5.2			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Andrew Vermeersch	Date: 27-Aug-19	Time: 16:45	Received by:	Date:	Time:	Received by:	Date: 27/08/19	Time: 1520

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

CH2M HILL CANADA LIMITED
ATTN: Andrew Vermeersch
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 27-AUG-19
Report Date: 18-SEP-19 07:31 (MT)
Version: FINAL REV. 2

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2336718

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV.A2
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 11-SEP-19 08:03

18-SEP-2019 With EC and SAR reporting on sample 5

Emily Hansen
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2336718-1 MW102-7.5-9.5 Sampled By: AV on 26-AUG-19 @ 08:45 Matrix: SOIL							
Physical Tests							
Conductivity	1.49		0.0040	mS/cm	03-SEP-19	*0.47	*0.57
% Moisture	13.0		0.10	%	29-AUG-19		
pH	7.51		0.10	pH units	03-SEP-19		
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	30-AUG-19	0.051	0.051
Organic / Inorganic Carbon							
Fraction Organic Carbon	0.0013		0.0010	No Unit	05-SEP-19		
Fraction Organic Carbon	0.0013		0.0010	No Unit	05-SEP-19		
Fraction Organic Carbon	0.0013		0.0010	No Unit	05-SEP-19		
Average Fraction Organic Carbon	0.0013		0.0010	No Unit	05-SEP-19		
Total Organic Carbon	0.13		0.10	%	05-SEP-19		
Total Organic Carbon	0.13		0.10	%	05-SEP-19		
Total Organic Carbon	0.13		0.10	%	05-SEP-19		
Saturated Paste Extractables							
SAR	18.1		0.10	SAR	03-SEP-19	*1	*2.4
Calcium (Ca)	8.23		0.50	mg/L	03-SEP-19		
Magnesium (Mg)	7.20		0.50	mg/L	03-SEP-19		
Sodium (Na)	295		0.50	mg/L	03-SEP-19		
Metals							
Antimony (Sb)	1.0		1.0	ug/g	03-SEP-19	1	1.3
Arsenic (As)	2.4		1.0	ug/g	03-SEP-19	11	18
Barium (Ba)	65.4		1.0	ug/g	03-SEP-19	210	220
Beryllium (Be)	<0.50		0.50	ug/g	03-SEP-19	2.5	2.5
Boron (B)	6.1		5.0	ug/g	03-SEP-19	36	36
Boron (B), Hot Water Ext.	0.15		0.10	ug/g	03-SEP-19	36	36
Cadmium (Cd)	<0.50		0.50	ug/g	03-SEP-19	1	1.2
Chromium (Cr)	21.3		1.0	ug/g	03-SEP-19	67	70
Cobalt (Co)	4.5		1.0	ug/g	03-SEP-19	19	21
Copper (Cu)	33.1		1.0	ug/g	03-SEP-19	62	92
Lead (Pb)	24.9		1.0	ug/g	03-SEP-19	45	120
Mercury (Hg)	0.0513		0.0050	ug/g	03-SEP-19	0.16	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	03-SEP-19	2	2
Nickel (Ni)	11.1		1.0	ug/g	03-SEP-19	37	82
Selenium (Se)	<1.0		1.0	ug/g	03-SEP-19	1.2	1.5
Silver (Ag)	<0.20		0.20	ug/g	03-SEP-19	0.5	0.5
Thallium (Tl)	<0.50		0.50	ug/g	03-SEP-19	1	1
Uranium (U)	<1.0		1.0	ug/g	03-SEP-19	1.9	2.5

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2
L2336718-1 MW102-7.5-9.5							
Sampled By: AV on 26-AUG-19 @ 08:45							
Matrix: SOIL							
Metals							
Vanadium (V)	21.7		1.0	ug/g	03-SEP-19	86	86
Zinc (Zn)	129		5.0	ug/g	03-SEP-19	290	290
Speciated Metals							
Chromium, Hexavalent	0.97		0.20	ug/g	29-AUG-19	*0.66	*0.66
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	04-SEP-19	0.5	0.5
Benzene	<0.0068		0.0068	ug/g	04-SEP-19	0.02	0.02
Bromodichloromethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Bromoform	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Bromomethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Chlorobenzene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Dibromochloromethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Chloroform	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Methylene Chloride	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	04-SEP-19		
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	04-SEP-19		
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	04-SEP-19	0.05	0.05
Ethylbenzene	<0.018		0.018	ug/g	04-SEP-19	0.05	0.05
n-Hexane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	04-SEP-19	0.5	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	04-SEP-19	0.5	0.5
MTBE	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Styrene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Toluene	<0.080		0.080	ug/g	04-SEP-19	0.2	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	04-SEP-19	0.05	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.25
Vinyl chloride	<0.020		0.020	ug/g	04-SEP-19	0.02	0.02
o-Xylene	<0.020		0.020	ug/g	04-SEP-19		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2336718-1 MW102-7.5-9.5									
Sampled By: AV on 26-AUG-19 @ 08:45									
Matrix: SOIL									
Volatile Organic Compounds									
m+p-Xylenes	<0.030		0.030	ug/g	04-SEP-19				
Xylenes (Total)	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Surrogate: 4-Bromofluorobenzene	92.9		50-140	%	04-SEP-19				
Surrogate: 1,4-Difluorobenzene	111.5		50-140	%	04-SEP-19				
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	04-SEP-19	17	25		
F1-BTEX	<5.0		5.0	ug/g	06-SEP-19	17	25		
F2 (C10-C16)	<10		10	ug/g	06-SEP-19	10	10		
F2-Naphth	<10		10	ug/g	06-SEP-19				
F3 (C16-C34)	<50		50	ug/g	06-SEP-19	240	240		
F3-PAH	<50		50	ug/g	06-SEP-19				
F4 (C34-C50)	71		50	ug/g	06-SEP-19	120	120		
Total Hydrocarbons (C6-C50)	<72		72	ug/g	06-SEP-19				
Chrom. to baseline at nC50	YES			No Unit	06-SEP-19				
Surrogate: 2-Bromobenzotrifluoride	67.3		60-140	%	06-SEP-19				
Surrogate: 3,4-Dichlorotoluene	82.3		60-140	%	04-SEP-19				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.072		
Acenaphthylene	<0.050		0.050	ug/g	03-SEP-19	0.093	0.093		
Anthracene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.16		
Benzo(a)anthracene	<0.050		0.050	ug/g	03-SEP-19	0.095	0.36		
Benzo(a)pyrene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.3		
Benzo(b)fluoranthene	<0.050		0.050	ug/g	03-SEP-19	0.3	0.47		
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	03-SEP-19	0.2	0.68		
Benzo(k)fluoranthene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.48		
Chrysene	<0.050		0.050	ug/g	03-SEP-19	0.18	2.8		
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	03-SEP-19	0.1	0.1		
Fluoranthene	<0.050		0.050	ug/g	03-SEP-19	0.24	0.56		
Fluorene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.12		
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	03-SEP-19	0.11	0.23		
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	03-SEP-19	0.05	0.59		
1-Methylnaphthalene	<0.030		0.030	ug/g	03-SEP-19	0.05	0.59		
2-Methylnaphthalene	<0.030		0.030	ug/g	03-SEP-19	0.05	0.59		
Naphthalene	<0.013		0.013	ug/g	03-SEP-19	0.05	0.09		
Phenanthrene	<0.046		0.046	ug/g	03-SEP-19	0.19	0.69		
Pyrene	<0.050		0.050	ug/g	03-SEP-19	0.19	1		
Surrogate: 2-Fluorobiphenyl	107.3		50-140	%	03-SEP-19				
Surrogate: p-Terphenyl d14	102.2		50-140	%	03-SEP-19				
L2336718-3 MW102-12.5-14.5									
Sampled By: AV on 26-AUG-19 @ 08:57									
Matrix: SOIL						#1	#2		
Physical Tests									
Conductivity	1.49		0.0040	mS/cm	03-SEP-19	*0.47	*0.57		
% Moisture	10.9		0.10	%	29-AUG-19				
pH	7.85		0.10	pH units	03-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2
L2336718-3 MW102-12.5-14.5 Sampled By: AV on 26-AUG-19 @ 08:57 Matrix: SOIL							
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	30-AUG-19	0.051	0.051
Organic / Inorganic Carbon							
Fraction Organic Carbon	<0.0010		0.0010	No Unit	05-SEP-19		
Fraction Organic Carbon	<0.0010		0.0010	No Unit	05-SEP-19		
Fraction Organic Carbon	<0.0010		0.0010	No Unit	05-SEP-19		
Average Fraction Organic Carbon	<0.0010		0.0010	No Unit	05-SEP-19		
Total Organic Carbon	<0.10		0.10	%	05-SEP-19		
Total Organic Carbon	<0.10		0.10	%	05-SEP-19		
Total Organic Carbon	<0.10		0.10	%	05-SEP-19		
Saturated Paste Extractables							
SAR	41.2		0.10	SAR	03-SEP-19	*1	*2.4
Calcium (Ca)	2.23		0.50	mg/L	03-SEP-19		
Magnesium (Mg)	0.91		0.50	mg/L	03-SEP-19		
Sodium (Na)	289		0.50	mg/L	03-SEP-19		
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	03-SEP-19	1	1.3
Arsenic (As)	2.4		1.0	ug/g	03-SEP-19	11	18
Barium (Ba)	37.8		1.0	ug/g	03-SEP-19	210	220
Beryllium (Be)	<0.50		0.50	ug/g	03-SEP-19	2.5	2.5
Boron (B)	7.3		5.0	ug/g	03-SEP-19	36	36
Boron (B), Hot Water Ext.	0.11		0.10	ug/g	03-SEP-19	36	36
Cadmium (Cd)	<0.50		0.50	ug/g	03-SEP-19	1	1.2
Chromium (Cr)	14.2		1.0	ug/g	03-SEP-19	67	70
Cobalt (Co)	5.4		1.0	ug/g	03-SEP-19	19	21
Copper (Cu)	13.4		1.0	ug/g	03-SEP-19	62	92
Lead (Pb)	9.9		1.0	ug/g	03-SEP-19	45	120
Mercury (Hg)	0.0080		0.0050	ug/g	03-SEP-19	0.16	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	03-SEP-19	2	2
Nickel (Ni)	11.6		1.0	ug/g	03-SEP-19	37	82
Selenium (Se)	<1.0		1.0	ug/g	03-SEP-19	1.2	1.5
Silver (Ag)	<0.20		0.20	ug/g	03-SEP-19	0.5	0.5
Thallium (Tl)	<0.50		0.50	ug/g	03-SEP-19	1	1
Uranium (U)	<1.0		1.0	ug/g	03-SEP-19	1.9	2.5
Vanadium (V)	23.9		1.0	ug/g	03-SEP-19	86	86
Zinc (Zn)	114		5.0	ug/g	03-SEP-19	290	290
Speciated Metals							

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2336718-3 MW102-12.5-14.5 Sampled By: AV on 26-AUG-19 @ 08:57 Matrix: SOIL									
Speciated Metals									
Chromium, Hexavalent	<0.20		0.20	ug/g	29-AUG-19	0.66	0.66		
Volatile Organic Compounds									
Acetone	<0.50		0.50	ug/g	04-SEP-19	0.5	0.5		
Benzene	<0.0068		0.0068	ug/g	04-SEP-19	0.02	0.02		
Bromodichloromethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Bromoform	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Bromomethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Carbon tetrachloride	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Chlorobenzene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Dibromochloromethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Chloroform	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,2-Dibromoethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,2-Dichlorobenzene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,3-Dichlorobenzene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,4-Dichlorobenzene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Dichlorodifluoromethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,1-Dichloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,2-Dichloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,1-Dichloroethylene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Methylene Chloride	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,2-Dichloropropane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	04-SEP-19				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	04-SEP-19				
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	04-SEP-19	0.05	0.05		
Ethylbenzene	<0.018		0.018	ug/g	04-SEP-19	0.05	0.05		
n-Hexane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Methyl Ethyl Ketone	<0.50		0.50	ug/g	04-SEP-19	0.5	0.5		
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	04-SEP-19	0.5	0.5		
MTBE	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Styrene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Tetrachloroethylene	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Toluene	<0.080		0.080	ug/g	04-SEP-19	0.2	0.2		
1,1,1-Trichloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
1,1,2-Trichloroethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Trichloroethylene	<0.010		0.010	ug/g	04-SEP-19	0.05	0.05		
Trichlorofluoromethane	<0.050		0.050	ug/g	04-SEP-19	0.05	0.25		
Vinyl chloride	<0.020		0.020	ug/g	04-SEP-19	0.02	0.02		
o-Xylene	<0.020		0.020	ug/g	04-SEP-19				
m+p-Xylenes	<0.030		0.030	ug/g	04-SEP-19				
Xylenes (Total)	<0.050		0.050	ug/g	04-SEP-19	0.05	0.05		
Surrogate: 4-Bromofluorobenzene	94.5		50-140	%	04-SEP-19				
Surrogate: 1,4-Difluorobenzene	112.3		50-140	%	04-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2336718-3 MW102-12.5-14.5							
Sampled By: AV on 26-AUG-19 @ 08:57							
Matrix: SOIL							
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	04-SEP-19	17	25
F1-BTEX	<5.0		5.0	ug/g	06-SEP-19	17	25
F2 (C10-C16)	<10		10	ug/g	05-SEP-19	10	10
F2-Naphth	<10		10	ug/g	06-SEP-19		
F3 (C16-C34)	<50		50	ug/g	05-SEP-19	240	240
F3-PAH	<50		50	ug/g	06-SEP-19		
F4 (C34-C50)	<50		50	ug/g	05-SEP-19	120	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	06-SEP-19		
Chrom. to baseline at nC50	YES			No Unit	05-SEP-19		
Surrogate: 2-Bromobenzotrifluoride	76.4		60-140	%	05-SEP-19		
Surrogate: 3,4-Dichlorotoluene	78.7		60-140	%	04-SEP-19		
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.072
Acenaphthylene	<0.050		0.050	ug/g	03-SEP-19	0.093	0.093
Anthracene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.16
Benzo(a)anthracene	<0.050		0.050	ug/g	03-SEP-19	0.095	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	03-SEP-19	0.3	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	03-SEP-19	0.2	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.48
Chrysene	<0.050		0.050	ug/g	03-SEP-19	0.18	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	03-SEP-19	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	03-SEP-19	0.24	0.56
Fluorene	<0.050		0.050	ug/g	03-SEP-19	0.05	0.12
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	03-SEP-19	0.11	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	03-SEP-19	0.05	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	03-SEP-19	0.05	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	03-SEP-19	0.05	0.59
Naphthalene	<0.013		0.013	ug/g	03-SEP-19	0.05	0.09
Phenanthrene	<0.046		0.046	ug/g	03-SEP-19	0.19	0.69
Pyrene	<0.050		0.050	ug/g	03-SEP-19	0.19	1
Surrogate: 2-Fluorobiphenyl	108.5		50-140	%	03-SEP-19		
Surrogate: p-Terphenyl d14	104.5		50-140	%	03-SEP-19		
L2336718-5 MW102-25-26							
Sampled By: AV on 26-AUG-19 @ 09:44							
Matrix: SOIL							
Physical Tests							
Conductivity	0.826		0.0040	mS/cm	17-SEP-19	*0.47	*0.57
Organic / Inorganic Carbon							
Fraction Organic Carbon	<0.0010		0.0010	No Unit	05-SEP-19		
Fraction Organic Carbon	<0.0010		0.0010	No Unit	05-SEP-19		
Fraction Organic Carbon	<0.0010		0.0010	No Unit	05-SEP-19		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2336718-5 MW102-25-26 Sampled By: AV on 26-AUG-19 @ 09:44 Matrix: SOIL									
Organic / Inorganic Carbon									
Average Fraction Organic Carbon	<0.0010		0.0010	No Unit	05-SEP-19				
Total Organic Carbon	<0.10		0.10	%	05-SEP-19				
Total Organic Carbon	<0.10		0.10	%	05-SEP-19				
Total Organic Carbon	<0.10		0.10	%	05-SEP-19				
Saturated Paste Extractables									
SAR	5.01		0.10	SAR	17-SEP-19	*1	*2.4		
Calcium (Ca)	30.1		0.50	mg/L	17-SEP-19				
Magnesium (Mg)	6.79		0.50	mg/L	17-SEP-19				
Sodium (Na)	117		0.50	mg/L	17-SEP-19				
L2336718-7 TRIP BLANK-20190827 Sampled By: AV on 26-AUG-19 Matrix: SOIL						#1	#2		
Physical Tests									
% Moisture	<0.10		0.10	%	29-AUG-19				
Volatile Organic Compounds									
Acetone	<0.50		0.50	ug/g	05-SEP-19	0.5	0.5		
Benzene	<0.0068		0.0068	ug/g	05-SEP-19	0.02	0.02		
Bromodichloromethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Bromoform	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Bromomethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Carbon tetrachloride	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Chlorobenzene	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Dibromochloromethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Chloroform	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,2-Dibromoethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,2-Dichlorobenzene	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,3-Dichlorobenzene	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,4-Dichlorobenzene	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Dichlorodifluoromethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,1-Dichloroethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,2-Dichloroethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,1-Dichloroethylene	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Methylene Chloride	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,2-Dichloropropane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	05-SEP-19				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	05-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2336718-7 TRIP BLANK-20190827 Sampled By: AV on 26-AUG-19 Matrix: SOIL									
Volatile Organic Compounds									
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	05-SEP-19	0.05	0.05		
Ethylbenzene	<0.018		0.018	ug/g	05-SEP-19	0.05	0.05		
n-Hexane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Methyl Ethyl Ketone	<0.50		0.50	ug/g	05-SEP-19	0.5	0.5		
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	05-SEP-19	0.5	0.5		
MTBE	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Styrene	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Tetrachloroethylene	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Toluene	<0.080		0.080	ug/g	05-SEP-19	0.2	0.2		
1,1,1-Trichloroethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
1,1,2-Trichloroethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Trichloroethylene	<0.010		0.010	ug/g	05-SEP-19	0.05	0.05		
Trichlorofluoromethane	<0.050		0.050	ug/g	05-SEP-19	0.05	0.25		
Vinyl chloride	<0.020		0.020	ug/g	05-SEP-19	0.02	0.02		
o-Xylene	<0.020		0.020	ug/g	05-SEP-19				
m+p-Xylenes	<0.030		0.030	ug/g	05-SEP-19				
Xylenes (Total)	<0.050		0.050	ug/g	05-SEP-19	0.05	0.05		
Surrogate: 4-Bromofluorobenzene	98.1		50-140	%	05-SEP-19				
Surrogate: 1,4-Difluorobenzene	115.3		50-140	%	05-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
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.

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).

Reference Information

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).

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)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	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.

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).

SAR-R511-WT	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 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).

TOC-R511-WT	Soil	TOC & FOC-O.Reg 153/04 (July 2011)	CARTER 21.3.2

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).

Reference Information

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

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:

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	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: L2336718 Report Date: 18-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4781934								
WG3149990-4 DUP		**L2336862-1**						
Boron (B), Hot Water Ext.		0.24	0.23		ug/g	5.6	30	03-SEP-19
WG3149990-2 IRM		**WT SAR3**						
Boron (B), Hot Water Ext.			98.1		%		70-130	03-SEP-19
WG3149990-3 LCS								
Boron (B), Hot Water Ext.			94.8		%		70-130	03-SEP-19
WG3149990-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	03-SEP-19
CN-WAD-R511-WT	**Soil**							
Batch R4776403								
WG3146274-3 DUP		**L2336568-4**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	30-AUG-19
WG3146274-2 LCS								
Cyanide, Weak Acid Diss			94.5		%		80-120	30-AUG-19
WG3146274-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	30-AUG-19
WG3146274-4 MS		**L2336568-4**						
Cyanide, Weak Acid Diss			105.7		%		70-130	30-AUG-19
CR-CR6-IC-WT	**Soil**							
Batch R4775649								
WG3146077-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			104.0		%		70-130	29-AUG-19
WG3146077-3 DUP		**L2336968-1**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	29-AUG-19
WG3146077-2 LCS								
Chromium, Hexavalent			96.0		%		80-120	29-AUG-19
WG3146077-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	29-AUG-19
EC-WT	**Soil**							
Batch R4782071								
WG3149994-4 DUP		**WG3149994-3**						
Conductivity		0.440	0.443		mS/cm	0.7	20	03-SEP-19
WG3149994-2 IRM		**WT SAR3**						
Conductivity			98.1		%		70-130	03-SEP-19
WG3150153-1 LCS								
Conductivity			99.1		%		90-110	03-SEP-19
WG3149994-1 MB								

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4782071								
WG3149994-1 MB								
Conductivity			<0.0040		mS/cm		0.004	03-SEP-19
Batch R4815848								
WG3163992-4 DUP		**WG3163992-3**						
Conductivity		0.116	0.120		mS/cm	3.3	20	17-SEP-19
WG3163992-2 IRM		**WT SAR3**						
Conductivity			84.1		%		70-130	17-SEP-19
WG3164224-1 LCS								
Conductivity			98.1		%		90-110	17-SEP-19
WG3163992-1 MB								
Conductivity			<0.0040		mS/cm		0.004	17-SEP-19
F1-HS-511-WT	**Soil**							
Batch R4782647								
WG3150058-4 DUP		**WG3150058-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	04-SEP-19
WG3150058-2 LCS								
F1 (C6-C10)			108.9		%		80-120	04-SEP-19
WG3150058-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	04-SEP-19
Surrogate: 3,4-Dichlorotoluene			91.1		%		60-140	04-SEP-19
WG3150058-6 MS		**L2335694-2**						
F1 (C6-C10)			105.5		%		60-140	04-SEP-19
F2-F4-511-WT	**Soil**							
Batch R4783961								
WG3151718-8 DUP		**WG3151718-10**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	05-SEP-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	05-SEP-19
F4 (C34-C50)		<50	71	RPD-NA	ug/g	N/A	30	05-SEP-19
WG3151718-7 LCS								
F2 (C10-C16)			97.3		%		80-120	05-SEP-19
F3 (C16-C34)			101.6		%		80-120	05-SEP-19
F4 (C34-C50)			102.5		%		80-120	05-SEP-19
WG3151718-6 MB								
F2 (C10-C16)			<10		ug/g		10	05-SEP-19
F3 (C16-C34)			<50		ug/g		50	05-SEP-19
F4 (C34-C50)			<50		ug/g		50	05-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4783961								
WG3151718-6 MB								
Surrogate: 2-Bromobenzotrifluoride			57.3	MBS	%		60-140	05-SEP-19
WG3151718-9 MS		**WG3151718-10**						
F2 (C10-C16)			94.8		%		60-140	05-SEP-19
F3 (C16-C34)			98.9		%		60-140	05-SEP-19
F4 (C34-C50)			101.1		%		60-140	05-SEP-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4781409								
WG3149974-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			98.5		%		70-130	03-SEP-19
WG3149974-6 DUP		**WG3149974-5**						
Mercury (Hg)		0.0433	0.0450		ug/g	3.8	40	03-SEP-19
WG3149974-3 LCS								
Mercury (Hg)			100.0		%		80-120	03-SEP-19
WG3149974-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	03-SEP-19
Batch R4781415								
WG3149978-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			98.5		%		70-130	03-SEP-19
WG3149978-6 DUP		**WG3149978-5**						
Mercury (Hg)		0.0080	0.0089		ug/g	11	40	03-SEP-19
WG3149978-3 LCS								
Mercury (Hg)			104.0		%		80-120	03-SEP-19
WG3149978-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	03-SEP-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4781779								
WG3149974-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			104.6		%		70-130	03-SEP-19
Arsenic (As)			100.3		%		70-130	03-SEP-19
Barium (Ba)			99.8		%		70-130	03-SEP-19
Beryllium (Be)			95.1		%		70-130	03-SEP-19
Boron (B)			3.0		mg/kg		0-8.2	03-SEP-19
Cadmium (Cd)			99.8		%		70-130	03-SEP-19
Chromium (Cr)			104.4		%		70-130	03-SEP-19
Cobalt (Co)			99.7		%		70-130	03-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4781779								
WG3149974-2 CRM		**WT-CANMET-TILL1**						
Copper (Cu)			100.2		%		70-130	03-SEP-19
Lead (Pb)			97.8		%		70-130	03-SEP-19
Molybdenum (Mo)			105.6		%		70-130	03-SEP-19
Nickel (Ni)			101.4		%		70-130	03-SEP-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	03-SEP-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	03-SEP-19
Thallium (Tl)			0.123		mg/kg		0.077-0.18	03-SEP-19
Uranium (U)			102.3		%		70-130	03-SEP-19
Vanadium (V)			103.9		%		70-130	03-SEP-19
Zinc (Zn)			98.0		%		70-130	03-SEP-19
WG3149974-6 DUP		**WG3149974-5**						
Antimony (Sb)		0.24	0.26		ug/g	7.7	30	03-SEP-19
Arsenic (As)		5.96	6.19		ug/g	3.7	30	03-SEP-19
Barium (Ba)		90.3	93.1		ug/g	3.1	40	03-SEP-19
Beryllium (Be)		0.81	0.80		ug/g	1.4	30	03-SEP-19
Boron (B)		10.6	10.0		ug/g	5.6	30	03-SEP-19
Cadmium (Cd)		0.172	0.189		ug/g	9.4	30	03-SEP-19
Chromium (Cr)		25.5	26.6		ug/g	3.9	30	03-SEP-19
Cobalt (Co)		10.9	11.3		ug/g	4.1	30	03-SEP-19
Copper (Cu)		31.2	32.4		ug/g	3.8	30	03-SEP-19
Lead (Pb)		22.6	23.6		ug/g	4.3	40	03-SEP-19
Molybdenum (Mo)		0.51	0.53		ug/g	3.9	40	03-SEP-19
Nickel (Ni)		25.6	27.2		ug/g	5.9	30	03-SEP-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	03-SEP-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	03-SEP-19
Thallium (Tl)		0.163	0.164		ug/g	0.6	30	03-SEP-19
Uranium (U)		0.681	0.708		ug/g	3.8	30	03-SEP-19
Vanadium (V)		34.5	35.4		ug/g	2.7	30	03-SEP-19
Zinc (Zn)		105	109		ug/g	3.8	30	03-SEP-19
WG3149974-4 LCS								
Antimony (Sb)			104.2		%		80-120	03-SEP-19
Arsenic (As)			96.0		%		80-120	03-SEP-19
Barium (Ba)			98.0		%		80-120	03-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4781779								
WG3149974-4 LCS								
Beryllium (Be)			92.4		%		80-120	03-SEP-19
Boron (B)			90.4		%		80-120	03-SEP-19
Cadmium (Cd)			95.8		%		80-120	03-SEP-19
Chromium (Cr)			95.9		%		80-120	03-SEP-19
Cobalt (Co)			94.6		%		80-120	03-SEP-19
Copper (Cu)			91.7		%		80-120	03-SEP-19
Lead (Pb)			96.4		%		80-120	03-SEP-19
Molybdenum (Mo)			101.0		%		80-120	03-SEP-19
Nickel (Ni)			93.9		%		80-120	03-SEP-19
Selenium (Se)			94.6		%		80-120	03-SEP-19
Silver (Ag)			90.6		%		80-120	03-SEP-19
Thallium (Tl)			93.9		%		80-120	03-SEP-19
Uranium (U)			97.5		%		80-120	03-SEP-19
Vanadium (V)			99.2		%		80-120	03-SEP-19
Zinc (Zn)			90.8		%		80-120	03-SEP-19
WG3149974-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	03-SEP-19
Arsenic (As)			<0.10		mg/kg		0.1	03-SEP-19
Barium (Ba)			<0.50		mg/kg		0.5	03-SEP-19
Beryllium (Be)			<0.10		mg/kg		0.1	03-SEP-19
Boron (B)			<5.0		mg/kg		5	03-SEP-19
Cadmium (Cd)			<0.020		mg/kg		0.02	03-SEP-19
Chromium (Cr)			<0.50		mg/kg		0.5	03-SEP-19
Cobalt (Co)			<0.10		mg/kg		0.1	03-SEP-19
Copper (Cu)			<0.50		mg/kg		0.5	03-SEP-19
Lead (Pb)			<0.50		mg/kg		0.5	03-SEP-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	03-SEP-19
Nickel (Ni)			<0.50		mg/kg		0.5	03-SEP-19
Selenium (Se)			<0.20		mg/kg		0.2	03-SEP-19
Silver (Ag)			<0.10		mg/kg		0.1	03-SEP-19
Thallium (Tl)			<0.050		mg/kg		0.05	03-SEP-19
Uranium (U)			<0.050		mg/kg		0.05	03-SEP-19
Vanadium (V)			<0.20		mg/kg		0.2	03-SEP-19
Zinc (Zn)			<2.0		mg/kg		2	03-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4782034								
WG3149978-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			101.3		%		70-130	03-SEP-19
Arsenic (As)			99.8		%		70-130	03-SEP-19
Barium (Ba)			97.0		%		70-130	03-SEP-19
Beryllium (Be)			96.8		%		70-130	03-SEP-19
Boron (B)			3.0		mg/kg		0-8.2	03-SEP-19
Cadmium (Cd)			97.1		%		70-130	03-SEP-19
Chromium (Cr)			102.3		%		70-130	03-SEP-19
Cobalt (Co)			99.2		%		70-130	03-SEP-19
Copper (Cu)			100.8		%		70-130	03-SEP-19
Lead (Pb)			97.2		%		70-130	03-SEP-19
Molybdenum (Mo)			103.4		%		70-130	03-SEP-19
Nickel (Ni)			99.7		%		70-130	03-SEP-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	03-SEP-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	03-SEP-19
Thallium (Tl)			0.121		mg/kg		0.077-0.18	03-SEP-19
Uranium (U)			102.3		%		70-130	03-SEP-19
Vanadium (V)			102.6		%		70-130	03-SEP-19
Zinc (Zn)			98.7		%		70-130	03-SEP-19
WG3149978-6 DUP		**WG3149978-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	03-SEP-19
Arsenic (As)		2.41	2.42		ug/g	0.2	30	03-SEP-19
Barium (Ba)		37.8	44.0		ug/g	15	40	03-SEP-19
Beryllium (Be)		0.35	0.36		ug/g	2.5	30	03-SEP-19
Boron (B)		7.3	7.0		ug/g	3.7	30	03-SEP-19
Cadmium (Cd)		0.268	0.295		ug/g	9.6	30	03-SEP-19
Chromium (Cr)		14.2	14.2		ug/g	0.1	30	03-SEP-19
Cobalt (Co)		5.36	5.33		ug/g	0.6	30	03-SEP-19
Copper (Cu)		13.4	13.5		ug/g	0.2	30	03-SEP-19
Lead (Pb)		9.87	9.82		ug/g	0.5	40	03-SEP-19
Molybdenum (Mo)		0.28	0.26		ug/g	4.3	40	03-SEP-19
Nickel (Ni)		11.6	11.5		ug/g	1.7	30	03-SEP-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	03-SEP-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	03-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4782034								
WG3149978-6 DUP		**WG3149978-5**						
Thallium (Tl)		0.104	0.103		ug/g	1.0	30	03-SEP-19
Uranium (U)		0.466	0.488		ug/g	4.6	30	03-SEP-19
Vanadium (V)		23.9	23.8		ug/g	0.6	30	03-SEP-19
Zinc (Zn)		114	114		ug/g	0.4	30	03-SEP-19
WG3149978-4 LCS								
Antimony (Sb)			110.8		%		80-120	03-SEP-19
Arsenic (As)			105.0		%		80-120	03-SEP-19
Barium (Ba)			103.4		%		80-120	03-SEP-19
Beryllium (Be)			99.6		%		80-120	03-SEP-19
Boron (B)			91.3		%		80-120	03-SEP-19
Cadmium (Cd)			102.3		%		80-120	03-SEP-19
Chromium (Cr)			106.5		%		80-120	03-SEP-19
Cobalt (Co)			103.3		%		80-120	03-SEP-19
Copper (Cu)			101.5		%		80-120	03-SEP-19
Lead (Pb)			104.9		%		80-120	03-SEP-19
Molybdenum (Mo)			108.3		%		80-120	03-SEP-19
Nickel (Ni)			102.9		%		80-120	03-SEP-19
Selenium (Se)			103.7		%		80-120	03-SEP-19
Silver (Ag)			98.2		%		80-120	03-SEP-19
Thallium (Tl)			102.0		%		80-120	03-SEP-19
Uranium (U)			106.4		%		80-120	03-SEP-19
Vanadium (V)			107.5		%		80-120	03-SEP-19
Zinc (Zn)			100.1		%		80-120	03-SEP-19
WG3149978-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	03-SEP-19
Arsenic (As)			<0.10		mg/kg		0.1	03-SEP-19
Barium (Ba)			<0.50		mg/kg		0.5	03-SEP-19
Beryllium (Be)			<0.10		mg/kg		0.1	03-SEP-19
Boron (B)			<5.0		mg/kg		5	03-SEP-19
Cadmium (Cd)			<0.020		mg/kg		0.02	03-SEP-19
Chromium (Cr)			<0.50		mg/kg		0.5	03-SEP-19
Cobalt (Co)			<0.10		mg/kg		0.1	03-SEP-19
Copper (Cu)			<0.50		mg/kg		0.5	03-SEP-19
Lead (Pb)			<0.50		mg/kg		0.5	03-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4782034								
WG3149978-1 MB								
Molybdenum (Mo)			<0.10		mg/kg		0.1	03-SEP-19
Nickel (Ni)			<0.50		mg/kg		0.5	03-SEP-19
Selenium (Se)			<0.20		mg/kg		0.2	03-SEP-19
Silver (Ag)			<0.10		mg/kg		0.1	03-SEP-19
Thallium (Tl)			<0.050		mg/kg		0.05	03-SEP-19
Uranium (U)			<0.050		mg/kg		0.05	03-SEP-19
Vanadium (V)			<0.20		mg/kg		0.2	03-SEP-19
Zinc (Zn)			<2.0		mg/kg		2	03-SEP-19
MOISTURE-WT	**Soil**							
Batch R4774952								
WG3146518-3 DUP		**L2337674-3**						
% Moisture		4.03	3.93		%	2.7	20	29-AUG-19
WG3146518-2 LCS								
% Moisture			100.8		%		90-110	29-AUG-19
WG3146518-1 MB								
% Moisture			<0.10		%		0.1	29-AUG-19
Batch R4774953								
WG3146537-3 DUP		**L2337866-1**						
% Moisture		3.26	3.17		%	2.9	20	29-AUG-19
WG3146537-2 LCS								
% Moisture			100.5		%		90-110	29-AUG-19
WG3146537-1 MB								
% Moisture			<0.10		%		0.1	29-AUG-19
PAH-511-WT	**Soil**							
Batch R4777587								
WG3145347-3 DUP		**WG3145347-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050		ug/g			

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4777587								
WG3145347-3 DUP		**WG3145347-5**						
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	29-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	29-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-AUG-19
WG3145347-2 LCS								
1-Methylnaphthalene			101.1		%		50-140	29-AUG-19
2-Methylnaphthalene			94.1		%		50-140	29-AUG-19
Acenaphthene			100.2		%		50-140	29-AUG-19
Acenaphthylene			100.8		%		50-140	29-AUG-19
Anthracene			101.3		%		50-140	29-AUG-19
Benzo(a)anthracene			100.8		%		50-140	29-AUG-19
Benzo(a)pyrene			99.99		%		50-140	29-AUG-19
Benzo(b)fluoranthene			94.6		%		50-140	29-AUG-19
Benzo(g,h,i)perylene			100.2		%		50-140	29-AUG-19
Benzo(k)fluoranthene			108.6		%		50-140	29-AUG-19
Chrysene			109.9		%		50-140	29-AUG-19
Dibenzo(ah)anthracene			100.6		%		50-140	29-AUG-19
Fluoranthene			102.1		%		50-140	29-AUG-19
Fluorene			97.4		%		50-140	29-AUG-19
Indeno(1,2,3-cd)pyrene			99.8		%		50-140	29-AUG-19
Naphthalene			98.0		%		50-140	29-AUG-19
Phenanthrene			103.9		%		50-140	29-AUG-19
Pyrene			102.2		%		50-140	29-AUG-19
WG3145347-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	29-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	29-AUG-19
Acenaphthene			<0.050		ug/g		0.05	29-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	29-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4777587								
WG3145347-1 MB								
Anthracene			<0.050		ug/g		0.05	29-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	29-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	29-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	29-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	29-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	29-AUG-19
Chrysene			<0.050		ug/g		0.05	29-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	29-AUG-19
Fluoranthene			<0.050		ug/g		0.05	29-AUG-19
Fluorene			<0.050		ug/g		0.05	29-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	29-AUG-19
Naphthalene			<0.013		ug/g		0.013	29-AUG-19
Phenanthrene			<0.046		ug/g		0.046	29-AUG-19
Pyrene			<0.050		ug/g		0.05	29-AUG-19
Surrogate: 2-Fluorobiphenyl			104.3		%		50-140	29-AUG-19
Surrogate: p-Terphenyl d14			96.7		%		50-140	29-AUG-19
WG3145347-4 MS		**WG3145347-5**						
1-Methylnaphthalene			107.0		%		50-140	29-AUG-19
2-Methylnaphthalene			99.6		%		50-140	29-AUG-19
Acenaphthene			105.5		%		50-140	29-AUG-19
Acenaphthylene			105.9		%		50-140	29-AUG-19
Anthracene			104.5		%		50-140	29-AUG-19
Benzo(a)anthracene			103.4		%		50-140	29-AUG-19
Benzo(a)pyrene			103.2		%		50-140	29-AUG-19
Benzo(b)fluoranthene			97.4		%		50-140	29-AUG-19
Benzo(g,h,i)perylene			101.9		%		50-140	29-AUG-19
Benzo(k)fluoranthene			114.1		%		50-140	29-AUG-19
Chrysene			114.0		%		50-140	29-AUG-19
Dibenzo(ah)anthracene			103.0		%		50-140	29-AUG-19
Fluoranthene			105.7		%		50-140	29-AUG-19
Fluorene			102.2		%		50-140	29-AUG-19
Indeno(1,2,3-cd)pyrene			96.0		%		50-140	29-AUG-19
Naphthalene			103.4		%		50-140	29-AUG-19
Phenanthrene			108.2		%		50-140	29-AUG-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4777587								
WG3145347-4 MS		**WG3145347-5**						
Pyrene			106.4		%		50-140	29-AUG-19
PH-WT	**Soil**							
Batch R4782107								
WG3146310-1 DUP		**L2337161-1**						
pH		8.06	8.13	J	pH units	0.07	0.3	03-SEP-19
WG3150094-1 LCS								
pH			6.96		pH units		6.9-7.1	03-SEP-19
SAR-R511-WT	**Soil**							
Batch R4781970								
WG3149994-4 DUP		**WG3149994-3**						
Calcium (Ca)		101	87.5		mg/L	14	30	03-SEP-19
Sodium (Na)		110	112		mg/L	1.8	30	03-SEP-19
Magnesium (Mg)		74.8	60.6		mg/L	21	30	03-SEP-19
WG3149994-2 IRM		**WT SAR3**						
Calcium (Ca)			100.2		%		70-130	03-SEP-19
Sodium (Na)			107.8		%		70-130	03-SEP-19
Magnesium (Mg)			103.8		%		70-130	03-SEP-19
WG3149994-5 LCS								
Calcium (Ca)			105.7		%		70-130	03-SEP-19
Sodium (Na)			101.6		%		70-130	03-SEP-19
Magnesium (Mg)			101.6		%		70-130	03-SEP-19
WG3149994-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	03-SEP-19
Sodium (Na)			<0.50		mg/L		0.5	03-SEP-19
Magnesium (Mg)			<0.50		mg/L		0.5	03-SEP-19
Batch R4815928								
WG3163992-4 DUP		**WG3163992-3**						
Calcium (Ca)		12.8	12.5		mg/L	2.4	30	17-SEP-19
Sodium (Na)		9.91	8.78		mg/L	12	30	17-SEP-19
Magnesium (Mg)		1.26	1.23		mg/L	2.4	30	17-SEP-19
WG3163992-2 IRM		**WT SAR3**						
Calcium (Ca)			76.2		%		70-130	17-SEP-19
Sodium (Na)			95.4		%		70-130	17-SEP-19
Magnesium (Mg)			84.9		%		70-130	17-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4815928								
WG3163992-5 LCS								
Calcium (Ca)			106.7		%		70-130	17-SEP-19
Sodium (Na)			104.6		%		70-130	17-SEP-19
Magnesium (Mg)			105.8		%		70-130	17-SEP-19
WG3163992-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	17-SEP-19
Sodium (Na)			<0.50		mg/L		0.5	17-SEP-19
Magnesium (Mg)			<0.50		mg/L		0.5	17-SEP-19
TOC-R511-WT	**Soil**							
Batch R4784023								
WG3151721-3 CRM		**WT-TOC-CRM**						
Total Organic Carbon			76.4		%		70-130	05-SEP-19
WG3151721-4 DUP		**L2335973-5**						
Total Organic Carbon		1.56	1.54		%	0.8	35	05-SEP-19
WG3151721-2 LCS								
Total Organic Carbon			101.6		%		80-120	05-SEP-19
Total Organic Carbon			101.6		%		80-120	05-SEP-19
Total Organic Carbon			101.6		%		80-120	05-SEP-19
WG3151721-1 MB								
Total Organic Carbon			<0.10		%		0.1	05-SEP-19
VOC-511-HS-WT	**Soil**							
Batch R4782458								
WG3148016-4 DUP		**WG3148016-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782458								
WG3148016-4 DUP		**WG3148016-3**						
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	04-SEP-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	04-SEP-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-SEP-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	04-SEP-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-SEP-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	04-SEP-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	04-SEP-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	04-SEP-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	04-SEP-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-SEP-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	04-SEP-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	04-SEP-19
WG3148016-2 LCS								
1,1,1,2-Tetrachloroethane			96.4		%		60-130	04-SEP-19
1,1,2,2-Tetrachloroethane			97.6		%		60-130	04-SEP-19
1,1,1-Trichloroethane			87.5		%		60-130	04-SEP-19
1,1,2-Trichloroethane			100.6		%		60-130	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782458								
WG3148016-2 LCS								
1,1-Dichloroethane			87.0		%		60-130	04-SEP-19
1,1-Dichloroethylene			76.9		%		60-130	04-SEP-19
1,2-Dibromoethane			98.6		%		70-130	04-SEP-19
1,2-Dichlorobenzene			100.1		%		70-130	04-SEP-19
1,2-Dichloroethane			91.6		%		60-130	04-SEP-19
1,2-Dichloropropane			95.6		%		70-130	04-SEP-19
1,3-Dichlorobenzene			98.5		%		70-130	04-SEP-19
1,4-Dichlorobenzene			99.7		%		70-130	04-SEP-19
Acetone			94.1		%		60-140	04-SEP-19
Benzene			97.1		%		70-130	04-SEP-19
Bromodichloromethane			93.0		%		50-140	04-SEP-19
Bromoform			98.5		%		70-130	04-SEP-19
Bromomethane			78.3		%		50-140	04-SEP-19
Carbon tetrachloride			87.9		%		70-130	04-SEP-19
Chlorobenzene			95.1		%		70-130	04-SEP-19
Chloroform			95.5		%		70-130	04-SEP-19
cis-1,2-Dichloroethylene			97.0		%		70-130	04-SEP-19
cis-1,3-Dichloropropene			97.5		%		70-130	04-SEP-19
Dibromochloromethane			94.4		%		60-130	04-SEP-19
Dichlorodifluoromethane			51.1		%		50-140	04-SEP-19
Ethylbenzene			88.4		%		70-130	04-SEP-19
n-Hexane			66.6	LCS-L	%		70-130	04-SEP-19
Methylene Chloride			96.0		%		70-130	04-SEP-19
MTBE			97.0		%		70-130	04-SEP-19
m+p-Xylenes			87.0		%		70-130	04-SEP-19
Methyl Ethyl Ketone			100.7		%		60-140	04-SEP-19
Methyl Isobutyl Ketone			87.8		%		60-140	04-SEP-19
o-Xylene			88.4		%		70-130	04-SEP-19
Styrene			89.1		%		70-130	04-SEP-19
Tetrachloroethylene			93.3		%		60-130	04-SEP-19
Toluene			91.5		%		70-130	04-SEP-19
trans-1,2-Dichloroethylene			82.2		%		60-130	04-SEP-19
trans-1,3-Dichloropropene			88.4		%		70-130	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782458								
WG3148016-2 LCS								
Trichloroethylene			98.2		%		60-130	04-SEP-19
Trichlorofluoromethane			77.8		%		50-140	04-SEP-19
Vinyl chloride			80.0		%		60-140	04-SEP-19
WG3148016-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1-Dichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	04-SEP-19
1,2-Dibromoethane			<0.050		ug/g		0.05	04-SEP-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	04-SEP-19
1,2-Dichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,2-Dichloropropane			<0.050		ug/g		0.05	04-SEP-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	04-SEP-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	04-SEP-19
Acetone			<0.50		ug/g		0.5	04-SEP-19
Benzene			<0.0068		ug/g		0.0068	04-SEP-19
Bromodichloromethane			<0.050		ug/g		0.05	04-SEP-19
Bromoform			<0.050		ug/g		0.05	04-SEP-19
Bromomethane			<0.050		ug/g		0.05	04-SEP-19
Carbon tetrachloride			<0.050		ug/g		0.05	04-SEP-19
Chlorobenzene			<0.050		ug/g		0.05	04-SEP-19
Chloroform			<0.050		ug/g		0.05	04-SEP-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	04-SEP-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	04-SEP-19
Dibromochloromethane			<0.050		ug/g		0.05	04-SEP-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	04-SEP-19
Ethylbenzene			<0.018		ug/g		0.018	04-SEP-19
n-Hexane			<0.050		ug/g		0.05	04-SEP-19
Methylene Chloride			<0.050		ug/g		0.05	04-SEP-19
MTBE			<0.050		ug/g		0.05	04-SEP-19
m+p-Xylenes			<0.030		ug/g		0.03	04-SEP-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782458								
WG3148016-1 MB								
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	04-SEP-19
o-Xylene			<0.020		ug/g		0.02	04-SEP-19
Styrene			<0.050		ug/g		0.05	04-SEP-19
Tetrachloroethylene			<0.050		ug/g		0.05	04-SEP-19
Toluene			<0.080		ug/g		0.08	04-SEP-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	04-SEP-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	04-SEP-19
Trichloroethylene			<0.010		ug/g		0.01	04-SEP-19
Trichlorofluoromethane			<0.050		ug/g		0.05	04-SEP-19
Vinyl chloride			<0.020		ug/g		0.02	04-SEP-19
Surrogate: 1,4-Difluorobenzene			111.0		%		50-140	04-SEP-19
Surrogate: 4-Bromofluorobenzene			95.0		%		50-140	04-SEP-19
WG3148016-5 MS		**L2336024-4**						
1,1,1,2-Tetrachloroethane			101.7		%		50-140	04-SEP-19
1,1,2,2-Tetrachloroethane			92.0		%		50-140	04-SEP-19
1,1,1-Trichloroethane			94.5		%		50-140	04-SEP-19
1,1,2-Trichloroethane			97.5		%		50-140	04-SEP-19
1,1-Dichloroethane			90.4		%		50-140	04-SEP-19
1,1-Dichloroethylene			83.0		%		50-140	04-SEP-19
1,2-Dibromoethane			92.7		%		50-140	04-SEP-19
1,2-Dichlorobenzene			104.0		%		50-140	04-SEP-19
1,2-Dichloroethane			86.0		%		50-140	04-SEP-19
1,2-Dichloropropane			96.0		%		50-140	04-SEP-19
1,3-Dichlorobenzene			104.4		%		50-140	04-SEP-19
1,4-Dichlorobenzene			104.8		%		50-140	04-SEP-19
Acetone			81.9		%		50-140	04-SEP-19
Benzene			100.5		%		50-140	04-SEP-19
Bromodichloromethane			92.3		%		50-140	04-SEP-19
Bromoform			93.4		%		50-140	04-SEP-19
Bromomethane			77.3		%		50-140	04-SEP-19
Carbon tetrachloride			96.2		%		50-140	04-SEP-19
Chlorobenzene			99.2		%		50-140	04-SEP-19
Chloroform			98.4		%		50-140	04-SEP-19
cis-1,2-Dichloroethylene			99.0		%		50-140	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782458								
WG3148016-5 MS		**L2336024-4**						
cis-1,3-Dichloropropene			87.1		%		50-140	04-SEP-19
Dibromochloromethane			92.6		%		50-140	04-SEP-19
Dichlorodifluoromethane			59.0		%		50-140	04-SEP-19
Ethylbenzene			96.2		%		50-140	04-SEP-19
n-Hexane			72.8		%		50-140	04-SEP-19
Methylene Chloride			93.8		%		50-140	04-SEP-19
MTBE			100.6		%		50-140	04-SEP-19
m+p-Xylenes			94.0		%		50-140	04-SEP-19
Methyl Ethyl Ketone			80.0		%		50-140	04-SEP-19
Methyl Isobutyl Ketone			75.3		%		50-140	04-SEP-19
o-Xylene			94.9		%		50-140	04-SEP-19
Styrene			92.6		%		50-140	04-SEP-19
Tetrachloroethylene			102.6		%		50-140	04-SEP-19
Toluene			98.6		%		50-140	04-SEP-19
trans-1,2-Dichloroethylene			85.5		%		50-140	04-SEP-19
trans-1,3-Dichloropropene			77.3		%		50-140	04-SEP-19
Trichloroethylene			104.1		%		50-140	04-SEP-19
Trichlorofluoromethane			86.2		%		50-140	04-SEP-19
Vinyl chloride			86.3		%		50-140	04-SEP-19
Batch R4782647								
WG3150058-4 DUP		**WG3150058-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782647								
WG3150058-4 DUP		**WG3150058-3**						
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	04-SEP-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	04-SEP-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-SEP-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	04-SEP-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-SEP-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	04-SEP-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	04-SEP-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	04-SEP-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	04-SEP-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-SEP-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	04-SEP-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	04-SEP-19
WG3150058-2 LCS								
1,1,1,2-Tetrachloroethane			102.8		%		60-130	04-SEP-19
1,1,2,2-Tetrachloroethane			92.4		%		60-130	04-SEP-19
1,1,1-Trichloroethane			105.7		%		60-130	04-SEP-19
1,1,2-Trichloroethane			96.2		%		60-130	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782647								
WG3150058-2 LCS								
1,1-Dichloroethane			90.5		%		60-130	04-SEP-19
1,1-Dichloroethylene			87.6		%		60-130	04-SEP-19
1,2-Dibromoethane			93.6		%		70-130	04-SEP-19
1,2-Dichlorobenzene			105.3		%		70-130	04-SEP-19
1,2-Dichloroethane			94.7		%		60-130	04-SEP-19
1,2-Dichloropropane			98.7		%		70-130	04-SEP-19
1,3-Dichlorobenzene			105.6		%		70-130	04-SEP-19
1,4-Dichlorobenzene			108.6		%		70-130	04-SEP-19
Acetone			80.0		%		60-140	04-SEP-19
Benzene			104.5		%		70-130	04-SEP-19
Bromodichloromethane			105.8		%		50-140	04-SEP-19
Bromoform			105.8		%		70-130	04-SEP-19
Bromomethane			80.7		%		50-140	04-SEP-19
Carbon tetrachloride			109.1		%		70-130	04-SEP-19
Chlorobenzene			105.5		%		70-130	04-SEP-19
Chloroform			105.2		%		70-130	04-SEP-19
cis-1,2-Dichloroethylene			101.0		%		70-130	04-SEP-19
cis-1,3-Dichloropropene			103.7		%		70-130	04-SEP-19
Dibromochloromethane			98.0		%		60-130	04-SEP-19
Dichlorodifluoromethane			60.5		%		50-140	04-SEP-19
Ethylbenzene			95.2		%		70-130	04-SEP-19
n-Hexane			68.3	LCS-L	%		70-130	04-SEP-19
Methylene Chloride			97.1		%		70-130	04-SEP-19
MTBE			104.6		%		70-130	04-SEP-19
m+p-Xylenes			98.5		%		70-130	04-SEP-19
Methyl Ethyl Ketone			82.6		%		60-140	04-SEP-19
Methyl Isobutyl Ketone			79.1		%		60-140	04-SEP-19
o-Xylene			95.3		%		70-130	04-SEP-19
Styrene			100.5		%		70-130	04-SEP-19
Tetrachloroethylene			106.1		%		60-130	04-SEP-19
Toluene			97.7		%		70-130	04-SEP-19
trans-1,2-Dichloroethylene			91.6		%		60-130	04-SEP-19
trans-1,3-Dichloropropene			92.4		%		70-130	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782647								
WG3150058-2 LCS								
Trichloroethylene			113.6		%		60-130	04-SEP-19
Trichlorofluoromethane			95.3		%		50-140	04-SEP-19
Vinyl chloride			85.8		%		60-140	04-SEP-19
WG3150058-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1-Dichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	04-SEP-19
1,2-Dibromoethane			<0.050		ug/g		0.05	04-SEP-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	04-SEP-19
1,2-Dichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,2-Dichloropropane			<0.050		ug/g		0.05	04-SEP-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	04-SEP-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	04-SEP-19
Acetone			<0.50		ug/g		0.5	04-SEP-19
Benzene			<0.0068		ug/g		0.0068	04-SEP-19
Bromodichloromethane			<0.050		ug/g		0.05	04-SEP-19
Bromoform			<0.050		ug/g		0.05	04-SEP-19
Bromomethane			<0.050		ug/g		0.05	04-SEP-19
Carbon tetrachloride			<0.050		ug/g		0.05	04-SEP-19
Chlorobenzene			<0.050		ug/g		0.05	04-SEP-19
Chloroform			<0.050		ug/g		0.05	04-SEP-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	04-SEP-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	04-SEP-19
Dibromochloromethane			<0.050		ug/g		0.05	04-SEP-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	04-SEP-19
Ethylbenzene			<0.018		ug/g		0.018	04-SEP-19
n-Hexane			<0.050		ug/g		0.05	04-SEP-19
Methylene Chloride			<0.050		ug/g		0.05	04-SEP-19
MTBE			<0.050		ug/g		0.05	04-SEP-19
m+p-Xylenes			<0.030		ug/g		0.03	04-SEP-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782647								
WG3150058-1 MB								
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	04-SEP-19
o-Xylene			<0.020		ug/g		0.02	04-SEP-19
Styrene			<0.050		ug/g		0.05	04-SEP-19
Tetrachloroethylene			<0.050		ug/g		0.05	04-SEP-19
Toluene			<0.080		ug/g		0.08	04-SEP-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	04-SEP-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	04-SEP-19
Trichloroethylene			<0.010		ug/g		0.01	04-SEP-19
Trichlorofluoromethane			<0.050		ug/g		0.05	04-SEP-19
Vinyl chloride			<0.020		ug/g		0.02	04-SEP-19
Surrogate: 1,4-Difluorobenzene			121.8		%		50-140	04-SEP-19
Surrogate: 4-Bromofluorobenzene			103.3		%		50-140	04-SEP-19
WG3150058-5 MS		**L2336018-3**						
1,1,1,2-Tetrachloroethane			105.8		%		50-140	04-SEP-19
1,1,2,2-Tetrachloroethane			92.3		%		50-140	04-SEP-19
1,1,1-Trichloroethane			110.5		%		50-140	04-SEP-19
1,1,2-Trichloroethane			97.9		%		50-140	04-SEP-19
1,1-Dichloroethane			91.7		%		50-140	04-SEP-19
1,1-Dichloroethylene			91.2		%		50-140	04-SEP-19
1,2-Dibromoethane			95.8		%		50-140	04-SEP-19
1,2-Dichlorobenzene			108.7		%		50-140	04-SEP-19
1,2-Dichloroethane			97.6		%		50-140	04-SEP-19
1,2-Dichloropropane			100.9		%		50-140	04-SEP-19
1,3-Dichlorobenzene			108.2		%		50-140	04-SEP-19
1,4-Dichlorobenzene			110.2		%		50-140	04-SEP-19
Acetone			83.9		%		50-140	04-SEP-19
Benzene			107.6		%		50-140	04-SEP-19
Bromodichloromethane			108.9		%		50-140	04-SEP-19
Bromoform			106.9		%		50-140	04-SEP-19
Bromomethane			82.5		%		50-140	04-SEP-19
Carbon tetrachloride			114.1		%		50-140	04-SEP-19
Chlorobenzene			107.7		%		50-140	04-SEP-19
Chloroform			108.8		%		50-140	04-SEP-19
cis-1,2-Dichloroethylene			103.9		%		50-140	04-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4782647								
WG3150058-5 MS		**L2336018-3**						
cis-1,3-Dichloropropene			99.0		%		50-140	04-SEP-19
Dibromochloromethane			100.7		%		50-140	04-SEP-19
Dichlorodifluoromethane			71.8		%		50-140	04-SEP-19
Ethylbenzene			96.3		%		50-140	04-SEP-19
n-Hexane			72.8		%		50-140	04-SEP-19
Methylene Chloride			95.4		%		50-140	04-SEP-19
MTBE			107.0		%		50-140	04-SEP-19
m+p-Xylenes			100.1		%		50-140	04-SEP-19
Methyl Ethyl Ketone			87.0		%		50-140	04-SEP-19
Methyl Isobutyl Ketone			78.1		%		50-140	04-SEP-19
o-Xylene			96.3		%		50-140	04-SEP-19
Styrene			100.2		%		50-140	04-SEP-19
Tetrachloroethylene			107.1		%		50-140	04-SEP-19
Toluene			99.5		%		50-140	04-SEP-19
trans-1,2-Dichloroethylene			91.8		%		50-140	04-SEP-19
trans-1,3-Dichloropropene			88.3		%		50-140	04-SEP-19
Trichloroethylene			116.1		%		50-140	04-SEP-19
Trichlorofluoromethane			102.1		%		50-140	04-SEP-19
Vinyl chloride			90.1		%		50-140	04-SEP-19

Quality Control Report

Workorder: L2336718 Report Date: 18-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Andrew Vermeersch

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.
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
MBS	Surrogate recovery in Method Blank was outside ALS DQO. Moderately low-biased results in the MB do not significantly affect its purpose.
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.

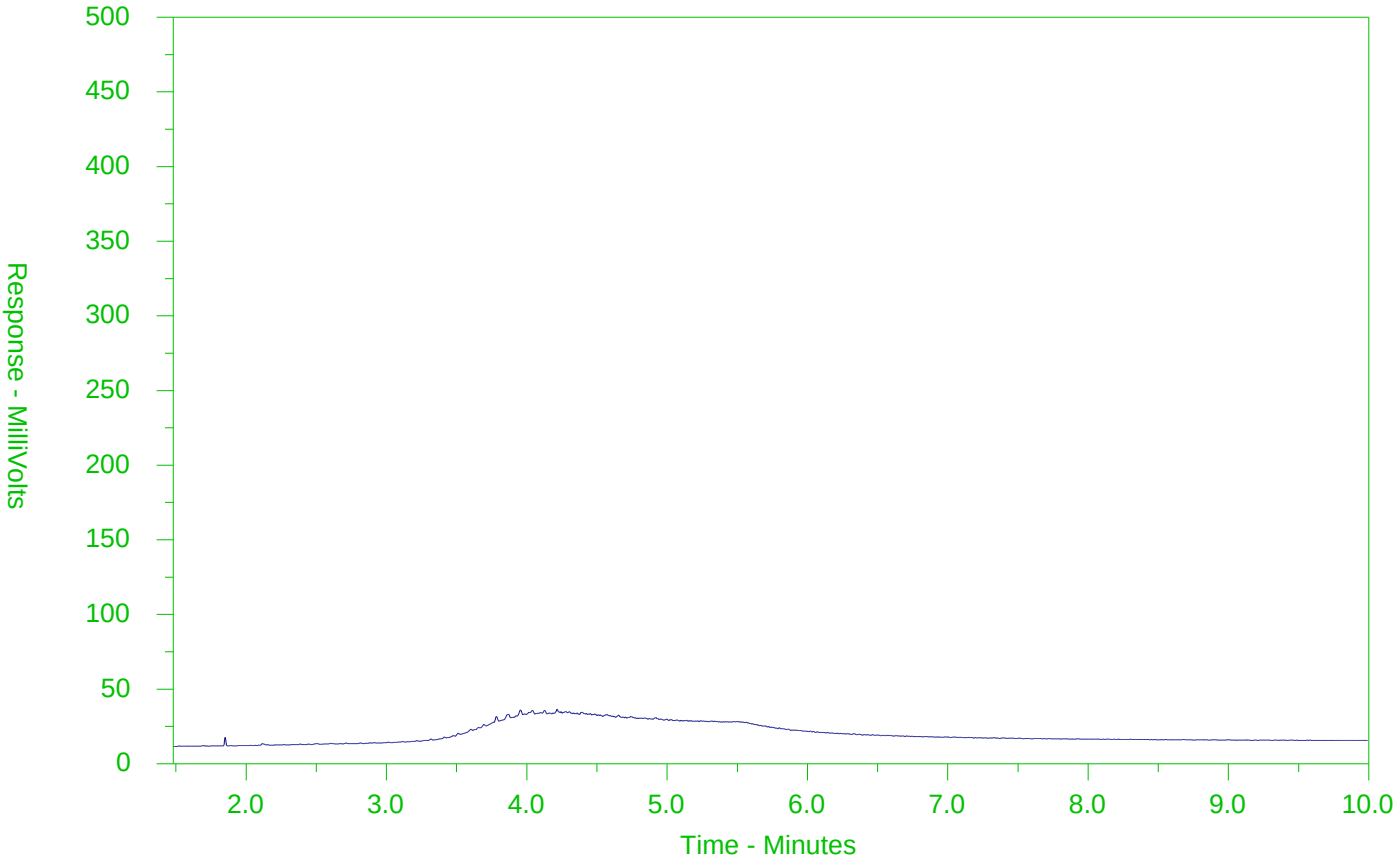
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2336718-1
Client Sample ID: MW102-7.5-9.5



←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.

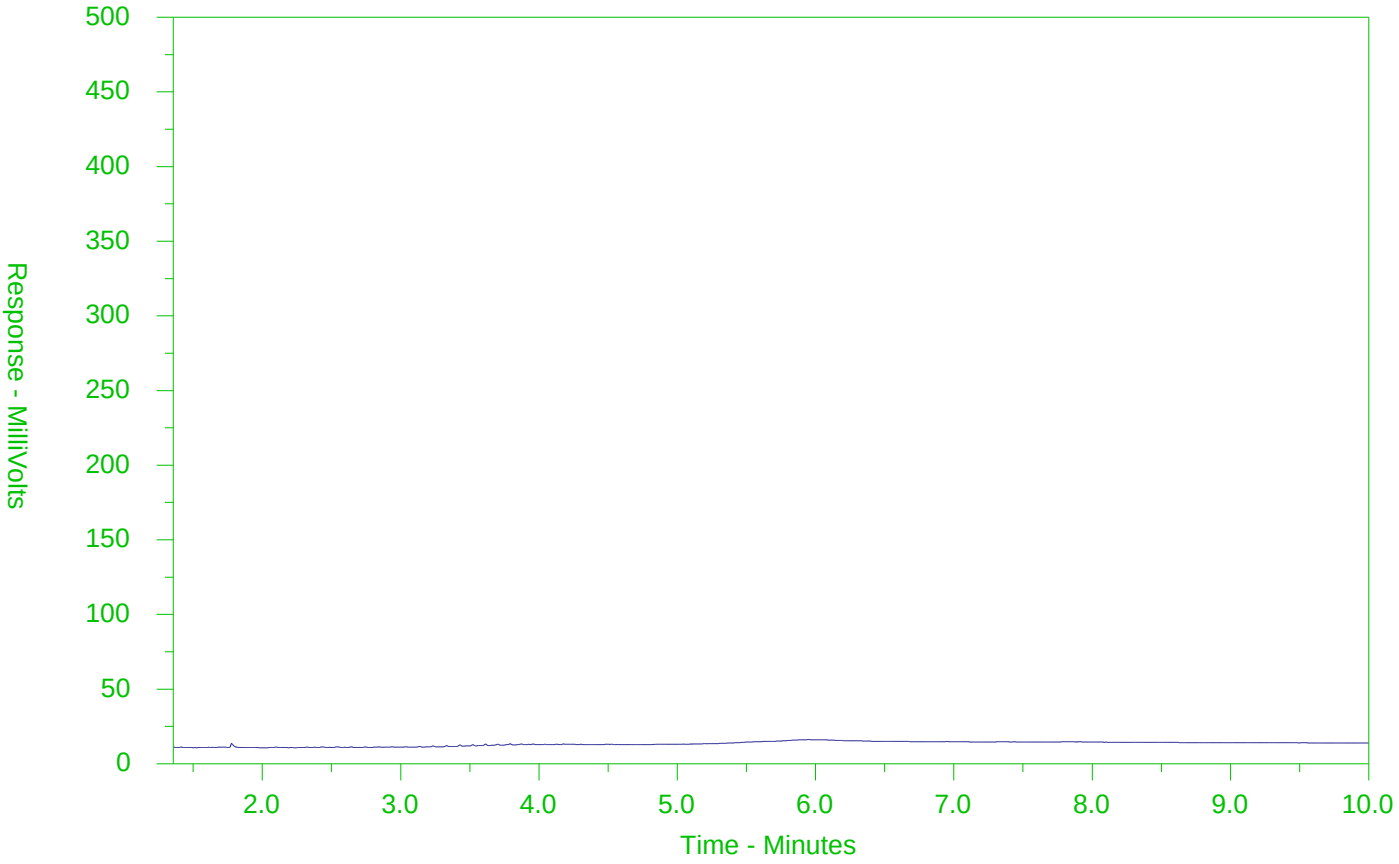
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2336718-3
Client Sample ID: MW102-12.5-14.5



←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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2336718-COFC

COC Number: 17 -

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	CH2M Hill/Jacobs	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Andrew Vermeersch	Quality Control (QC) Report with Report ☑ YES ☐ NO	Priority (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519 579 3500 x 73247	☑ Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E1 - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Street:	72 Victoria Street South, Suite 300	Email 1 or Fax: Andrew.Vermeersch@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener/Ontario	Email 2: michael.smirz@jacobs.com	
Postal Code:	N2G 4Y9	Email 3: Katherine.sweetsby@jacobs.com	
Invoice To	Same as Report To ☐ YES ☐ NO	Invoice Distribution	
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:	CH2M Hill Kitchener	Email 1 or Fax: Accounts Payable	
Contact:	Accounts Payable	Email 2:	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q72980	AFE/Cost Center:	PO#:
Job #:	CE751900.A.CS.EV.A2	Major/Minor Codes:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2336718 AD

ALS Contact: Mathy

Sampler: Andrew V

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals & Inorganics	VOC	BTX	F1-F4	PAH	Dioxins and Furans (To ALS BU)	PCB	TOC	ABN	Methyl Mercury	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	MW102-7.5-9.5	26-Aug-19	9:45	Soil	X	X	X	X	X			X					5
	MW102-7.5-9.5	"	"	"										X	1		
	MW102-12.5-14.5	"	9:57	"	X	X	X	X	X			X					5
	MW102-12.5-14.5	"	"	"										X	1		
	MW102-25-26	"	9:44	"								X					1
	MW102-25-26	"	"	"	X	X	X	X	X					X	5		
	TRIPBLANK-20190827	"	—	Methanol		P	P										1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	Please compare to Table 1 Standard Criteria not included on report
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☑ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				5.2			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Andrew Vermeersch	27-Aug-19	10:45					27/08/19	1520

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: Michael Shiry
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 06-SEP-19
Report Date: 13-SEP-19 12:41 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2343122

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900.A.CS.EV.19.19-01
C of C Numbers: 17-826465, 17-826566
Legal Site Desc:

Emily Hansen
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-1 MW109						
Sampled By: V PETERS on 05-SEP-19 @ 09:50						
Matrix: WATER						
Physical Tests						
Conductivity	1.89		0.0030	mS/cm	09-SEP-19	*0.57
pH	8.11		0.10	pH units	09-SEP-19	
Anions and Nutrients						
Chloride (Cl)	448	DLHC	5.0	mg/L	10-SEP-19	
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals						
Sodium Adsorption Ratio	Incalculable	SAR:INC	0.10	SAR	10-SEP-19	
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Barium (Ba)-Dissolved	43.3	DLHC	1.0	ug/L	09-SEP-19	
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Boron (B)-Dissolved	<100	DLHC	100	ug/L	09-SEP-19	
Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	09-SEP-19	
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Copper (Cu)-Dissolved	2.1	DLHC	2.0	ug/L	10-SEP-19	
Lead (Pb)-Dissolved	0.72	DLHC	0.50	ug/L	09-SEP-19	
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
Molybdenum (Mo)-Dissolved	5.65	DLHC	0.50	ug/L	09-SEP-19	
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Selenium (Se)-Dissolved	0.57	DLHC	0.50	ug/L	09-SEP-19	
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Sodium (Na)-Dissolved	304000	DLHC	500	ug/L	09-SEP-19	
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	09-SEP-19	
Uranium (U)-Dissolved	0.34	DLHC	0.10	ug/L	09-SEP-19	
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Zinc (Zn)-Dissolved	14	DLHC	10	ug/L	09-SEP-19	
Speciated Metals						
Chromium, Hexavalent	2.00		0.50	ug/L	10-SEP-19	
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19	
Chloroform	<1.0		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2343122-1	MW109									
Sampled By:	V PETERS on 05-SEP-19 @ 09:50									
Matrix:	WATER						#1			
Volatile Organic Compounds										
	Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19				
	1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
	1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
	1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
	1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				
	Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19				
	n-Hexane	<0.50		0.50	ug/L	11-SEP-19				
	Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19				
	Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19				
	MTBE	<2.0		2.0	ug/L	11-SEP-19				
	Styrene	<0.50		0.50	ug/L	11-SEP-19				
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
	Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	Toluene	<0.50		0.50	ug/L	11-SEP-19				
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
	Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
	Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
	o-Xylene	<0.30		0.30	ug/L	11-SEP-19				
	m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19				
	Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19				
	Surrogate: 4-Bromofluorobenzene	93.0		70-130	%	11-SEP-19				
	Surrogate: 1,4-Difluorobenzene	96.1		70-130	%	11-SEP-19				
Hydrocarbons										
	F1 (C6-C10)	<25		25	ug/L	11-SEP-19				
	F1-BTEX	<25		25	ug/L	11-SEP-19				
	F2 (C10-C16)	<100		100	ug/L	10-SEP-19				
	F2-Naphth	<100		100	ug/L	11-SEP-19				
	F3 (C16-C34)	<250		250	ug/L	10-SEP-19				
	F3-PAH	<250		250	ug/L	11-SEP-19				
	F4 (C34-C50)	<250		250	ug/L	10-SEP-19				
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19				
	Chrom. to baseline at nC50	YES			No Unit	10-SEP-19				
	Surrogate: 2-Bromobenzotrifluoride	87.5		60-140	%	10-SEP-19				
	Surrogate: 3,4-Dichlorotoluene	93.5		60-140	%	11-SEP-19				
Polycyclic Aromatic Hydrocarbons										
	Acenaphthene	<0.020		0.020	ug/L	11-SEP-19				
	Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19				
	Anthracene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-1 MW109						
Sampled By: V PETERS on 05-SEP-19 @ 09:50						
Matrix: WATER						
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19	
Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19	
Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
Chrysene	<0.020		0.020	ug/L	11-SEP-19	
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
Fluorene	<0.020		0.020	ug/L	11-SEP-19	
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19	
1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
Pyrene	<0.020		0.020	ug/L	11-SEP-19	
Surrogate: d10-Acenaphthene	107.0		60-140	%	11-SEP-19	
Surrogate: d12-Chrysene	103.0		60-140	%	11-SEP-19	
Surrogate: d8-Naphthalene	110.5		60-140	%	11-SEP-19	
Surrogate: d10-Phenanthrene	108.2		60-140	%	11-SEP-19	
L2343122-2 MW108						
Sampled By: V PETERS on 05-SEP-19 @ 11:20						
Matrix: WATER						#1
Physical Tests						
Conductivity	1.85		0.0030	mS/cm	09-SEP-19	*0.57
pH	7.93		0.10	pH units	09-SEP-19	
Anions and Nutrients						
Chloride (Cl)	2640	DLHC	5.0	mg/L	10-SEP-19	
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals						
Sodium Adsorption Ratio	<10	SAR:DL	10	SAR	10-SEP-19	**2.4
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
Antimony (Sb)-Dissolved	0.43		0.10	ug/L	10-SEP-19	
Arsenic (As)-Dissolved	0.51		0.10	ug/L	10-SEP-19	
Barium (Ba)-Dissolved	99.5		0.10	ug/L	10-SEP-19	
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	10-SEP-19	
Boron (B)-Dissolved	64		10	ug/L	10-SEP-19	
Cadmium (Cd)-Dissolved	<0.010		0.010	ug/L	10-SEP-19	
Chromium (Cr)-Dissolved	1.24		0.50	ug/L	10-SEP-19	
Cobalt (Co)-Dissolved	0.33		0.10	ug/L	10-SEP-19	
Copper (Cu)-Dissolved	4.01		0.20	ug/L	10-SEP-19	
Lead (Pb)-Dissolved	0.061		0.050	ug/L	10-SEP-19	
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
Molybdenum (Mo)-Dissolved	14.2		0.050	ug/L	10-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-2 MW108						
Sampled By: V PETERS on 05-SEP-19 @ 11:20						
Matrix: WATER						
Dissolved Metals						
Nickel (Ni)-Dissolved	3.44		0.50	ug/L	10-SEP-19	
Selenium (Se)-Dissolved	0.253		0.050	ug/L	10-SEP-19	
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	10-SEP-19	
Sodium (Na)-Dissolved	131000	DLHC	500	ug/L	09-SEP-19	
Thallium (Tl)-Dissolved	0.055		0.010	ug/L	10-SEP-19	
Uranium (U)-Dissolved	2.33		0.010	ug/L	10-SEP-19	
Vanadium (V)-Dissolved	0.76		0.50	ug/L	10-SEP-19	
Zinc (Zn)-Dissolved	1.7		1.0	ug/L	10-SEP-19	
Speciated Metals						
Chromium, Hexavalent	<0.50		0.50	ug/L	10-SEP-19	
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19	
Chloroform	2.3		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19	
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19	
1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19	
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19	
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19	
n-Hexane	<0.50		0.50	ug/L	11-SEP-19	
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19	
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19	
MTBE	<2.0		2.0	ug/L	11-SEP-19	
Styrene	<0.50		0.50	ug/L	11-SEP-19	
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19	
Toluene	<0.50		0.50	ug/L	11-SEP-19	
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2343122-2	MW108									
Sampled By:	V PETERS on 05-SEP-19 @ 11:20									
Matrix:	WATER						#1			
Volatile Organic Compounds										
	Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
	Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
	o-Xylene	<0.30		0.30	ug/L	11-SEP-19				
	m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19				
	Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19				
	Surrogate: 4-Bromofluorobenzene	94.0		70-130	%	11-SEP-19				
	Surrogate: 1,4-Difluorobenzene	96.3		70-130	%	11-SEP-19				
Hydrocarbons										
	F1 (C6-C10)	<25		25	ug/L	11-SEP-19				
	F1-BTEX	<25		25	ug/L	11-SEP-19				
	F2 (C10-C16)	<100		100	ug/L	10-SEP-19				
	F2-Naphth	<100		100	ug/L	11-SEP-19				
	F3 (C16-C34)	<250		250	ug/L	10-SEP-19				
	F3-PAH	<250		250	ug/L	11-SEP-19				
	F4 (C34-C50)	<250		250	ug/L	10-SEP-19				
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19				
	Chrom. to baseline at nC50	YES			No Unit	10-SEP-19				
	Surrogate: 2-Bromobenzotrifluoride	86.9		60-140	%	10-SEP-19				
	Surrogate: 3,4-Dichlorotoluene	101.0		60-140	%	11-SEP-19				
Polycyclic Aromatic Hydrocarbons										
	Acenaphthene	<0.020		0.020	ug/L	11-SEP-19				
	Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19				
	Anthracene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19				
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
	Chrysene	<0.020		0.020	ug/L	11-SEP-19				
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19				
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
	Fluorene	<0.020		0.020	ug/L	11-SEP-19				
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19				
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19				
	1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19				
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19				
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19				
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19				
	Pyrene	<0.020		0.020	ug/L	11-SEP-19				
	Surrogate: d10-Acenaphthene	101.3		60-140	%	11-SEP-19				
	Surrogate: d12-Chrysene	99.8		60-140	%	11-SEP-19				
	Surrogate: d8-Naphthalene	104.2		60-140	%	11-SEP-19				
	Surrogate: d10-Phenanthrene	101.4		60-140	%	11-SEP-19				
L2343122-3	MW104									
Sampled By:	V PETERS on 05-SEP-19 @ 13:10									
Matrix:	WATER						#1			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-3 MW104						
Sampled By: V PETERS on 05-SEP-19 @ 13:10						
Matrix: WATER						
Physical Tests						
Conductivity	7.24		0.0030	mS/cm	09-SEP-19	*0.57
pH	7.80		0.10	pH units	09-SEP-19	
Anions and Nutrients						
Chloride (Cl)	2660	DLHC	10	mg/L	10-SEP-19	
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals						
Sodium Adsorption Ratio	<130	SAR:DL	130	SAR	10-SEP-19	**2.4
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Barium (Ba)-Dissolved	164	DLHC	1.0	ug/L	09-SEP-19	
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Boron (B)-Dissolved	<100	DLHC	100	ug/L	09-SEP-19	
Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	09-SEP-19	
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Copper (Cu)-Dissolved	2.1	DLHC	2.0	ug/L	09-SEP-19	
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
Molybdenum (Mo)-Dissolved	17.6	DLHC	0.50	ug/L	09-SEP-19	
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Selenium (Se)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Sodium (Na)-Dissolved	1360000	DLHC	5000	ug/L	10-SEP-19	
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	09-SEP-19	
Uranium (U)-Dissolved	1.83	DLHC	0.10	ug/L	09-SEP-19	
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	09-SEP-19	
Speciated Metals						
Chromium, Hexavalent	<0.50		0.50	ug/L	10-SEP-19	
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	4.7		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	4.1		2.0	ug/L	11-SEP-19	
Chloroform	4.9		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2343122-3 MW104									
Sampled By: V PETERS on 05-SEP-19 @ 13:10									
Matrix: WATER									
Volatile Organic Compounds									
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19				
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19				
n-Hexane	<0.50		0.50	ug/L	11-SEP-19				
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19				
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19				
MTBE	<2.0		2.0	ug/L	11-SEP-19				
Styrene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Toluene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
o-Xylene	<0.30		0.30	ug/L	11-SEP-19				
m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19				
Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19				
Surrogate: 4-Bromofluorobenzene	91.4		70-130	%	11-SEP-19				
Surrogate: 1,4-Difluorobenzene	95.8		70-130	%	11-SEP-19				
Hydrocarbons									
F1 (C6-C10)	<25		25	ug/L	11-SEP-19				
F1-BTEX	<25		25	ug/L	13-SEP-19				
F2 (C10-C16)	<100		100	ug/L	10-SEP-19				
F2-Naphth	<100		100	ug/L	13-SEP-19				
F3 (C16-C34)	<250		250	ug/L	10-SEP-19				
F3-PAH	<250		250	ug/L	13-SEP-19				
F4 (C34-C50)	<250		250	ug/L	10-SEP-19				
Total Hydrocarbons (C6-C50)	<370		370	ug/L	13-SEP-19				
Chrom. to baseline at nC50	YES			No Unit	10-SEP-19				
Surrogate: 2-Bromobenzotrifluoride	86.8		60-140	%	10-SEP-19				
Surrogate: 3,4-Dichlorotoluene	99.8		60-140	%	11-SEP-19				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.020		0.020	ug/L	11-SEP-19				
Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19				
Anthracene	<0.020		0.020	ug/L	11-SEP-19				
Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-3	MW104						
Sampled By:	V PETERS on 05-SEP-19 @ 13:10						
Matrix:	WATER						#1
Polycyclic Aromatic Hydrocarbons							
	Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19	
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Chrysene	<0.020		0.020	ug/L	11-SEP-19	
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Fluorene	<0.020		0.020	ug/L	11-SEP-19	
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	13-SEP-19	
	1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
	Pyrene	<0.020		0.020	ug/L	11-SEP-19	
	Surrogate: d10-Acenaphthene	107.5		60-140	%	11-SEP-19	
	Surrogate: d12-Chrysene	106.5		60-140	%	11-SEP-19	
	Surrogate: d8-Naphthalene	111.1		60-140	%	11-SEP-19	
	Surrogate: d10-Phenanthrene	106.2		60-140	%	11-SEP-19	
Semi-Volatile Organics							
	Biphenyl	<0.40		0.40	ug/L	13-SEP-19	
	4-Chloroaniline	<0.40		0.40	ug/L	13-SEP-19	
	Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	13-SEP-19	
	Bis(2-chloroisopropyl)ether	<0.40		0.40	ug/L	13-SEP-19	
	3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	13-SEP-19	
	Diethylphthalate	<0.20		0.20	ug/L	13-SEP-19	
	Dimethylphthalate	<0.20		0.20	ug/L	13-SEP-19	
	2,4-Dimethylphenol	<0.50		0.50	ug/L	13-SEP-19	
	2,4-Dinitrophenol	<1.0		1.0	ug/L	13-SEP-19	
	2,4-Dinitrotoluene	<0.40		0.40	ug/L	13-SEP-19	
	2,6-Dinitrotoluene	<0.40		0.40	ug/L	13-SEP-19	
	2,4+2,6-Dinitrotoluene	<0.57		0.57	ug/L	13-SEP-19	
	Bis(2-ethylhexyl)phthalate	2.0		2.0	ug/L	13-SEP-19	
	Phenol	<0.50		0.50	ug/L	13-SEP-19	
	1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	13-SEP-19	
	Surrogate: 2-Fluorobiphenyl	93.8		50-140	%	13-SEP-19	
	Surrogate: Nitrobenzene d5	103.4		50-140	%	13-SEP-19	
	Surrogate: Phenol d5	51.4		30-130	%	13-SEP-19	
	Surrogate: p-Terphenyl d14	102.8		60-140	%	13-SEP-19	
	Surrogate: 2,4,6-Tribromophenol	108.8		50-140	%	13-SEP-19	
L2343122-4	MW103						
Sampled By:	V PETERS on 05-SEP-19 @ 14:45						
Matrix:	WATER						#1
Physical Tests							
	Conductivity	14.6		0.0030	mS/cm	09-SEP-19	*0.57
	pH	7.55		0.10	pH units	09-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-4 MW103						
Sampled By: V PETERS on 05-SEP-19 @ 14:45						
Matrix: WATER						
Anions and Nutrients						
Chloride (Cl)	6580	DLHC	10	mg/L	10-SEP-19	
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals						
Sodium Adsorption Ratio	<130	SAR:DL	130	SAR	10-SEP-19	**2.4
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Barium (Ba)-Dissolved	406	DLHC	1.0	ug/L	09-SEP-19	
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Boron (B)-Dissolved	<100	DLHC	100	ug/L	09-SEP-19	
Cadmium (Cd)-Dissolved	0.131	DLHC	0.050	ug/L	09-SEP-19	
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Copper (Cu)-Dissolved	4.4	DLHC	2.0	ug/L	09-SEP-19	
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
Molybdenum (Mo)-Dissolved	4.93	DLHC	0.50	ug/L	09-SEP-19	
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Selenium (Se)-Dissolved	0.57	DLHC	0.50	ug/L	09-SEP-19	
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Sodium (Na)-Dissolved	3140000	DLHC	5000	ug/L	10-SEP-19	
Thallium (Tl)-Dissolved	0.12	DLHC	0.10	ug/L	09-SEP-19	
Uranium (U)-Dissolved	4.76	DLHC	0.10	ug/L	09-SEP-19	
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	09-SEP-19	
Speciated Metals						
Chromium, Hexavalent	0.56		0.50	ug/L	10-SEP-19	
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19	
Chloroform	<1.0		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19	
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-4	MW103						
Sampled By:	V PETERS on 05-SEP-19 @ 14:45						
Matrix:	WATER						#1
Volatile Organic Compounds							
	1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19	
	1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19	
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19	
	Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19	
	n-Hexane	<0.50		0.50	ug/L	11-SEP-19	
	Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19	
	Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19	
	MTBE	<2.0		2.0	ug/L	11-SEP-19	
	Styrene	<0.50		0.50	ug/L	11-SEP-19	
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
	Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	Toluene	<0.50		0.50	ug/L	11-SEP-19	
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
	Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19	
	Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19	
	o-Xylene	<0.30		0.30	ug/L	11-SEP-19	
	m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19	
	Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19	
	Surrogate: 4-Bromofluorobenzene	92.3		70-130	%	11-SEP-19	
	Surrogate: 1,4-Difluorobenzene	96.7		70-130	%	11-SEP-19	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	11-SEP-19	
	F1-BTEX	<25		25	ug/L	11-SEP-19	
	F2 (C10-C16)	<100		100	ug/L	10-SEP-19	
	F2-Naphth	<100		100	ug/L	11-SEP-19	
	F3 (C16-C34)	<250		250	ug/L	10-SEP-19	
	F3-PAH	<250		250	ug/L	11-SEP-19	
	F4 (C34-C50)	<250		250	ug/L	10-SEP-19	
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19	
	Chrom. to baseline at nC50	YES			No Unit	10-SEP-19	
	Surrogate: 2-Bromobenzotrifluoride	92.1		60-140	%	10-SEP-19	
	Surrogate: 3,4-Dichlorotoluene	93.3		60-140	%	11-SEP-19	
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.020		0.020	ug/L	11-SEP-19	
	Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19	
	Anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19	
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-4 MW103						
Sampled By: V PETERS on 05-SEP-19 @ 14:45						
Matrix: WATER						#1
Polycyclic Aromatic Hydrocarbons						
Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
Chrysene	<0.020		0.020	ug/L	11-SEP-19	
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
Fluorene	<0.020		0.020	ug/L	11-SEP-19	
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19	
1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
Pyrene	<0.020		0.020	ug/L	11-SEP-19	
Surrogate: d10-Acenaphthene	96.1		60-140	%	11-SEP-19	
Surrogate: d12-Chrysene	100.0		60-140	%	11-SEP-19	
Surrogate: d8-Naphthalene	101.7		60-140	%	11-SEP-19	
Surrogate: d10-Phenanthrene	97.5		60-140	%	11-SEP-19	
L2343122-5 MW101						
Sampled By: V PETERS on 05-SEP-19 @ 16:50						
Matrix: WATER						#1
Physical Tests						
Conductivity	4.18		0.0030	mS/cm	09-SEP-19	*0.57
pH	7.86		0.10	pH units	09-SEP-19	
Anions and Nutrients						
Chloride (Cl)	1380	DLHC	10	mg/L	10-SEP-19	
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals						
Sodium Adsorption Ratio	21.8	SAR:M	0.10	SAR	10-SEP-19	*2.4
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Barium (Ba)-Dissolved	87.1	DLHC	1.0	ug/L	09-SEP-19	
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Boron (B)-Dissolved	<100	DLHC	100	ug/L	09-SEP-19	
Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	09-SEP-19	
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Copper (Cu)-Dissolved	2.4	DLHC	2.0	ug/L	09-SEP-19	
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
Molybdenum (Mo)-Dissolved	6.26	DLHC	0.50	ug/L	09-SEP-19	
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Selenium (Se)-Dissolved	4.66	DLHC	0.50	ug/L	09-SEP-19	
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-5 MW101						
Sampled By: V PETERS on 05-SEP-19 @ 16:50						
Matrix: WATER						
Dissolved Metals						
Sodium (Na)-Dissolved	725000	DLHC	500	ug/L	09-SEP-19	
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	09-SEP-19	
Uranium (U)-Dissolved	0.82	DLHC	0.10	ug/L	09-SEP-19	
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	09-SEP-19	
Speciated Metals						
Chromium, Hexavalent	0.55		0.50	ug/L	10-SEP-19	
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	6.7		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	4.9		2.0	ug/L	11-SEP-19	
Chloroform	12.0		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19	
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19	
1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19	
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19	
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19	
n-Hexane	<0.50		0.50	ug/L	11-SEP-19	
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19	
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19	
MTBE	<2.0		2.0	ug/L	11-SEP-19	
Styrene	<0.50		0.50	ug/L	11-SEP-19	
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19	
Toluene	<0.50		0.50	ug/L	11-SEP-19	
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19	
Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19	
o-Xylene	<0.30		0.30	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-5	MW101						
Sampled By:	V PETERS on 05-SEP-19 @ 16:50						
Matrix:	WATER						#1
Volatile Organic Compounds							
	m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19	
	Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19	
	Surrogate: 4-Bromofluorobenzene	92.5		70-130	%	11-SEP-19	
	Surrogate: 1,4-Difluorobenzene	96.4		70-130	%	11-SEP-19	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	11-SEP-19	
	F1-BTEX	<25		25	ug/L	11-SEP-19	
	F2 (C10-C16)	<100		100	ug/L	10-SEP-19	
	F2-Naphth	<100		100	ug/L	11-SEP-19	
	F3 (C16-C34)	<250		250	ug/L	10-SEP-19	
	F3-PAH	<250		250	ug/L	11-SEP-19	
	F4 (C34-C50)	<250		250	ug/L	10-SEP-19	
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19	
	Chrom. to baseline at nC50	YES			No Unit	10-SEP-19	
	Surrogate: 2-Bromobenzotrifluoride	87.5		60-140	%	10-SEP-19	
	Surrogate: 3,4-Dichlorotoluene	92.9		60-140	%	11-SEP-19	
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.020		0.020	ug/L	11-SEP-19	
	Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19	
	Anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19	
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Chrysene	<0.020		0.020	ug/L	11-SEP-19	
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Fluorene	<0.020		0.020	ug/L	11-SEP-19	
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19	
	1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
	Pyrene	<0.020		0.020	ug/L	11-SEP-19	
	Surrogate: d10-Acenaphthene	101.2		60-140	%	11-SEP-19	
	Surrogate: d12-Chrysene	101.9		60-140	%	11-SEP-19	
	Surrogate: d8-Naphthalene	106.2		60-140	%	11-SEP-19	
	Surrogate: d10-Phenanthrene	103.7		60-140	%	11-SEP-19	
L2343122-6	MW100						
Sampled By:	V PETERS on 06-SEP-19 @ 07:50						
Matrix:	WATER						#1
Physical Tests							
	Conductivity	20.1		0.0030	mS/cm	09-SEP-19	*0.57
	pH	7.77		0.10	pH units	09-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2343122-6 MW100 Sampled By: V PETERS on 06-SEP-19 @ 07:50 Matrix: WATER									
Anions and Nutrients									
Chloride (Cl)	6970	DLHC	50	mg/L	10-SEP-19				
Cyanides									
Cyanide, Weak Acid Diss	2.8		2.0	ug/L	10-SEP-19				
Metals									
Sodium Adsorption Ratio	Incalculable	SAR:INC	0.10	SAR	10-SEP-19				
Dissolved Metals									
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19				
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19				
Antimony (Sb)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19				
Arsenic (As)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19				
Barium (Ba)-Dissolved	356	DLHC	10	ug/L	10-SEP-19				
Beryllium (Be)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19				
Boron (B)-Dissolved	<1000	DLHC	1000	ug/L	10-SEP-19				
Cadmium (Cd)-Dissolved	1.10	DLHC	0.50	ug/L	10-SEP-19				
Chromium (Cr)-Dissolved	<50	DLHC	50	ug/L	10-SEP-19				
Cobalt (Co)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19				
Copper (Cu)-Dissolved	<20	DLHC	20	ug/L	10-SEP-19				
Lead (Pb)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19				
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19				
Molybdenum (Mo)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19				
Nickel (Ni)-Dissolved	<50	DLHC	50	ug/L	10-SEP-19				
Selenium (Se)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19				
Silver (Ag)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19				
Sodium (Na)-Dissolved	4590000	DLHC	5000	ug/L	10-SEP-19				
Thallium (Tl)-Dissolved	<1.0	DLHC	1.0	ug/L	10-SEP-19				
Uranium (U)-Dissolved	<1.0	DLHC	1.0	ug/L	10-SEP-19				
Vanadium (V)-Dissolved	<50	DLHC	50	ug/L	10-SEP-19				
Zinc (Zn)-Dissolved	<100	DLHC	100	ug/L	10-SEP-19				
Speciated Metals									
Chromium, Hexavalent	3.87		0.50	ug/L	10-SEP-19				
Volatile Organic Compounds									
Acetone	<30		30	ug/L	11-SEP-19				
Benzene	<0.50		0.50	ug/L	11-SEP-19				
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19				
Bromoform	<5.0		5.0	ug/L	11-SEP-19				
Bromomethane	<0.50		0.50	ug/L	11-SEP-19				
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19				
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19				
Chloroform	<1.0		1.0	ug/L	11-SEP-19				
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19				
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19				
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-6	MW100						
Sampled By:	V PETERS on 06-SEP-19 @ 07:50						
Matrix:	WATER						#1
Volatile Organic Compounds							
	1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19	
	1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19	
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19	
	Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19	
	n-Hexane	<0.50		0.50	ug/L	11-SEP-19	
	Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19	
	Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19	
	MTBE	<2.0		2.0	ug/L	11-SEP-19	
	Styrene	<0.50		0.50	ug/L	11-SEP-19	
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
	Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	Toluene	<0.50		0.50	ug/L	11-SEP-19	
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
	Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19	
	Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19	
	o-Xylene	<0.30		0.30	ug/L	11-SEP-19	
	m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19	
	Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19	
	Surrogate: 4-Bromofluorobenzene	92.5		70-130	%	11-SEP-19	
	Surrogate: 1,4-Difluorobenzene	96.3		70-130	%	11-SEP-19	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	11-SEP-19	
	F1-BTEX	<25		25	ug/L	11-SEP-19	
	F2 (C10-C16)	<100		100	ug/L	10-SEP-19	
	F2-Naphth	<100		100	ug/L	11-SEP-19	
	F3 (C16-C34)	<250		250	ug/L	10-SEP-19	
	F3-PAH	<250		250	ug/L	11-SEP-19	
	F4 (C34-C50)	<250		250	ug/L	10-SEP-19	
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19	
	Chrom. to baseline at nC50	YES			No Unit	10-SEP-19	
	Surrogate: 2-Bromobenzotrifluoride	86.7		60-140	%	10-SEP-19	
	Surrogate: 3,4-Dichlorotoluene	92.9		60-140	%	11-SEP-19	
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.020		0.020	ug/L	11-SEP-19	
	Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19	
	Anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19	
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-6	MW100						
Sampled By:	V PETERS on 06-SEP-19 @ 07:50						
Matrix:	WATER						#1
Polycyclic Aromatic Hydrocarbons							
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Chrysene	<0.020		0.020	ug/L	11-SEP-19	
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Fluorene	<0.020		0.020	ug/L	11-SEP-19	
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19	
	1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
	Pyrene	<0.020		0.020	ug/L	11-SEP-19	
	Surrogate: d10-Acenaphthene	94.5		60-140	%	11-SEP-19	
	Surrogate: d12-Chrysene	95.1		60-140	%	11-SEP-19	
	Surrogate: d8-Naphthalene	99.2		60-140	%	11-SEP-19	
	Surrogate: d10-Phenanthrene	94.7		60-140	%	11-SEP-19	
L2343122-7	MW102A						
Sampled By:	V PETERS on 06-SEP-19 @ 10:10						
Matrix:	WATER						#1
Physical Tests							
	Conductivity	17.9		0.0030	mS/cm	09-SEP-19	*0.57
	pH	7.43		0.10	pH units	09-SEP-19	
Anions and Nutrients							
	Chloride (Cl)	6010	DLHC	50	mg/L	10-SEP-19	
Cyanides							
	Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals							
	Sodium Adsorption Ratio	Incalculable	SAR:INC	0.10	SAR	10-SEP-19	
Dissolved Metals							
	Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
	Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
	Antimony (Sb)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19	
	Arsenic (As)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19	
	Barium (Ba)-Dissolved	462	DLHC	10	ug/L	10-SEP-19	
	Beryllium (Be)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19	
	Boron (B)-Dissolved	<1000	DLHC	1000	ug/L	10-SEP-19	
	Cadmium (Cd)-Dissolved	<0.50	DLHC	0.50	ug/L	10-SEP-19	
	Chromium (Cr)-Dissolved	<50	DLHC	50	ug/L	10-SEP-19	
	Cobalt (Co)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19	
	Copper (Cu)-Dissolved	<20	DLHC	20	ug/L	10-SEP-19	
	Lead (Pb)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19	
	Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
	Molybdenum (Mo)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19	
	Nickel (Ni)-Dissolved	<50	DLHC	50	ug/L	10-SEP-19	
	Selenium (Se)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19	
	Silver (Ag)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2343122-7 MW102A Sampled By: V PETERS on 06-SEP-19 @ 10:10 Matrix: WATER									
Dissolved Metals									
Sodium (Na)-Dissolved	3960000	DLHC	5000	ug/L	10-SEP-19				
Thallium (Tl)-Dissolved	<1.0	DLHC	1.0	ug/L	10-SEP-19				
Uranium (U)-Dissolved	3.5	DLHC	1.0	ug/L	10-SEP-19				
Vanadium (V)-Dissolved	<50	DLHC	50	ug/L	10-SEP-19				
Zinc (Zn)-Dissolved	<100	DLHC	100	ug/L	10-SEP-19				
Speciated Metals									
Chromium, Hexavalent	<0.50		0.50	ug/L	10-SEP-19				
Volatile Organic Compounds									
Acetone	<30		30	ug/L	11-SEP-19				
Benzene	<0.50		0.50	ug/L	11-SEP-19				
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19				
Bromoform	<5.0		5.0	ug/L	11-SEP-19				
Bromomethane	<0.50		0.50	ug/L	11-SEP-19				
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19				
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19				
Chloroform	<1.0		1.0	ug/L	11-SEP-19				
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19				
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19				
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19				
n-Hexane	<0.50		0.50	ug/L	11-SEP-19				
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19				
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19				
MTBE	<2.0		2.0	ug/L	11-SEP-19				
Styrene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Toluene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
o-Xylene	<0.30		0.30	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-7	MW102A						
Sampled By:	V PETERS on 06-SEP-19 @ 10:10						
Matrix:	WATER						#1
Volatile Organic Compounds							
	m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19	
	Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19	
	Surrogate: 4-Bromofluorobenzene	91.9		70-130	%	11-SEP-19	
	Surrogate: 1,4-Difluorobenzene	95.8		70-130	%	11-SEP-19	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	11-SEP-19	
	F1-BTEX	<25		25	ug/L	11-SEP-19	
	F2 (C10-C16)	<100		100	ug/L	10-SEP-19	
	F2-Naphth	<100		100	ug/L	11-SEP-19	
	F3 (C16-C34)	<250		250	ug/L	10-SEP-19	
	F3-PAH	<250		250	ug/L	11-SEP-19	
	F4 (C34-C50)	<250		250	ug/L	10-SEP-19	
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19	
	Chrom. to baseline at nC50	YES			No Unit	10-SEP-19	
	Surrogate: 2-Bromobenzotrifluoride	80.5		60-140	%	10-SEP-19	
	Surrogate: 3,4-Dichlorotoluene	87.2		60-140	%	11-SEP-19	
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.020		0.020	ug/L	11-SEP-19	
	Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19	
	Anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19	
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Chrysene	<0.020		0.020	ug/L	11-SEP-19	
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Fluorene	<0.020		0.020	ug/L	11-SEP-19	
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19	
	1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
	Pyrene	<0.020		0.020	ug/L	11-SEP-19	
	Surrogate: d10-Acenaphthene	91.7		60-140	%	11-SEP-19	
	Surrogate: d12-Chrysene	94.5		60-140	%	11-SEP-19	
	Surrogate: d8-Naphthalene	93.5		60-140	%	11-SEP-19	
	Surrogate: d10-Phenanthrene	92.7		60-140	%	11-SEP-19	
L2343122-8	MW102B						
Sampled By:	V PETERS on 06-SEP-19 @ 11:10						
Matrix:	WATER						#1
Physical Tests							
	Conductivity	27.0		0.0030	mS/cm	09-SEP-19	*0.57
	pH	7.14		0.10	pH units	09-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-8 MW102B						
Sampled By: V PETERS on 06-SEP-19 @ 11:10						
Matrix: WATER						
Anions and Nutrients						
Chloride (Cl)	9610	DLHC	50	mg/L	10-SEP-19	
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals						
Sodium Adsorption Ratio	>22	SAR:L	0.10	SAR	10-SEP-19	*2.4
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
Antimony (Sb)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19	
Arsenic (As)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19	
Barium (Ba)-Dissolved	619	DLHC	10	ug/L	10-SEP-19	
Beryllium (Be)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19	
Boron (B)-Dissolved	<1000	DLHC	1000	ug/L	10-SEP-19	
Cadmium (Cd)-Dissolved	1.02	DLHC	0.50	ug/L	10-SEP-19	
Chromium (Cr)-Dissolved	<50	DLHC	50	ug/L	10-SEP-19	
Cobalt (Co)-Dissolved	<10	DLHC	10	ug/L	10-SEP-19	
Copper (Cu)-Dissolved	<20	DLHC	20	ug/L	10-SEP-19	
Lead (Pb)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19	
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
Molybdenum (Mo)-Dissolved	13.3	DLHC	5.0	ug/L	10-SEP-19	
Nickel (Ni)-Dissolved	<50	DLHC	50	ug/L	10-SEP-19	
Selenium (Se)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19	
Silver (Ag)-Dissolved	<5.0	DLHC	5.0	ug/L	10-SEP-19	
Sodium (Na)-Dissolved	6100000	DLHC	5000	ug/L	10-SEP-19	
Thallium (Tl)-Dissolved	<1.0	DLHC	1.0	ug/L	10-SEP-19	
Uranium (U)-Dissolved	1.8	DLHC	1.0	ug/L	10-SEP-19	
Vanadium (V)-Dissolved	<50	DLHC	50	ug/L	10-SEP-19	
Zinc (Zn)-Dissolved	<100	DLHC	100	ug/L	10-SEP-19	
Speciated Metals						
Chromium, Hexavalent	1.28		0.50	ug/L	10-SEP-19	
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19	
Chloroform	1.5		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19	
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2343122-8 MW102B									
Sampled By: V PETERS on 06-SEP-19 @ 11:10									
Matrix: WATER									
Volatile Organic Compounds									
1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19				
n-Hexane	<0.50		0.50	ug/L	11-SEP-19				
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19				
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19				
MTBE	<2.0		2.0	ug/L	11-SEP-19				
Styrene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Toluene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
o-Xylene	<0.30		0.30	ug/L	11-SEP-19				
m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19				
Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19				
Surrogate: 4-Bromofluorobenzene	91.4		70-130	%	11-SEP-19				
Surrogate: 1,4-Difluorobenzene	96.2		70-130	%	11-SEP-19				
Hydrocarbons									
F1 (C6-C10)	<25		25	ug/L	11-SEP-19				
F1-BTEX	<25		25	ug/L	11-SEP-19				
F2 (C10-C16)	<100		100	ug/L	10-SEP-19				
F2-Naphth	<100		100	ug/L	11-SEP-19				
F3 (C16-C34)	<250		250	ug/L	10-SEP-19				
F3-PAH	<250		250	ug/L	11-SEP-19				
F4 (C34-C50)	<250		250	ug/L	10-SEP-19				
Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19				
Chrom. to baseline at nC50	YES			No Unit	10-SEP-19				
Surrogate: 2-Bromobenzotrifluoride	84.5		60-140	%	10-SEP-19				
Surrogate: 3,4-Dichlorotoluene	77.0		60-140	%	11-SEP-19				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.020		0.020	ug/L	11-SEP-19				
Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19				
Anthracene	<0.020		0.020	ug/L	11-SEP-19				
Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19				
Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19				
Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-8	MW102B						
Sampled By:	V PETERS on 06-SEP-19 @ 11:10						
Matrix:	WATER						#1
Polycyclic Aromatic Hydrocarbons							
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Chrysene	<0.020		0.020	ug/L	11-SEP-19	
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Fluorene	<0.020		0.020	ug/L	11-SEP-19	
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19	
	1-Methylnaphthalene	0.022		0.020	ug/L	11-SEP-19	
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
	Pyrene	<0.020		0.020	ug/L	11-SEP-19	
	Surrogate: d10-Acenaphthene	99.3		60-140	%	11-SEP-19	
	Surrogate: d12-Chrysene	102.9		60-140	%	11-SEP-19	
	Surrogate: d8-Naphthalene	102.8		60-140	%	11-SEP-19	
	Surrogate: d10-Phenanthrene	99.1		60-140	%	11-SEP-19	
L2343122-9	MW105						
Sampled By:	V PETERS on 06-SEP-19 @ 11:50						
Matrix:	WATER						#1
Physical Tests							
	Conductivity	5.92		0.0030	mS/cm	09-SEP-19	*0.57
	pH	8.08		0.10	pH units	09-SEP-19	
Anions and Nutrients							
	Chloride (Cl)	2170	DLHC	10	mg/L	10-SEP-19	
Cyanides							
	Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals							
	Sodium Adsorption Ratio	<130	SAR:DL	130	SAR	10-SEP-19	**2.4
Dissolved Metals							
	Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
	Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
	Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
	Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
	Barium (Ba)-Dissolved	136	DLHC	1.0	ug/L	09-SEP-19	
	Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
	Boron (B)-Dissolved	<100	DLHC	100	ug/L	09-SEP-19	
	Cadmium (Cd)-Dissolved	0.750	DLHC	0.050	ug/L	09-SEP-19	
	Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
	Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
	Copper (Cu)-Dissolved	<2.0	DLHC	2.0	ug/L	09-SEP-19	
	Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
	Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
	Molybdenum (Mo)-Dissolved	13.0	DLHC	0.50	ug/L	09-SEP-19	
	Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
	Selenium (Se)-Dissolved	0.55	DLHC	0.50	ug/L	09-SEP-19	
	Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2343122-9 MW105 Sampled By: V PETERS on 06-SEP-19 @ 11:50 Matrix: WATER									
Dissolved Metals									
Sodium (Na)-Dissolved	1200000	DLHC	5000	ug/L	10-SEP-19				
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	09-SEP-19				
Uranium (U)-Dissolved	1.27	DLHC	0.10	ug/L	09-SEP-19				
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19				
Zinc (Zn)-Dissolved	11	DLHC	10	ug/L	09-SEP-19				
Speciated Metals									
Chromium, Hexavalent	2.01		0.50	ug/L	10-SEP-19				
Volatile Organic Compounds									
Acetone	<30		30	ug/L	11-SEP-19				
Benzene	<0.50		0.50	ug/L	11-SEP-19				
Bromodichloromethane	4.1		2.0	ug/L	11-SEP-19				
Bromoform	<5.0		5.0	ug/L	11-SEP-19				
Bromomethane	<0.50		0.50	ug/L	11-SEP-19				
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19				
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
Dibromochloromethane	4.1		2.0	ug/L	11-SEP-19				
Chloroform	3.5		1.0	ug/L	11-SEP-19				
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19				
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19				
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19				
n-Hexane	<0.50		0.50	ug/L	11-SEP-19				
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19				
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19				
MTBE	<2.0		2.0	ug/L	11-SEP-19				
Styrene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Toluene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
o-Xylene	<0.30		0.30	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-9	MW105						
Sampled By:	V PETERS on 06-SEP-19 @ 11:50						
Matrix:	WATER						#1
Volatile Organic Compounds							
	m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19	
	Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19	
	Surrogate: 4-Bromofluorobenzene	91.2		70-130	%	11-SEP-19	
	Surrogate: 1,4-Difluorobenzene	96.0		70-130	%	11-SEP-19	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	11-SEP-19	
	F1-BTEX	<25		25	ug/L	11-SEP-19	
	F2 (C10-C16)	<100		100	ug/L	10-SEP-19	
	F2-Naphth	<100		100	ug/L	11-SEP-19	
	F3 (C16-C34)	<250		250	ug/L	10-SEP-19	
	F3-PAH	<250		250	ug/L	11-SEP-19	
	F4 (C34-C50)	<250		250	ug/L	10-SEP-19	
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19	
	Chrom. to baseline at nC50	YES			No Unit	10-SEP-19	
	Surrogate: 2-Bromobenzotrifluoride	88.9		60-140	%	10-SEP-19	
	Surrogate: 3,4-Dichlorotoluene	89.7		60-140	%	11-SEP-19	
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.020		0.020	ug/L	11-SEP-19	
	Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19	
	Anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19	
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Chrysene	<0.020		0.020	ug/L	11-SEP-19	
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Fluorene	<0.020		0.020	ug/L	11-SEP-19	
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19	
	1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
	Pyrene	<0.020		0.020	ug/L	11-SEP-19	
	Surrogate: d10-Acenaphthene	105.9		60-140	%	11-SEP-19	
	Surrogate: d12-Chrysene	108.9		60-140	%	11-SEP-19	
	Surrogate: d8-Naphthalene	108.8		60-140	%	11-SEP-19	
	Surrogate: d10-Phenanthrene	105.5		60-140	%	11-SEP-19	
L2343122-10	MW107						
Sampled By:	V PETERS on 06-SEP-19 @ 13:20						
Matrix:	WATER						#1
Physical Tests							
	Conductivity	3.22		0.0030	mS/cm	09-SEP-19	*0.57
	pH	7.76		0.10	pH units	09-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-10 MW107						
Sampled By: V PETERS on 06-SEP-19 @ 13:20						
Matrix: WATER						
Anions and Nutrients						
Chloride (Cl)	969	DLHC	5.0	mg/L	10-SEP-19	
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals						
Sodium Adsorption Ratio	>5.8	SAR:L	0.10	SAR	10-SEP-19	*2.4
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Barium (Ba)-Dissolved	94.1	DLHC	1.0	ug/L	09-SEP-19	
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Boron (B)-Dissolved	<100	DLHC	100	ug/L	09-SEP-19	
Cadmium (Cd)-Dissolved	3.01	DLHC	0.050	ug/L	09-SEP-19	
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Copper (Cu)-Dissolved	<2.0	DLHC	2.0	ug/L	09-SEP-19	
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
Molybdenum (Mo)-Dissolved	1.05	DLHC	0.50	ug/L	09-SEP-19	
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Selenium (Se)-Dissolved	1.01	DLHC	0.50	ug/L	09-SEP-19	
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Sodium (Na)-Dissolved	505000	DLHC	500	ug/L	09-SEP-19	
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	09-SEP-19	
Uranium (U)-Dissolved	0.63	DLHC	0.10	ug/L	09-SEP-19	
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Zinc (Zn)-Dissolved	11	DLHC	10	ug/L	09-SEP-19	
Speciated Metals						
Chromium, Hexavalent	3.80		0.50	ug/L	10-SEP-19	
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19	
Chloroform	11.3		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19	
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2343122-10	MW107									
Sampled By:	V PETERS on 06-SEP-19 @ 13:20									
Matrix:	WATER									
Volatile Organic Compounds										
	1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
	1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				
	Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19				
	n-Hexane	<0.50		0.50	ug/L	11-SEP-19				
	Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19				
	Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19				
	MTBE	<2.0		2.0	ug/L	11-SEP-19				
	Styrene	<0.50		0.50	ug/L	11-SEP-19				
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
	Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	Toluene	<0.50		0.50	ug/L	11-SEP-19				
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
	Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
	Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
	o-Xylene	<0.30		0.30	ug/L	11-SEP-19				
	m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19				
	Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19				
	Surrogate: 4-Bromofluorobenzene	90.6		70-130	%	11-SEP-19				
	Surrogate: 1,4-Difluorobenzene	95.5		70-130	%	11-SEP-19				
Hydrocarbons										
	F1 (C6-C10)	<25		25	ug/L	11-SEP-19				
	F1-BTEX	<25		25	ug/L	11-SEP-19				
	F2 (C10-C16)	<100		100	ug/L	10-SEP-19				
	F2-Naphth	<100		100	ug/L	11-SEP-19				
	F3 (C16-C34)	<250		250	ug/L	10-SEP-19				
	F3-PAH	<250		250	ug/L	11-SEP-19				
	F4 (C34-C50)	<250		250	ug/L	10-SEP-19				
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19				
	Chrom. to baseline at nC50	YES			No Unit	10-SEP-19				
	Surrogate: 2-Bromobenzotrifluoride	94.9		60-140	%	10-SEP-19				
	Surrogate: 3,4-Dichlorotoluene	89.7		60-140	%	11-SEP-19				
Polycyclic Aromatic Hydrocarbons										
	Acenaphthene	<0.020		0.020	ug/L	11-SEP-19				
	Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19				
	Anthracene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19				
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-10	MW107						
Sampled By:	V PETERS on 06-SEP-19 @ 13:20						
Matrix:	WATER						#1
Polycyclic Aromatic Hydrocarbons							
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Chrysene	<0.020		0.020	ug/L	11-SEP-19	
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
	Fluorene	<0.020		0.020	ug/L	11-SEP-19	
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19	
	1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
	Pyrene	<0.020		0.020	ug/L	11-SEP-19	
	Surrogate: d10-Acenaphthene	110.5		60-140	%	11-SEP-19	
	Surrogate: d12-Chrysene	116.1		60-140	%	11-SEP-19	
	Surrogate: d8-Naphthalene	112.2		60-140	%	11-SEP-19	
	Surrogate: d10-Phenanthrene	113.4		60-140	%	11-SEP-19	
L2343122-11	MW106						
Sampled By:	V PETERS on 06-SEP-19 @ 14:50						
Matrix:	WATER						#1
Physical Tests							
	Conductivity	6.87		0.0030	mS/cm	09-SEP-19	*0.57
	pH	7.54		0.10	pH units	09-SEP-19	
Anions and Nutrients							
	Chloride (Cl)	2600	DLHC	10	mg/L	10-SEP-19	
Cyanides							
	Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals							
	Sodium Adsorption Ratio	Incalculable	SAR:INC	0.10	SAR	10-SEP-19	
Dissolved Metals							
	Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
	Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
	Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
	Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
	Barium (Ba)-Dissolved	179	DLHC	1.0	ug/L	09-SEP-19	
	Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
	Boron (B)-Dissolved	<100	DLHC	100	ug/L	09-SEP-19	
	Cadmium (Cd)-Dissolved	0.419	DLHC	0.050	ug/L	09-SEP-19	
	Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
	Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
	Copper (Cu)-Dissolved	3.5	DLHC	2.0	ug/L	09-SEP-19	
	Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
	Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
	Molybdenum (Mo)-Dissolved	1.81	DLHC	0.50	ug/L	09-SEP-19	
	Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
	Selenium (Se)-Dissolved	1.11	DLHC	0.50	ug/L	09-SEP-19	
	Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2343122-11 MW106 Sampled By: V PETERS on 06-SEP-19 @ 14:50 Matrix: WATER									
Dissolved Metals									
Sodium (Na)-Dissolved	1310000	DLHC	5000	ug/L	10-SEP-19				
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	09-SEP-19				
Uranium (U)-Dissolved	0.85	DLHC	0.10	ug/L	09-SEP-19				
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19				
Zinc (Zn)-Dissolved	14	DLHC	10	ug/L	09-SEP-19				
Speciated Metals									
Chromium, Hexavalent	1.87		0.50	ug/L	10-SEP-19				
Volatile Organic Compounds									
Acetone	<30		30	ug/L	11-SEP-19				
Benzene	<0.50		0.50	ug/L	11-SEP-19				
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19				
Bromoform	<5.0		5.0	ug/L	11-SEP-19				
Bromomethane	<0.50		0.50	ug/L	11-SEP-19				
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19				
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19				
Chloroform	8.5		1.0	ug/L	11-SEP-19				
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19				
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19				
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19				
n-Hexane	<0.50		0.50	ug/L	11-SEP-19				
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19				
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19				
MTBE	<2.0		2.0	ug/L	11-SEP-19				
Styrene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Toluene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
o-Xylene	<0.30		0.30	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-11 MW106						
Sampled By: V PETERS on 06-SEP-19 @ 14:50						
Matrix: WATER						#1
Volatile Organic Compounds						
m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19	
Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19	
Surrogate: 4-Bromofluorobenzene	90.8		70-130	%	11-SEP-19	
Surrogate: 1,4-Difluorobenzene	95.6		70-130	%	11-SEP-19	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	11-SEP-19	
F1-BTEX	<25		25	ug/L	11-SEP-19	
F2 (C10-C16)	<100		100	ug/L	10-SEP-19	
F2-Naphth	<100		100	ug/L	11-SEP-19	
F3 (C16-C34)	<250		250	ug/L	10-SEP-19	
F3-PAH	<250		250	ug/L	11-SEP-19	
F4 (C34-C50)	<250		250	ug/L	10-SEP-19	
Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19	
Chrom. to baseline at nC50	YES			No Unit	10-SEP-19	
Surrogate: 2-Bromobenzotrifluoride	91.1		60-140	%	10-SEP-19	
Surrogate: 3,4-Dichlorotoluene	88.8		60-140	%	11-SEP-19	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	11-SEP-19	
Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19	
Anthracene	<0.020		0.020	ug/L	11-SEP-19	
Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19	
Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19	
Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19	
Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
Chrysene	<0.020		0.020	ug/L	11-SEP-19	
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19	
Fluoranthene	<0.020		0.020	ug/L	11-SEP-19	
Fluorene	<0.020		0.020	ug/L	11-SEP-19	
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19	
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19	
1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19	
Naphthalene	<0.050		0.050	ug/L	11-SEP-19	
Phenanthrene	<0.020		0.020	ug/L	11-SEP-19	
Pyrene	<0.020		0.020	ug/L	11-SEP-19	
Surrogate: d10-Acenaphthene	110.9		60-140	%	11-SEP-19	
Surrogate: d12-Chrysene	115.7		60-140	%	11-SEP-19	
Surrogate: d8-Naphthalene	112.9		60-140	%	11-SEP-19	
Surrogate: d10-Phenanthrene	111.8		60-140	%	11-SEP-19	
L2343122-12 DUP1						
Sampled By: V PETERS on 05-SEP-19 @ 09:50						
Matrix: WATER						#1
Physical Tests						
Conductivity	14.5		0.0030	mS/cm	09-SEP-19	*0.57
pH	7.44		0.10	pH units	09-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-12 DUP1						
Sampled By: V PETERS on 05-SEP-19 @ 09:50						
Matrix: WATER						
Anions and Nutrients						
Chloride (Cl)	4980	DLHC	50	mg/L	10-SEP-19	
Cyanides						
Cyanide, Weak Acid Diss	2.5		2.0	ug/L	10-SEP-19	
Metals						
Sodium Adsorption Ratio	<130	SAR:DL	130	SAR	10-SEP-19	**2.4
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Arsenic (As)-Dissolved	1.2	DLHC	1.0	ug/L	09-SEP-19	
Barium (Ba)-Dissolved	403	DLHC	1.0	ug/L	09-SEP-19	
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Boron (B)-Dissolved	<100	DLHC	100	ug/L	09-SEP-19	
Cadmium (Cd)-Dissolved	0.134	DLHC	0.050	ug/L	09-SEP-19	
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Copper (Cu)-Dissolved	3.1	DLHC	2.0	ug/L	09-SEP-19	
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	10-SEP-19	
Molybdenum (Mo)-Dissolved	4.87	DLHC	0.50	ug/L	09-SEP-19	
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Selenium (Se)-Dissolved	0.55	DLHC	0.50	ug/L	09-SEP-19	
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Sodium (Na)-Dissolved	3150000	DLHC	5000	ug/L	10-SEP-19	
Thallium (Tl)-Dissolved	0.12	DLHC	0.10	ug/L	09-SEP-19	
Uranium (U)-Dissolved	4.70	DLHC	0.10	ug/L	09-SEP-19	
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	09-SEP-19	
Speciated Metals						
Chromium, Hexavalent	<0.50		0.50	ug/L	10-SEP-19	
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19	
Chloroform	<1.0		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19	
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2343122-12 DUP1									
Sampled By: V PETERS on 05-SEP-19 @ 09:50									
Matrix: WATER									
Volatile Organic Compounds									
1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19				
n-Hexane	<0.50		0.50	ug/L	11-SEP-19				
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19				
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19				
MTBE	<2.0		2.0	ug/L	11-SEP-19				
Styrene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Toluene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
o-Xylene	<0.30		0.30	ug/L	11-SEP-19				
m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19				
Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19				
Surrogate: 4-Bromofluorobenzene	89.7		70-130	%	11-SEP-19				
Surrogate: 1,4-Difluorobenzene	95.7		70-130	%	11-SEP-19				
Hydrocarbons									
F1 (C6-C10)	<25		25	ug/L	11-SEP-19				
F1-BTEX	<25		25	ug/L	11-SEP-19				
F2 (C10-C16)	<100		100	ug/L	10-SEP-19				
F2-Naphth	<100		100	ug/L	11-SEP-19				
F3 (C16-C34)	<250		250	ug/L	10-SEP-19				
F3-PAH	<250		250	ug/L	11-SEP-19				
F4 (C34-C50)	<250		250	ug/L	10-SEP-19				
Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19				
Chrom. to baseline at nC50	YES			No Unit	10-SEP-19				
Surrogate: 2-Bromobenzotrifluoride	90.0		60-140	%	10-SEP-19				
Surrogate: 3,4-Dichlorotoluene	74.3		60-140	%	11-SEP-19				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.020		0.020	ug/L	11-SEP-19				
Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19				
Anthracene	<0.020		0.020	ug/L	11-SEP-19				
Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19				
Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19				
Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2343122-12	DUP1									
Sampled By:	V PETERS on 05-SEP-19 @ 09:50									
Matrix:	WATER						#1			
Polycyclic Aromatic Hydrocarbons										
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
	Chrysene	<0.020		0.020	ug/L	11-SEP-19				
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19				
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
	Fluorene	<0.020		0.020	ug/L	11-SEP-19				
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19				
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19				
	1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19				
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19				
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19				
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19				
	Pyrene	<0.020		0.020	ug/L	11-SEP-19				
	Surrogate: d10-Acenaphthene	116.4		60-140	%	11-SEP-19				
	Surrogate: d12-Chrysene	119.5		60-140	%	11-SEP-19				
	Surrogate: d8-Naphthalene	117.4		60-140	%	11-SEP-19				
	Surrogate: d10-Phenanthrene	117.1		60-140	%	11-SEP-19				
L2343122-13	DUP2									
Sampled By:	V PETERS on 06-SEP-19 @ 09:50									
Matrix:	WATER						#1			
Semi-Volatile Organics										
	Biphenyl	<0.40		0.40	ug/L	13-SEP-19				
	4-Chloroaniline	<0.40		0.40	ug/L	13-SEP-19				
	Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	13-SEP-19				
	Bis(2-chloroisopropyl)ether	<0.40		0.40	ug/L	13-SEP-19				
	3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	13-SEP-19				
	Diethylphthalate	<0.20		0.20	ug/L	13-SEP-19				
	Dimethylphthalate	<0.20		0.20	ug/L	13-SEP-19				
	2,4-Dimethylphenol	<0.50		0.50	ug/L	13-SEP-19				
	2,4-Dinitrophenol	<1.0		1.0	ug/L	13-SEP-19				
	2,4-Dinitrotoluene	<0.40		0.40	ug/L	13-SEP-19				
	2,6-Dinitrotoluene	<0.40		0.40	ug/L	13-SEP-19				
	2,4+2,6-Dinitrotoluene	<0.57		0.57	ug/L	13-SEP-19				
	Bis(2-ethylhexyl)phthalate	2.3		2.0	ug/L	13-SEP-19				
	Phenol	<0.50		0.50	ug/L	13-SEP-19				
	1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	13-SEP-19				
	Surrogate: 2-Fluorobiphenyl	97.0		50-140	%	13-SEP-19				
	Surrogate: Nitrobenzene d5	102.8		50-140	%	13-SEP-19				
	Surrogate: Phenol d5	51.5		30-130	%	13-SEP-19				
	Surrogate: p-Terphenyl d14	109.0		60-140	%	13-SEP-19				
	Surrogate: 2,4,6-Tribromophenol	109.8		50-140	%	13-SEP-19				
L2343122-14	DUP3									
Sampled By:	V PETERS on 05-SEP-19 @ 09:50									
Matrix:	WATER						#1			
Physical Tests										
	Conductivity	3.17		0.0030	mS/cm	09-SEP-19	*0.57			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2343122-14 DUP3						
Sampled By: V PETERS on 05-SEP-19 @ 09:50						
Matrix: WATER						
Physical Tests						
pH	7.66		0.10	pH units	09-SEP-19	
Anions and Nutrients						
Chloride (Cl)	918	DLHC	5.0	mg/L	10-SEP-19	
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	10-SEP-19	
Metals						
Sodium Adsorption Ratio	>5.8	SAR:L	0.10	SAR	10-SEP-19	*2.4
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	09-SEP-19	
Dissolved Metals Filtration Location	FIELD			No Unit	09-SEP-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Barium (Ba)-Dissolved	99.2	DLHC	1.0	ug/L	09-SEP-19	
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Boron (B)-Dissolved	<100	DLHC	100	ug/L	09-SEP-19	
Cadmium (Cd)-Dissolved	2.98	DLHC	0.050	ug/L	09-SEP-19	
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	09-SEP-19	
Copper (Cu)-Dissolved	2.4	DLHC	2.0	ug/L	09-SEP-19	
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Mercury (Hg)-Dissolved	0.0054		0.0050	ug/L	10-SEP-19	
Molybdenum (Mo)-Dissolved	1.14	DLHC	0.50	ug/L	09-SEP-19	
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Selenium (Se)-Dissolved	1.01	DLHC	0.50	ug/L	09-SEP-19	
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	09-SEP-19	
Sodium (Na)-Dissolved	506000	DLHC	500	ug/L	09-SEP-19	
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	09-SEP-19	
Uranium (U)-Dissolved	0.60	DLHC	0.10	ug/L	09-SEP-19	
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	09-SEP-19	
Zinc (Zn)-Dissolved	14	DLHC	10	ug/L	09-SEP-19	
Speciated Metals						
Chromium, Hexavalent	3.62		0.50	ug/L	10-SEP-19	
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19	
Chloroform	11.6		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-14 DUP3							
Sampled By: V PETERS on 05-SEP-19 @ 09:50							
Matrix: WATER							#1
Volatile Organic Compounds							
	1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
	1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
	1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19	
	1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19	
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19	
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19	
	Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19	
	n-Hexane	<0.50		0.50	ug/L	11-SEP-19	
	Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19	
	Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19	
	MTBE	<2.0		2.0	ug/L	11-SEP-19	
	Styrene	<0.50		0.50	ug/L	11-SEP-19	
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
	Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	Toluene	<0.50		0.50	ug/L	11-SEP-19	
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
	Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
	Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19	
	Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19	
	o-Xylene	<0.30		0.30	ug/L	11-SEP-19	
	m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19	
	Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19	
	Surrogate: 4-Bromofluorobenzene	91.2		70-130	%	11-SEP-19	
	Surrogate: 1,4-Difluorobenzene	95.9		70-130	%	11-SEP-19	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	11-SEP-19	
	F1-BTEX	<25		25	ug/L	11-SEP-19	
	F2 (C10-C16)	<100		100	ug/L	10-SEP-19	
	F2-Naphth	<100		100	ug/L	11-SEP-19	
	F3 (C16-C34)	<250		250	ug/L	10-SEP-19	
	F3-PAH	<250		250	ug/L	11-SEP-19	
	F4 (C34-C50)	<250		250	ug/L	10-SEP-19	
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	11-SEP-19	
	Chrom. to baseline at nC50	YES			No Unit	10-SEP-19	
	Surrogate: 2-Bromobenzotrifluoride	90.4		60-140	%	10-SEP-19	
	Surrogate: 3,4-Dichlorotoluene	91.5		60-140	%	11-SEP-19	
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.020		0.020	ug/L	11-SEP-19	
	Acenaphthylene	<0.020		0.020	ug/L	11-SEP-19	
	Anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)anthracene	<0.020		0.020	ug/L	11-SEP-19	
	Benzo(a)pyrene	<0.010		0.010	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2343122-14 DUP3										
Sampled By: V PETERS on 05-SEP-19 @ 09:50										
Matrix: WATER							#1			
Polycyclic Aromatic Hydrocarbons										
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	11-SEP-19				
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
	Chrysene	<0.020		0.020	ug/L	11-SEP-19				
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	11-SEP-19				
	Fluoranthene	<0.020		0.020	ug/L	11-SEP-19				
	Fluorene	<0.020		0.020	ug/L	11-SEP-19				
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	11-SEP-19				
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	11-SEP-19				
	1-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19				
	2-Methylnaphthalene	<0.020		0.020	ug/L	11-SEP-19				
	Naphthalene	<0.050		0.050	ug/L	11-SEP-19				
	Phenanthrene	<0.020		0.020	ug/L	11-SEP-19				
	Pyrene	<0.020		0.020	ug/L	11-SEP-19				
	Surrogate: d10-Acenaphthene	104.0		60-140	%	11-SEP-19				
	Surrogate: d12-Chrysene	107.3		60-140	%	11-SEP-19				
	Surrogate: d8-Naphthalene	106.4		60-140	%	11-SEP-19				
	Surrogate: d10-Phenanthrene	105.5		60-140	%	11-SEP-19				
L2343122-15 TB-001										
Sampled By: V PETERS on 05-SEP-19 @ 09:50										
Matrix: WATER							#1			
Volatile Organic Compounds										
	Acetone	<30		30	ug/L	11-SEP-19				
	Benzene	<0.50		0.50	ug/L	11-SEP-19				
	Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19				
	Bromoform	<5.0		5.0	ug/L	11-SEP-19				
	Bromomethane	<0.50		0.50	ug/L	11-SEP-19				
	Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19				
	Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
	Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19				
	Chloroform	<1.0		1.0	ug/L	11-SEP-19				
	1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19				
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
	1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19				
	Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19				
	1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
	1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19				
	1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
	Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
	1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2343122-15 TB-001						
Sampled By: V PETERS on 05-SEP-19 @ 09:50						
Matrix: WATER						#1
Volatile Organic Compounds						
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19	
n-Hexane	<0.50		0.50	ug/L	11-SEP-19	
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19	
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19	
MTBE	<2.0		2.0	ug/L	11-SEP-19	
Styrene	<0.50		0.50	ug/L	11-SEP-19	
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19	
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19	
Toluene	<0.50		0.50	ug/L	11-SEP-19	
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19	
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19	
Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19	
o-Xylene	<0.30		0.30	ug/L	11-SEP-19	
m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19	
Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19	
Surrogate: 4-Bromofluorobenzene	89.3		70-130	%	11-SEP-19	
Surrogate: 1,4-Difluorobenzene	95.0		70-130	%	11-SEP-19	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	11-SEP-19	
F1-BTEX	<25		25	ug/L	11-SEP-19	
Surrogate: 3,4-Dichlorotoluene	86.9		60-140	%	11-SEP-19	
L2343122-16 TB-002						
Sampled By: V PETERS on 05-SEP-19 @ 09:50						
Matrix: WATER						#1
Volatile Organic Compounds						
Acetone	<30		30	ug/L	11-SEP-19	
Benzene	<0.50		0.50	ug/L	11-SEP-19	
Bromodichloromethane	<2.0		2.0	ug/L	11-SEP-19	
Bromoform	<5.0		5.0	ug/L	11-SEP-19	
Bromomethane	<0.50		0.50	ug/L	11-SEP-19	
Carbon tetrachloride	<0.20		0.20	ug/L	11-SEP-19	
Chlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dibromochloromethane	<2.0		2.0	ug/L	11-SEP-19	
Chloroform	<1.0		1.0	ug/L	11-SEP-19	
1,2-Dibromoethane	<0.20		0.20	ug/L	11-SEP-19	
1,2-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,3-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
1,4-Dichlorobenzene	<0.50		0.50	ug/L	11-SEP-19	
Dichlorodifluoromethane	<2.0		2.0	ug/L	11-SEP-19	
1,1-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,2-Dichloroethane	<0.50		0.50	ug/L	11-SEP-19	
1,1-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2343122-16 TB-002 Sampled By: V PETERS on 05-SEP-19 @ 09:50 Matrix: WATER									
Volatile Organic Compounds									
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Methylene Chloride	<5.0		5.0	ug/L	11-SEP-19				
1,2-Dichloropropane	<0.50		0.50	ug/L	11-SEP-19				
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	11-SEP-19				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	11-SEP-19				
Ethylbenzene	<0.50		0.50	ug/L	11-SEP-19				
n-Hexane	<0.50		0.50	ug/L	11-SEP-19				
Methyl Ethyl Ketone	<20		20	ug/L	11-SEP-19				
Methyl Isobutyl Ketone	<20		20	ug/L	11-SEP-19				
MTBE	<2.0		2.0	ug/L	11-SEP-19				
Styrene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	11-SEP-19				
Tetrachloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Toluene	<0.50		0.50	ug/L	11-SEP-19				
1,1,1-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
1,1,2-Trichloroethane	<0.50		0.50	ug/L	11-SEP-19				
Trichloroethylene	<0.50		0.50	ug/L	11-SEP-19				
Trichlorofluoromethane	<5.0		5.0	ug/L	11-SEP-19				
Vinyl chloride	<0.50		0.50	ug/L	11-SEP-19				
o-Xylene	<0.30		0.30	ug/L	11-SEP-19				
m+p-Xylenes	<0.40		0.40	ug/L	11-SEP-19				
Xylenes (Total)	<0.50		0.50	ug/L	11-SEP-19				
Surrogate: 4-Bromofluorobenzene	90.3		70-130	%	11-SEP-19				
Surrogate: 1,4-Difluorobenzene	95.4		70-130	%	11-SEP-19				
Hydrocarbons									
F1 (C6-C10)	<25		25	ug/L	11-SEP-19				
F1-BTEX	<25		25	ug/L	11-SEP-19				
Surrogate: 3,4-Dichlorotoluene	92.8		60-140	%	11-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.
SAR:DL	SAR is incalculable due to undetectable Na. Detection Limit represents maximum possible SAR value.
SAR:INC	SAR is incalculable due to Ca, Mg below detection limit.
SAR:L	SAR is incalculable due to Ca and Mg below DL (with Na above DL). Lowest possible SAR is reported as minimum value.
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***
625-511-WT	Water	ABN,CP,PAH-O.Reg 153/04	SW846 8270 (511)

Ground water sample extraction is carried out at a pH <2 (acid extractables) and pH>11 (base neutral extractables). Extracts are dried, concentrated and exchanged into a solvent compatible with the cleanup. Analysis is by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

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).

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).

DINITROTOL-CALC-WT	Water	ABN-Calculated Parameters	SW846 8270
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).

EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

ETL-SAR-CALC-WT	Water	Sodium Adsorption Ratio	Calculation

Reference Information

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.
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	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).

F2-F4-511-WT	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).

HG-D-UG/L-CVAA-WT	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).

MET-D-UG/L-MS-WT	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).

METHYLNAPS-CALC-WT	Water	PAH-Calculated Parameters	SW846 8270
PAH-511-WT	Water	PAH-O. Reg 153/04 (July 2011)	SW846 3510/8270

Aqueous samples, fortified with surrogates, are extracted using liquid/liquid extraction technique. The sample extracts are concentrated and then analyzed using GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	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

VOC-1,3-DCP-CALC-WT	Water	Regulation 153 VOCs	SW8260B/SW8270C

Reference Information

VOC-511-HS-WT	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).

XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION

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:

17-826465 17-826566

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	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.

Quality Control Report

Workorder: L2343122 Report Date: 13-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Water**							
Batch R4801930								
WG3156659-2 LCS								
1,2,4-Trichlorobenzene			86.9		%		50-140	12-SEP-19
2,4-Dimethylphenol			95.5		%		30-130	12-SEP-19
2,4-Dinitrophenol			134.6		%		50-140	12-SEP-19
2,4-Dinitrotoluene			118.9		%		50-140	12-SEP-19
2,6-Dinitrotoluene			110.8		%		50-140	12-SEP-19
3,3'-Dichlorobenzidine			85.0		%		30-130	12-SEP-19
4-Chloroaniline			55.5		%		30-130	12-SEP-19
Biphenyl			97.2		%		50-140	12-SEP-19
Bis(2-chloroethyl)ether			95.3		%		50-140	12-SEP-19
Bis(2-chloroisopropyl)ether			96.0		%		50-140	12-SEP-19
Bis(2-ethylhexyl)phthalate			119.1		%		50-140	12-SEP-19
Diethylphthalate			103.1		%		50-140	12-SEP-19
Dimethylphthalate			105.7		%		50-140	12-SEP-19
Phenol			54.4		%		30-130	12-SEP-19
WG3156659-1 MB								
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	12-SEP-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	12-SEP-19
2,4-Dinitrophenol			<1.0		ug/L		1	12-SEP-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	12-SEP-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	12-SEP-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	12-SEP-19
4-Chloroaniline			<0.40		ug/L		0.4	12-SEP-19
Biphenyl			<0.40		ug/L		0.4	12-SEP-19
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	12-SEP-19
Bis(2-chloroisopropyl)ether			<0.40		ug/L		0.4	12-SEP-19
Bis(2-ethylhexyl)phthalate			<2.0		ug/L		2	12-SEP-19
Diethylphthalate			<0.20		ug/L		0.2	12-SEP-19
Dimethylphthalate			<0.20		ug/L		0.2	12-SEP-19
Phenol			<0.50		ug/L		0.5	12-SEP-19
Surrogate: 2-Fluorobiphenyl			89.2		%		50-140	12-SEP-19
Surrogate: 2,4,6-Tribromophenol			94.3		%		50-140	12-SEP-19
Surrogate: Nitrobenzene d5			97.8		%		50-140	12-SEP-19
Surrogate: p-Terphenyl d14			125.7		%		60-140	12-SEP-19
Surrogate: Phenol d5			49.3		%		30-130	12-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R4796789								
WG3157129-4 DUP		**WG3157129-3**						
Chloride (Cl)		680	679		mg/L	0.1	20	10-SEP-19
WG3157129-9 DUP		**L2343710-1**						
Chloride (Cl)		476	477		mg/L	0.2	20	10-SEP-19
WG3157129-2 LCS								
Chloride (Cl)			102.3		%		90-110	10-SEP-19
WG3157129-7 LCS								
Chloride (Cl)			101.7		%		90-110	10-SEP-19
WG3157129-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	10-SEP-19
WG3157129-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	10-SEP-19
WG3157129-10 MS		**L2343710-1**						
Chloride (Cl)			N/A	MS-B	%		-	10-SEP-19
WG3157129-5 MS		**WG3157129-3**						
Chloride (Cl)			N/A	MS-B	%		-	10-SEP-19
CN-WAD-R511-WT	**Water**							
Batch R4805252								
WG3156212-3 DUP		**L2343122-1**						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	10-SEP-19
WG3156212-2 LCS								
Cyanide, Weak Acid Diss			103.4		%		80-120	10-SEP-19
WG3156212-1 MB								
Cyanide, Weak Acid Diss			<2.0		ug/L		2	10-SEP-19
WG3156212-4 MS		**L2343122-1**						
Cyanide, Weak Acid Diss			97.5		%		75-125	10-SEP-19
CR-CR6-IC-R511-WT	**Water**							
Batch R4795788								
WG3157304-4 DUP		**WG3157304-3**						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	10-SEP-19
WG3157304-2 LCS								
Chromium, Hexavalent			96.8		%		80-120	10-SEP-19
WG3157304-1 MB								
Chromium, Hexavalent			<0.50		ug/L		0.5	10-SEP-19
WG3157304-5 MS		**WG3157304-3**						
Chromium, Hexavalent			95.9		%		70-130	10-SEP-19
EC-R511-WT	**Water**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-R511-WT	**Water**							
Batch R4792994								
WG3156180-4 DUP		**WG3156180-3**						
Conductivity		2.79	2.81		mS/cm	0.7	10	09-SEP-19
WG3156180-2 LCS								
Conductivity			100.6		%		90-110	09-SEP-19
WG3156180-1 MB								
Conductivity			<0.0030		mS/cm		0.003	09-SEP-19
Batch R4793009								
WG3156288-4 DUP		**WG3156288-3**						
Conductivity		0.342	0.343		mS/cm	0.3	10	09-SEP-19
WG3156288-2 LCS								
Conductivity			99.4		%		90-110	09-SEP-19
WG3156288-1 MB								
Conductivity			<0.0030		mS/cm		0.003	09-SEP-19
F1-HS-511-WT	**Water**							
Batch R4796329								
WG3157712-4 DUP		**WG3157712-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	11-SEP-19
WG3157712-1 LCS								
F1 (C6-C10)			107.4		%		80-120	11-SEP-19
WG3157712-2 MB								
F1 (C6-C10)			<25		ug/L		25	11-SEP-19
Surrogate: 3,4-Dichlorotoluene			92.3		%		60-140	11-SEP-19
WG3157712-5 MS		**WG3157712-3**						
F1 (C6-C10)			96.8		%		60-140	11-SEP-19
F2-F4-511-WT	**Water**							
Batch R4796330								
WG3156516-2 LCS								
F2 (C10-C16)			92.1		%		70-130	10-SEP-19
F3 (C16-C34)			102.0		%		70-130	10-SEP-19
F4 (C34-C50)			94.2		%		70-130	10-SEP-19
WG3156516-1 MB								
F2 (C10-C16)			<100		ug/L		100	10-SEP-19
F3 (C16-C34)			<250		ug/L		250	10-SEP-19
F4 (C34-C50)			<250		ug/L		250	10-SEP-19
Surrogate: 2-Bromobenzotrifluoride			88.9		%		60-140	10-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Water**							
Batch R4796360								
WG3157013-2 LCS								
F2 (C10-C16)			88.9		%		70-130	10-SEP-19
F3 (C16-C34)			98.1		%		70-130	10-SEP-19
F4 (C34-C50)			89.8		%		70-130	10-SEP-19
WG3157013-1 MB								
F2 (C10-C16)			<100		ug/L		100	10-SEP-19
F3 (C16-C34)			<250		ug/L		250	10-SEP-19
F4 (C34-C50)			<250		ug/L		250	10-SEP-19
Surrogate: 2-Bromobenzotrifluoride			75.0		%		60-140	10-SEP-19
HG-D-UG/L-CVAA-WT	**Water**							
Batch R4793456								
WG3156109-3 DUP		**L2343122-1**						
Mercury (Hg)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	10-SEP-19
WG3156109-2 LCS								
Mercury (Hg)-Dissolved			99.2		%		80-120	10-SEP-19
WG3156109-1 MB								
Mercury (Hg)-Dissolved			<0.0050		ug/L		0.005	10-SEP-19
WG3156109-4 MS		**L2343122-2**						
Mercury (Hg)-Dissolved			87.4		%		70-130	10-SEP-19
MET-D-UG/L-MS-WT	**Water**							
Batch R4791508								
WG3155539-4 DUP		**WG3155539-3**						
Antimony (Sb)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	09-SEP-19
Arsenic (As)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	09-SEP-19
Barium (Ba)-Dissolved		43.3	43.5		ug/L	0.5	20	09-SEP-19
Beryllium (Be)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	09-SEP-19
Boron (B)-Dissolved		<100	<100	RPD-NA	ug/L	N/A	20	09-SEP-19
Cadmium (Cd)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	09-SEP-19
Chromium (Cr)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	09-SEP-19
Cobalt (Co)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	09-SEP-19
Copper (Cu)-Dissolved		2.1	<2.0	RPD-NA	ug/L	N/A	20	10-SEP-19
Lead (Pb)-Dissolved		0.72	<0.50	RPD-NA	ug/L	N/A	20	09-SEP-19
Molybdenum (Mo)-Dissolved		5.65	5.41		ug/L	4.4	20	09-SEP-19
Nickel (Ni)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	09-SEP-19
Selenium (Se)-Dissolved		0.57	0.51		ug/L	12	20	09-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4791508								
WG3155539-4 DUP		**WG3155539-3**						
Silver (Ag)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	09-SEP-19
Sodium (Na)-Dissolved		304000	306000		ug/L	0.5	20	09-SEP-19
Thallium (Tl)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	09-SEP-19
Uranium (U)-Dissolved		0.34	0.32		ug/L	6.4	20	09-SEP-19
Vanadium (V)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	09-SEP-19
Zinc (Zn)-Dissolved		14	<10	RPD-NA	ug/L	N/A	20	09-SEP-19
WG3155539-2 LCS								
Antimony (Sb)-Dissolved			96.5		%		80-120	09-SEP-19
Arsenic (As)-Dissolved			97.3		%		80-120	09-SEP-19
Barium (Ba)-Dissolved			100.9		%		80-120	09-SEP-19
Beryllium (Be)-Dissolved			92.8		%		80-120	09-SEP-19
Boron (B)-Dissolved			91.7		%		80-120	09-SEP-19
Cadmium (Cd)-Dissolved			99.4		%		80-120	09-SEP-19
Chromium (Cr)-Dissolved			98.0		%		80-120	09-SEP-19
Cobalt (Co)-Dissolved			96.9		%		80-120	09-SEP-19
Copper (Cu)-Dissolved			96.8		%		80-120	09-SEP-19
Lead (Pb)-Dissolved			99.0		%		80-120	09-SEP-19
Molybdenum (Mo)-Dissolved			99.8		%		80-120	09-SEP-19
Nickel (Ni)-Dissolved			96.5		%		80-120	09-SEP-19
Selenium (Se)-Dissolved			99.1		%		80-120	09-SEP-19
Silver (Ag)-Dissolved			99.2		%		80-120	09-SEP-19
Sodium (Na)-Dissolved			96.7		%		80-120	09-SEP-19
Thallium (Tl)-Dissolved			98.7		%		80-120	09-SEP-19
Uranium (U)-Dissolved			97.0		%		80-120	09-SEP-19
Vanadium (V)-Dissolved			99.8		%		80-120	09-SEP-19
Zinc (Zn)-Dissolved			97.9		%		80-120	09-SEP-19
WG3155539-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	09-SEP-19
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	09-SEP-19
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	09-SEP-19
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	09-SEP-19
Boron (B)-Dissolved			<10		ug/L		10	09-SEP-19
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	09-SEP-19
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	09-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4791508								
WG3155539-1 MB								
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	09-SEP-19
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	09-SEP-19
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	09-SEP-19
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	09-SEP-19
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	09-SEP-19
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	09-SEP-19
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	09-SEP-19
Sodium (Na)-Dissolved			<50		ug/L		50	09-SEP-19
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	09-SEP-19
Uranium (U)-Dissolved			<0.010		ug/L		0.01	09-SEP-19
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	09-SEP-19
Zinc (Zn)-Dissolved			<1.0		ug/L		1	09-SEP-19
WG3155539-5 MS		**WG3155539-6**						
Antimony (Sb)-Dissolved			101.2		%		70-130	10-SEP-19
Arsenic (As)-Dissolved			103.3		%		70-130	10-SEP-19
Barium (Ba)-Dissolved			N/A	MS-B	%		-	10-SEP-19
Beryllium (Be)-Dissolved			104.9		%		70-130	10-SEP-19
Boron (B)-Dissolved			N/A	MS-B	%		-	10-SEP-19
Cadmium (Cd)-Dissolved			97.7		%		70-130	10-SEP-19
Chromium (Cr)-Dissolved			100.9		%		70-130	10-SEP-19
Cobalt (Co)-Dissolved			96.8		%		70-130	10-SEP-19
Copper (Cu)-Dissolved			91.2		%		70-130	10-SEP-19
Lead (Pb)-Dissolved			90.6		%		70-130	10-SEP-19
Molybdenum (Mo)-Dissolved			N/A	MS-B	%		-	10-SEP-19
Nickel (Ni)-Dissolved			91.4		%		70-130	10-SEP-19
Selenium (Se)-Dissolved			106.8		%		70-130	10-SEP-19
Silver (Ag)-Dissolved			81.2		%		70-130	10-SEP-19
Sodium (Na)-Dissolved			N/A	MS-B	%		-	09-SEP-19
Thallium (Tl)-Dissolved			90.8		%		70-130	10-SEP-19
Uranium (U)-Dissolved			N/A	MS-B	%		-	10-SEP-19
Vanadium (V)-Dissolved			105.2		%		70-130	10-SEP-19
Zinc (Zn)-Dissolved			92.8		%		70-130	10-SEP-19
PAH-511-WT	**Water**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4796508								
WG3156516-2 LCS								
1-Methylnaphthalene			104.3		%		50-140	11-SEP-19
2-Methylnaphthalene			96.3		%		50-140	11-SEP-19
Acenaphthene			107.4		%		50-140	11-SEP-19
Acenaphthylene			107.8		%		50-140	11-SEP-19
Anthracene			108.2		%		50-140	11-SEP-19
Benzo(a)anthracene			109.7		%		50-140	11-SEP-19
Benzo(a)pyrene			105.9		%		50-140	11-SEP-19
Benzo(b)fluoranthene			104.4		%		50-140	11-SEP-19
Benzo(g,h,i)perylene			107.7		%		50-140	11-SEP-19
Benzo(k)fluoranthene			106.7		%		50-140	11-SEP-19
Chrysene			106.7		%		50-140	11-SEP-19
Dibenzo(ah)anthracene			105.6		%		50-140	11-SEP-19
Fluoranthene			107.7		%		50-140	11-SEP-19
Fluorene			103.2		%		50-140	11-SEP-19
Indeno(1,2,3-cd)pyrene			110.1		%		50-140	11-SEP-19
Naphthalene			104.1		%		50-140	11-SEP-19
Phenanthrene			107.8		%		50-140	11-SEP-19
Pyrene			108.9		%		50-140	11-SEP-19
WG3156516-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	11-SEP-19
2-Methylnaphthalene			<0.020		ug/L		0.02	11-SEP-19
Acenaphthene			<0.020		ug/L		0.02	11-SEP-19
Acenaphthylene			<0.020		ug/L		0.02	11-SEP-19
Anthracene			<0.020		ug/L		0.02	11-SEP-19
Benzo(a)anthracene			<0.020		ug/L		0.02	11-SEP-19
Benzo(a)pyrene			<0.010		ug/L		0.01	11-SEP-19
Benzo(b)fluoranthene			<0.020		ug/L		0.02	11-SEP-19
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	11-SEP-19
Benzo(k)fluoranthene			<0.020		ug/L		0.02	11-SEP-19
Chrysene			<0.020		ug/L		0.02	11-SEP-19
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	11-SEP-19
Fluoranthene			<0.020		ug/L		0.02	11-SEP-19
Fluorene			<0.020		ug/L		0.02	11-SEP-19
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	11-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4796508								
WG3156516-1 MB								
Naphthalene			<0.050		ug/L		0.05	11-SEP-19
Phenanthrene			<0.020		ug/L		0.02	11-SEP-19
Pyrene			<0.020		ug/L		0.02	11-SEP-19
Surrogate: d8-Naphthalene			107.8		%		60-140	11-SEP-19
Surrogate: d10-Phenanthrene			104.6		%		60-140	11-SEP-19
Surrogate: d12-Chrysene			105.0		%		60-140	11-SEP-19
Surrogate: d10-Acenaphthene			105.0		%		60-140	11-SEP-19
Batch R4796730								
WG3157013-2 LCS								
1-Methylnaphthalene			100.7		%		50-140	11-SEP-19
2-Methylnaphthalene			93.9		%		50-140	11-SEP-19
Acenaphthene			103.4		%		50-140	11-SEP-19
Acenaphthylene			102.6		%		50-140	11-SEP-19
Anthracene			103.7		%		50-140	11-SEP-19
Benzo(a)anthracene			106.2		%		50-140	11-SEP-19
Benzo(a)pyrene			103.8		%		50-140	11-SEP-19
Benzo(b)fluoranthene			104.2		%		50-140	11-SEP-19
Benzo(g,h,i)perylene			107.6		%		50-140	11-SEP-19
Benzo(k)fluoranthene			106.8		%		50-140	11-SEP-19
Chrysene			104.6		%		50-140	11-SEP-19
Dibenzo(ah)anthracene			101.7		%		50-140	11-SEP-19
Fluoranthene			104.1		%		50-140	11-SEP-19
Fluorene			99.6		%		50-140	11-SEP-19
Indeno(1,2,3-cd)pyrene			111.0		%		50-140	11-SEP-19
Naphthalene			99.7		%		50-140	11-SEP-19
Phenanthrene			103.8		%		50-140	11-SEP-19
Pyrene			104.9		%		50-140	11-SEP-19
WG3157013-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	11-SEP-19
2-Methylnaphthalene			<0.020		ug/L		0.02	11-SEP-19
Acenaphthene			<0.020		ug/L		0.02	11-SEP-19
Acenaphthylene			<0.020		ug/L		0.02	11-SEP-19
Anthracene			<0.020		ug/L		0.02	11-SEP-19
Benzo(a)anthracene			<0.020		ug/L		0.02	11-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4796730								
WG3157013-1 MB								
Benzo(a)pyrene			<0.010		ug/L		0.01	11-SEP-19
Benzo(b)fluoranthene			<0.020		ug/L		0.02	11-SEP-19
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	11-SEP-19
Benzo(k)fluoranthene			<0.020		ug/L		0.02	11-SEP-19
Chrysene			<0.020		ug/L		0.02	11-SEP-19
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	11-SEP-19
Fluoranthene			<0.020		ug/L		0.02	11-SEP-19
Fluorene			<0.020		ug/L		0.02	11-SEP-19
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	11-SEP-19
Naphthalene			<0.050		ug/L		0.05	11-SEP-19
Phenanthrene			<0.020		ug/L		0.02	11-SEP-19
Pyrene			<0.020		ug/L		0.02	11-SEP-19
Surrogate: d8-Naphthalene			109.1		%		60-140	11-SEP-19
Surrogate: d10-Phenanthrene			111.1		%		60-140	11-SEP-19
Surrogate: d12-Chrysene			112.1		%		60-140	11-SEP-19
Surrogate: d10-Acenaphthene			110.6		%		60-140	11-SEP-19
PH-WT	**Water**							
Batch R4792994								
WG3156180-4 DUP		**WG3156180-3**						
pH		7.76	7.77	J	pH units	0.01	0.2	09-SEP-19
WG3156180-2 LCS								
pH			7.01		pH units		6.9-7.1	09-SEP-19
Batch R4793009								
WG3156288-4 DUP		**WG3156288-3**						
pH		8.07	8.04	J	pH units	0.03	0.2	09-SEP-19
WG3156288-2 LCS								
pH			7.01		pH units		6.9-7.1	09-SEP-19
VOC-511-HS-WT	**Water**							
Batch R4796329								
WG3157712-4 DUP		**WG3157712-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4796329								
WG3157712-4 DUP		**WG3157712-3**						
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	11-SEP-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	11-SEP-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	11-SEP-19
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	11-SEP-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	11-SEP-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	11-SEP-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	11-SEP-19
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	11-SEP-19
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	11-SEP-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	11-SEP-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	11-SEP-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	11-SEP-19
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	11-SEP-19
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	11-SEP-19
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	11-SEP-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
trans-1,3-Dichloropropene		<0.30	<0.30		ug/L			11-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4796329								
WG3157712-4 DUP		**WG3157712-3**						
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	11-SEP-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	11-SEP-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	11-SEP-19
WG3157712-1 LCS								
1,1,1,2-Tetrachloroethane			102.1		%		70-130	11-SEP-19
1,1,2,2-Tetrachloroethane			93.2		%		70-130	11-SEP-19
1,1,1-Trichloroethane			106.9		%		70-130	11-SEP-19
1,1,2-Trichloroethane			93.3		%		70-130	11-SEP-19
1,1-Dichloroethane			107.2		%		70-130	11-SEP-19
1,1-Dichloroethylene			103.3		%		70-130	11-SEP-19
1,2-Dibromoethane			90.3		%		70-130	11-SEP-19
1,2-Dichlorobenzene			101.3		%		70-130	11-SEP-19
1,2-Dichloroethane			98.3		%		70-130	11-SEP-19
1,2-Dichloropropane			103.6		%		70-130	11-SEP-19
1,3-Dichlorobenzene			101.5		%		70-130	11-SEP-19
1,4-Dichlorobenzene			96.8		%		70-130	11-SEP-19
Acetone			89.7		%		60-140	11-SEP-19
Benzene			108.5		%		70-130	11-SEP-19
Bromodichloromethane			96.7		%		70-130	11-SEP-19
Bromoform			92.8		%		70-130	11-SEP-19
Bromomethane			99.3		%		60-140	11-SEP-19
Carbon tetrachloride			108.7		%		70-130	11-SEP-19
Chlorobenzene			99.7		%		70-130	11-SEP-19
Chloroform			105.0		%		70-130	11-SEP-19
cis-1,2-Dichloroethylene			100.5		%		70-130	11-SEP-19
cis-1,3-Dichloropropene			98.2		%		70-130	11-SEP-19
Dibromochloromethane			92.5		%		70-130	11-SEP-19
Dichlorodifluoromethane			135.2		%		50-140	11-SEP-19
Ethylbenzene			96.0		%		70-130	11-SEP-19
n-Hexane			104.7		%		70-130	11-SEP-19
m+p-Xylenes			97.4		%		70-130	11-SEP-19
Methyl Ethyl Ketone			83.3		%		60-140	11-SEP-19
Methyl Isobutyl Ketone			79.7				60-140	

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4796329								
WG3157712-1 LCS								
Methyl Isobutyl Ketone			79.7		%		60-140	11-SEP-19
Methylene Chloride			96.6		%		70-130	11-SEP-19
MTBE			102.7		%		70-130	11-SEP-19
o-Xylene			95.4		%		70-130	11-SEP-19
Styrene			94.7		%		70-130	11-SEP-19
Tetrachloroethylene			103.2		%		70-130	11-SEP-19
Toluene			98.2		%		70-130	11-SEP-19
trans-1,2-Dichloroethylene			103.6		%		70-130	11-SEP-19
trans-1,3-Dichloropropene			87.2		%		70-130	11-SEP-19
Trichloroethylene			105.0		%		70-130	11-SEP-19
Trichlorofluoromethane			111.0		%		60-140	11-SEP-19
Vinyl chloride			123.8		%		60-140	11-SEP-19
WG3157712-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	11-SEP-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	11-SEP-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	11-SEP-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	11-SEP-19
1,1-Dichloroethane			<0.50		ug/L		0.5	11-SEP-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	11-SEP-19
1,2-Dibromoethane			<0.20		ug/L		0.2	11-SEP-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	11-SEP-19
1,2-Dichloroethane			<0.50		ug/L		0.5	11-SEP-19
1,2-Dichloropropane			<0.50		ug/L		0.5	11-SEP-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	11-SEP-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	11-SEP-19
Acetone			<30		ug/L		30	11-SEP-19
Benzene			<0.50		ug/L		0.5	11-SEP-19
Bromodichloromethane			<2.0		ug/L		2	11-SEP-19
Bromoform			<5.0		ug/L		5	11-SEP-19
Bromomethane			<0.50		ug/L		0.5	11-SEP-19
Carbon tetrachloride			<0.20		ug/L		0.2	11-SEP-19
Chlorobenzene			<0.50		ug/L		0.5	11-SEP-19
Chloroform			<1.0		ug/L		1	11-SEP-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	11-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4796329								
WG3157712-2 MB								
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	11-SEP-19
Dibromochloromethane			<2.0		ug/L		2	11-SEP-19
Dichlorodifluoromethane			<2.0		ug/L		2	11-SEP-19
Ethylbenzene			<0.50		ug/L		0.5	11-SEP-19
n-Hexane			<0.50		ug/L		0.5	11-SEP-19
m+p-Xylenes			<0.40		ug/L		0.4	11-SEP-19
Methyl Ethyl Ketone			<20		ug/L		20	11-SEP-19
Methyl Isobutyl Ketone			<20		ug/L		20	11-SEP-19
Methylene Chloride			<5.0		ug/L		5	11-SEP-19
MTBE			<2.0		ug/L		2	11-SEP-19
o-Xylene			<0.30		ug/L		0.3	11-SEP-19
Styrene			<0.50		ug/L		0.5	11-SEP-19
Tetrachloroethylene			<0.50		ug/L		0.5	11-SEP-19
Toluene			<0.50		ug/L		0.5	11-SEP-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	11-SEP-19
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	11-SEP-19
Trichloroethylene			<0.50		ug/L		0.5	11-SEP-19
Trichlorofluoromethane			<5.0		ug/L		5	11-SEP-19
Vinyl chloride			<0.50		ug/L		0.5	11-SEP-19
Surrogate: 1,4-Difluorobenzene			96.3		%		70-130	11-SEP-19
Surrogate: 4-Bromofluorobenzene			89.7		%		70-130	11-SEP-19
WG3157712-5 MS		**WG3157712-3**						
1,1,1,2-Tetrachloroethane			101.7		%		50-140	11-SEP-19
1,1,2,2-Tetrachloroethane			109.8		%		50-140	11-SEP-19
1,1,1-Trichloroethane			105.1		%		50-140	11-SEP-19
1,1,2-Trichloroethane			99.7		%		50-140	11-SEP-19
1,1-Dichloroethane			106.8		%		50-140	11-SEP-19
1,1-Dichloroethylene			96.6		%		50-140	11-SEP-19
1,2-Dibromoethane			100.1		%		50-140	11-SEP-19
1,2-Dichlorobenzene			101.0		%		50-140	11-SEP-19
1,2-Dichloroethane			106.3		%		50-140	11-SEP-19
1,2-Dichloropropane			106.8		%		50-140	11-SEP-19
1,3-Dichlorobenzene			98.3		%		50-140	11-SEP-19
1,4-Dichlorobenzene			94.2		%		50-140	11-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4796329								
WG3157712-5 MS		**WG3157712-3**						
Acetone			103.5		%		50-140	11-SEP-19
Benzene			108.2		%		50-140	11-SEP-19
Bromodichloromethane			99.0		%		50-140	11-SEP-19
Bromoform			100.8		%		50-140	11-SEP-19
Bromomethane			94.7		%		50-140	11-SEP-19
Carbon tetrachloride			101.9		%		50-140	11-SEP-19
Chlorobenzene			98.8		%		50-140	11-SEP-19
Chloroform			104.4		%		50-140	11-SEP-19
cis-1,2-Dichloroethylene			101.7		%		50-140	11-SEP-19
cis-1,3-Dichloropropene			103.1		%		50-140	11-SEP-19
Dibromochloromethane			97.2		%		50-140	11-SEP-19
Dichlorodifluoromethane			104.6		%		50-140	11-SEP-19
Ethylbenzene			93.0		%		50-140	11-SEP-19
n-Hexane			95.7		%		50-140	11-SEP-19
m+p-Xylenes			93.3		%		50-140	11-SEP-19
Methyl Ethyl Ketone			102.8		%		50-140	11-SEP-19
Methyl Isobutyl Ketone			98.1		%		50-140	11-SEP-19
Methylene Chloride			97.7		%		50-140	11-SEP-19
MTBE			102.3		%		50-140	11-SEP-19
o-Xylene			94.0		%		50-140	11-SEP-19
Styrene			96.3		%		50-140	11-SEP-19
Tetrachloroethylene			96.5		%		50-140	11-SEP-19
Toluene			96.1		%		50-140	11-SEP-19
trans-1,2-Dichloroethylene			100.2		%		50-140	11-SEP-19
trans-1,3-Dichloropropene			93.8		%		50-140	11-SEP-19
Trichloroethylene			101.5		%		50-140	11-SEP-19
Trichlorofluoromethane			99.9		%		50-140	11-SEP-19
Vinyl chloride			110.8		%		50-140	11-SEP-19

Quality Control Report

Workorder: L2343122 Report Date: 13-SEP-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

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
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
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.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

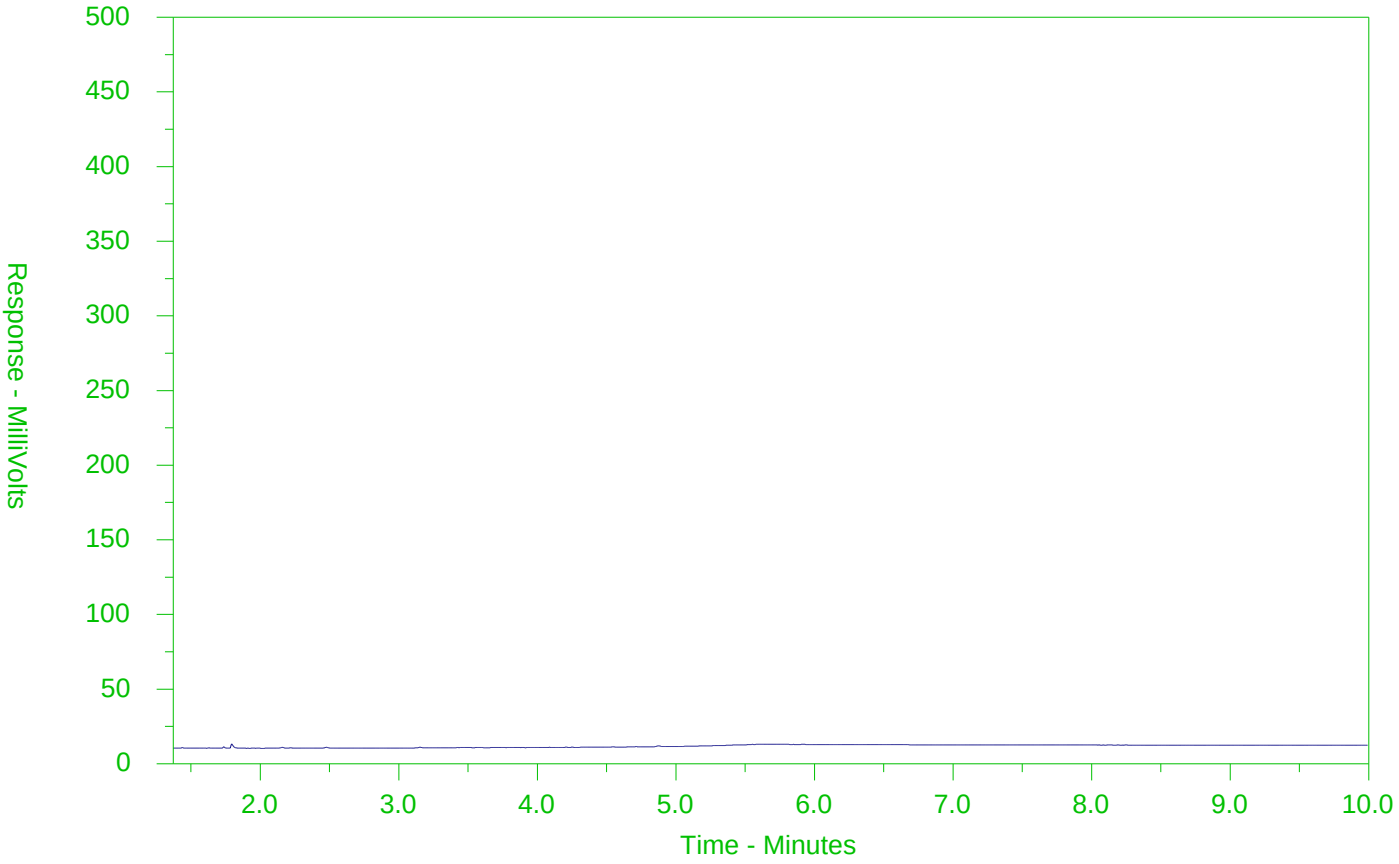
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2343122-1
Client Sample ID: MW109



←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.

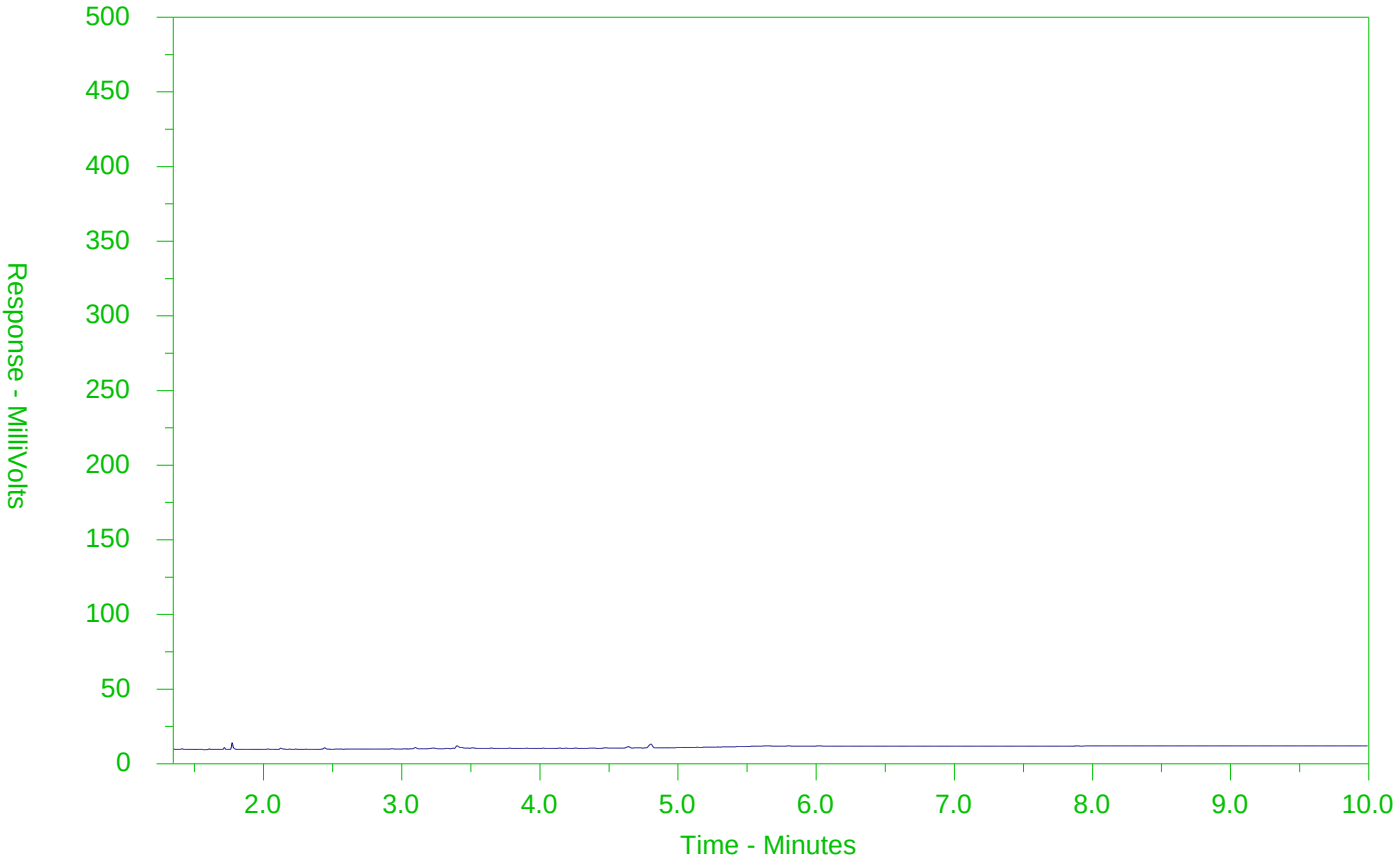
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-2
Client Sample ID: MW108



←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.

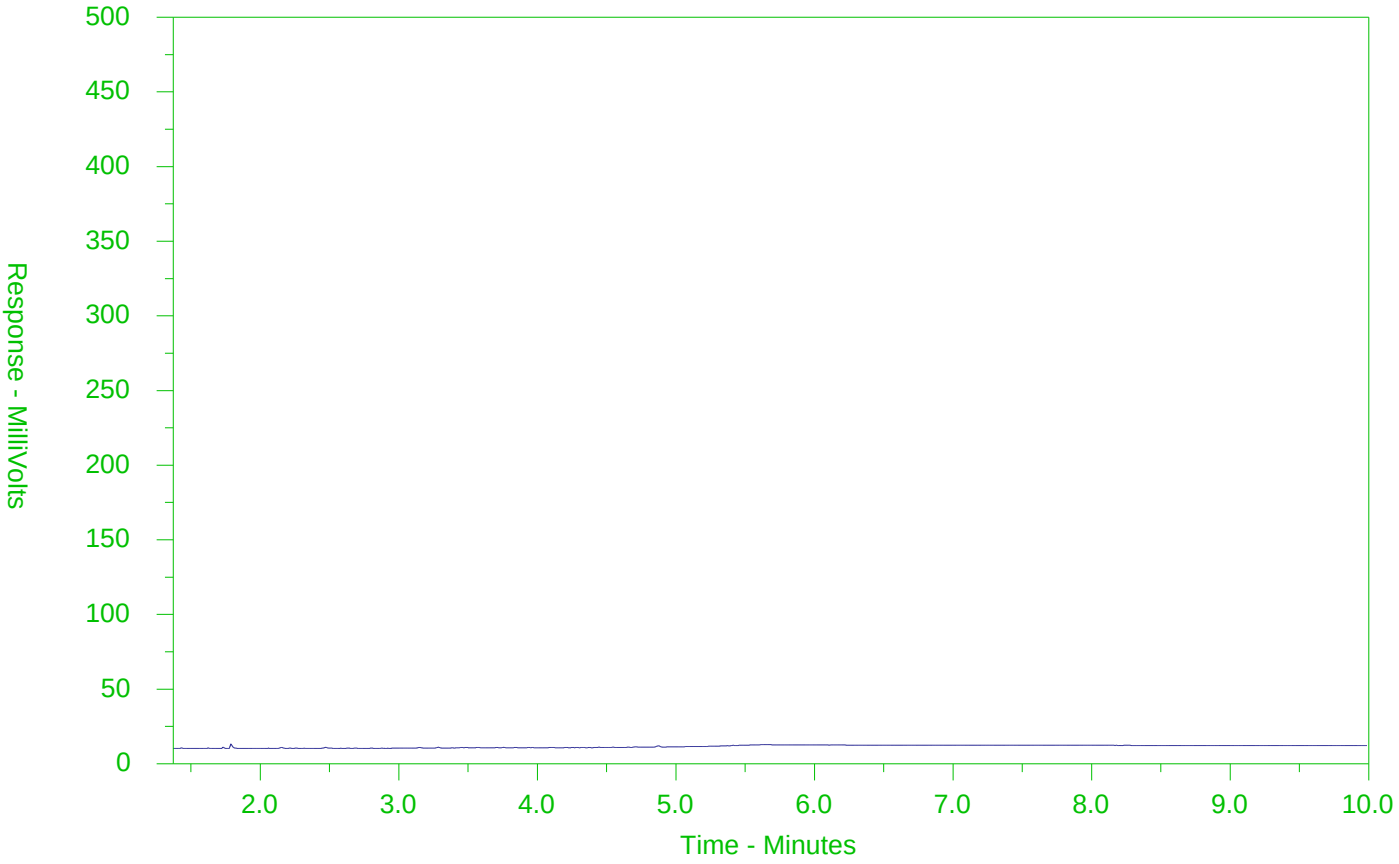
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-3
Client Sample ID: MW104



←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.

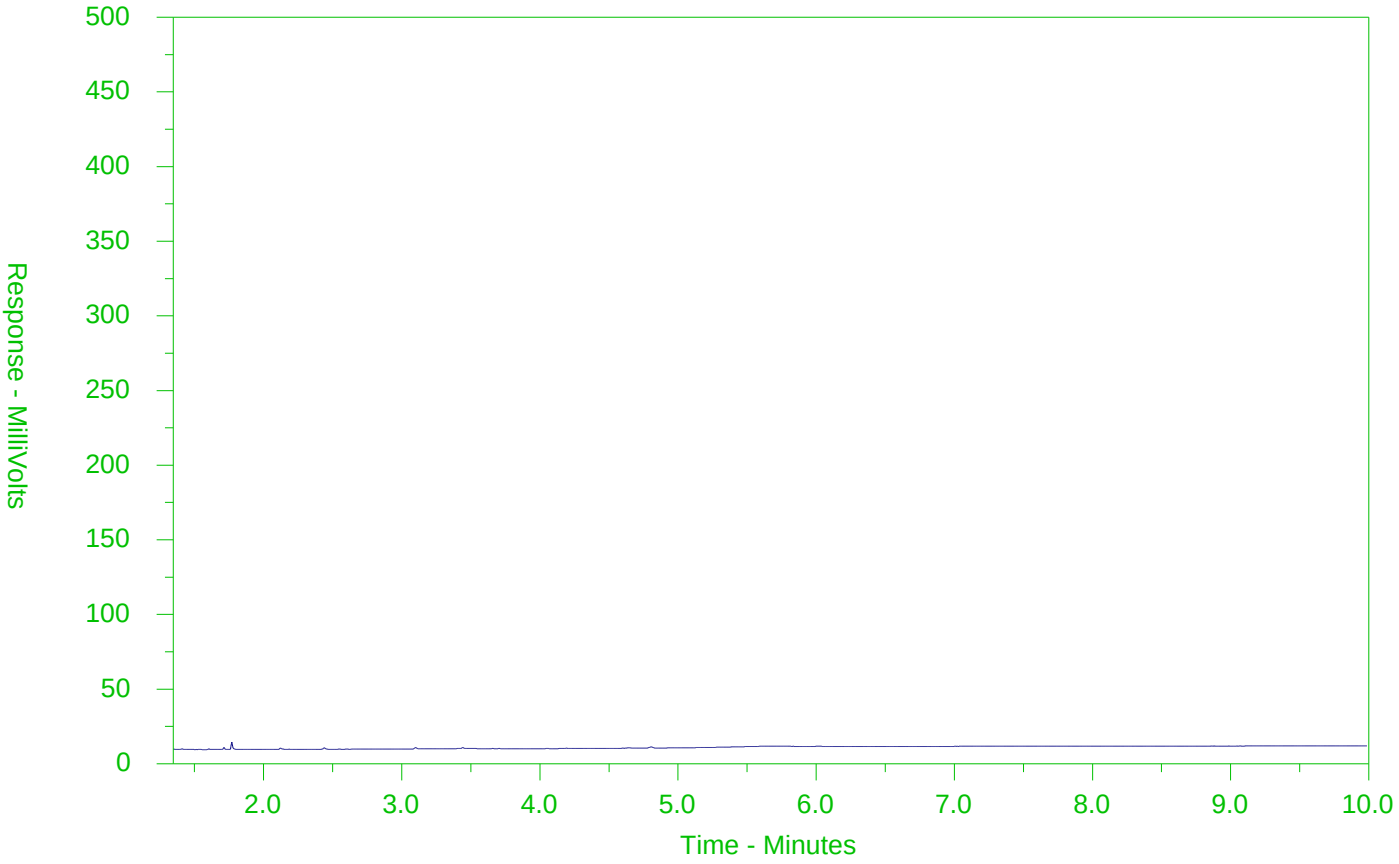
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-4
Client Sample ID: MW103



←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.

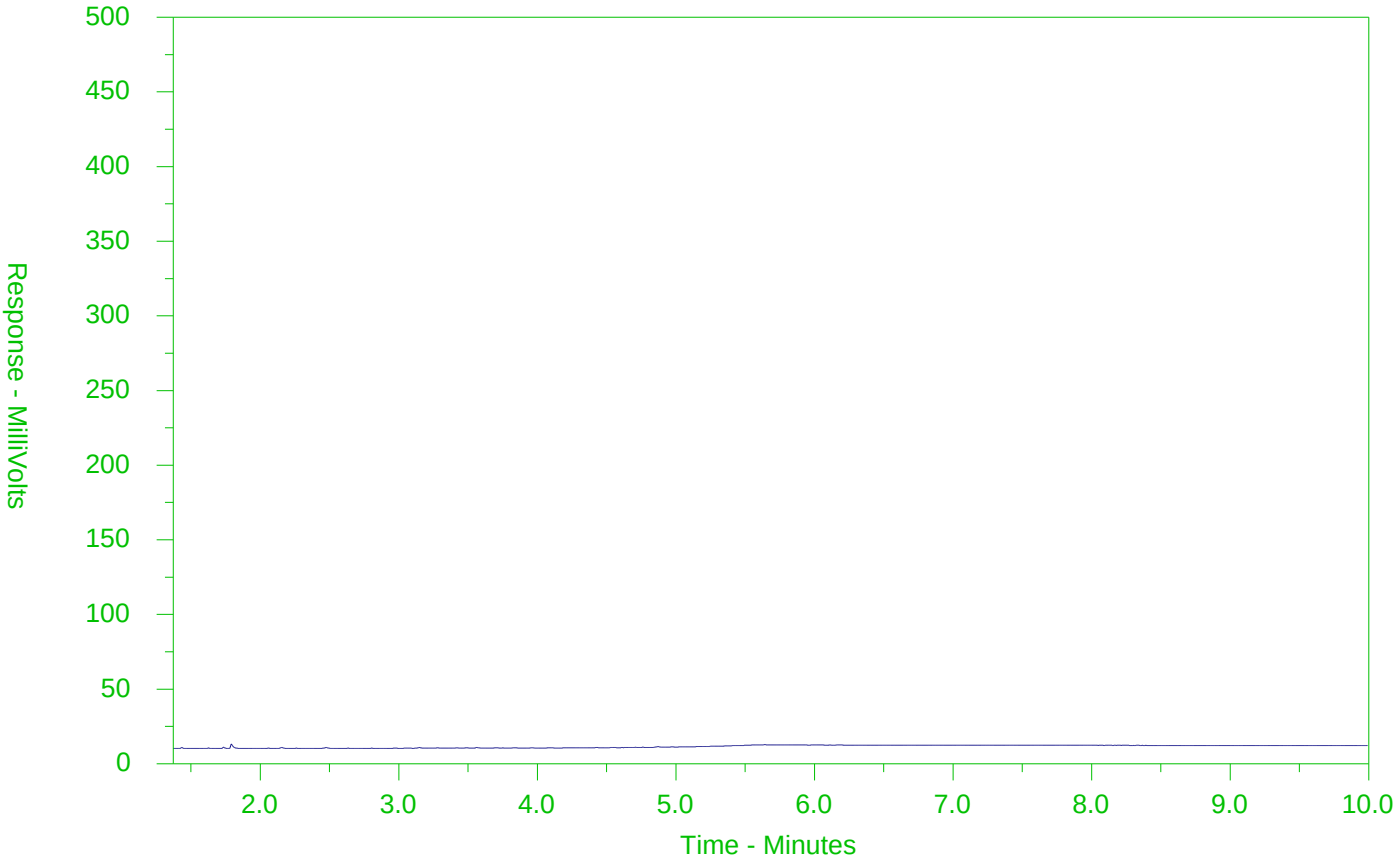
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-5
Client Sample ID: MW101



←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.

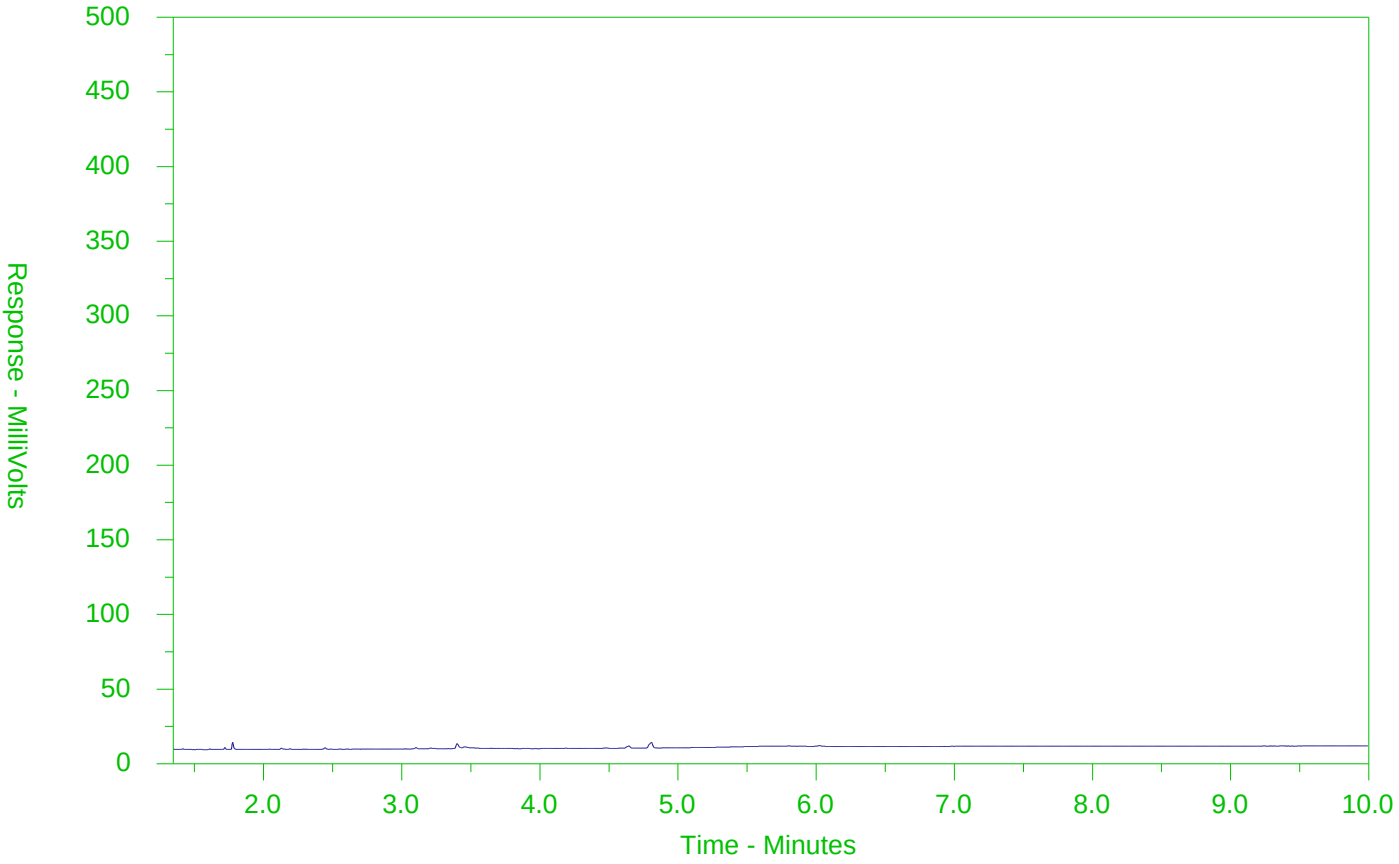
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-6
Client Sample ID: MW100



←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.

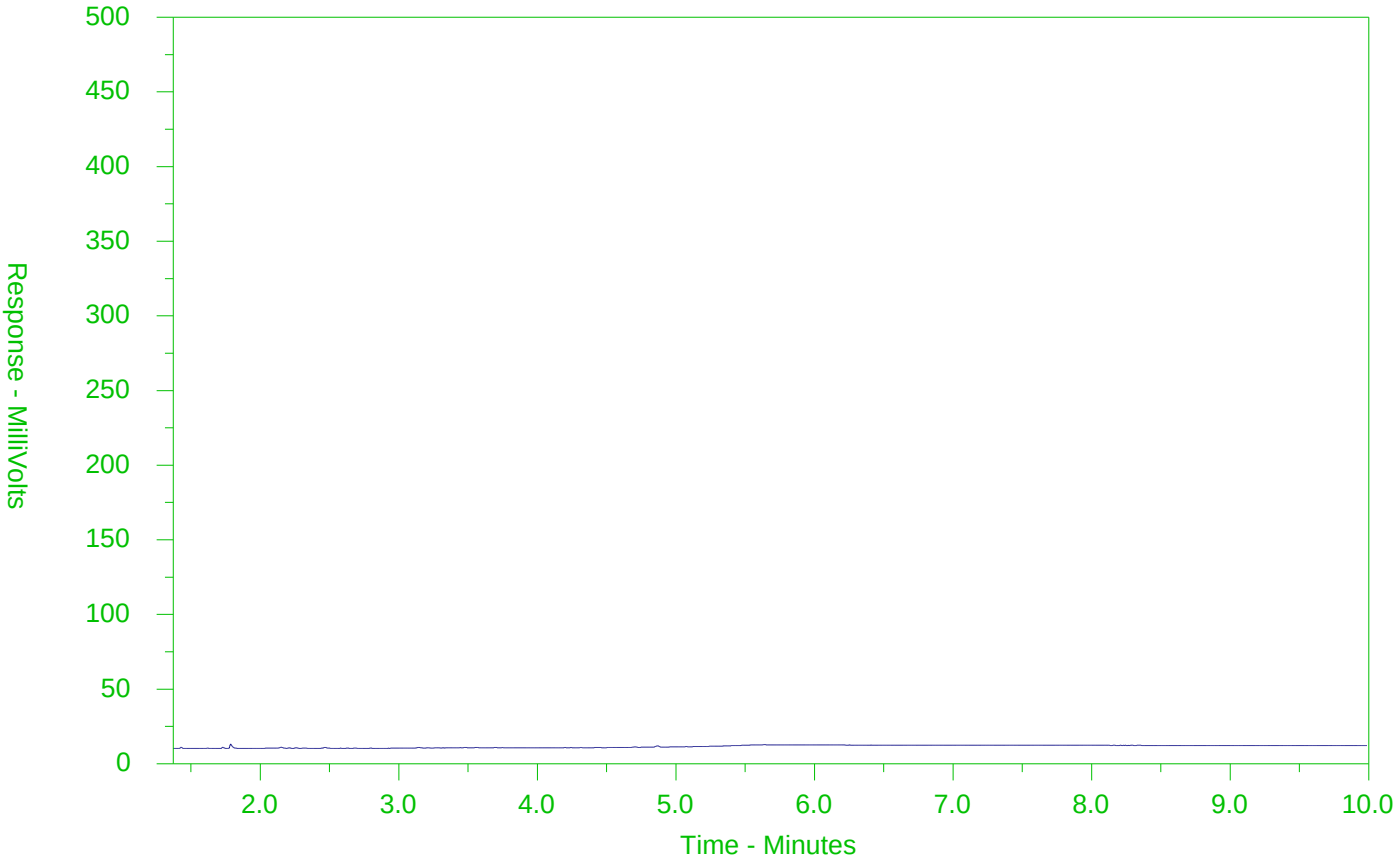
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-7
Client Sample ID: MW102A



←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.

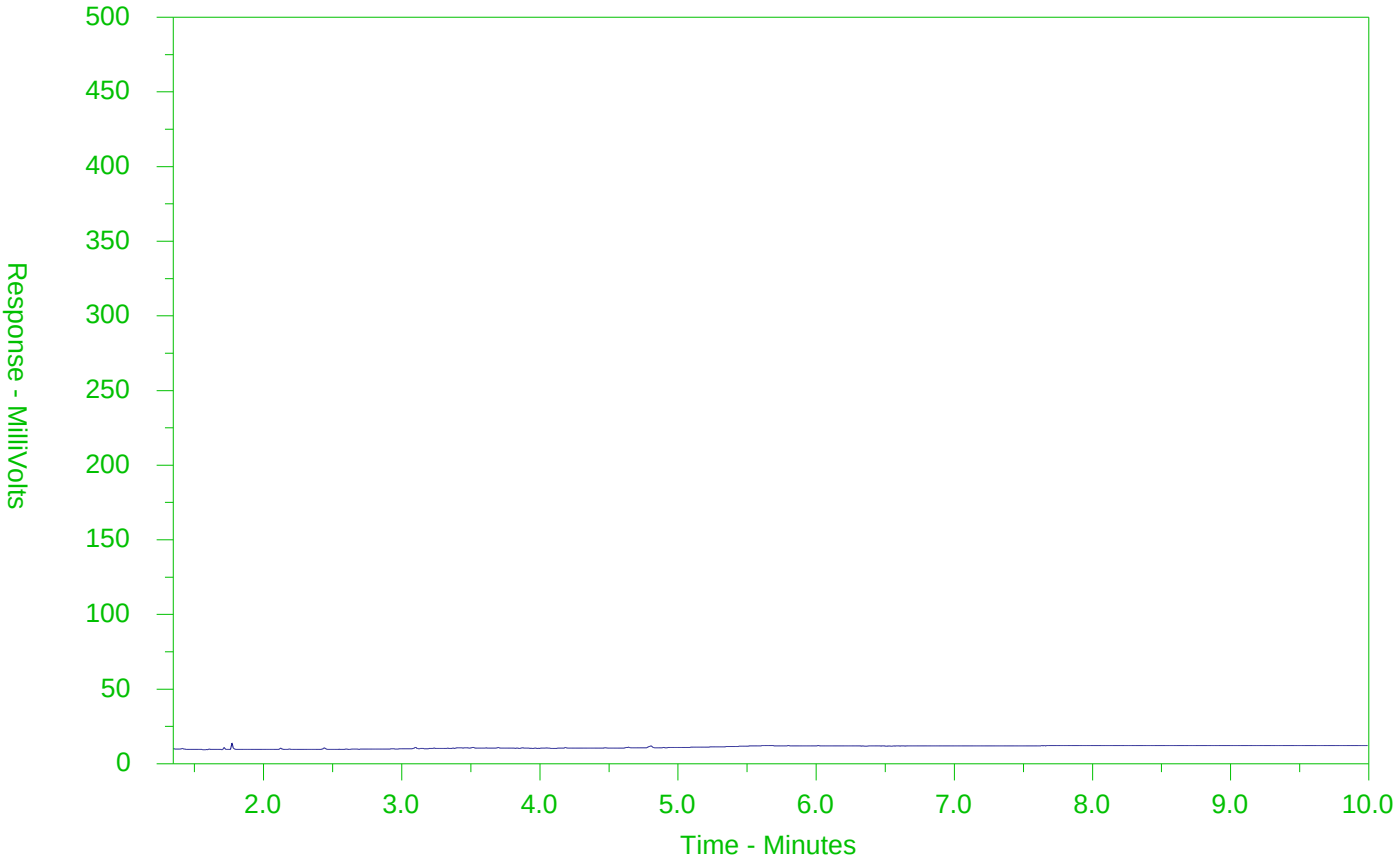
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-8
Client Sample ID: MW102B



←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.

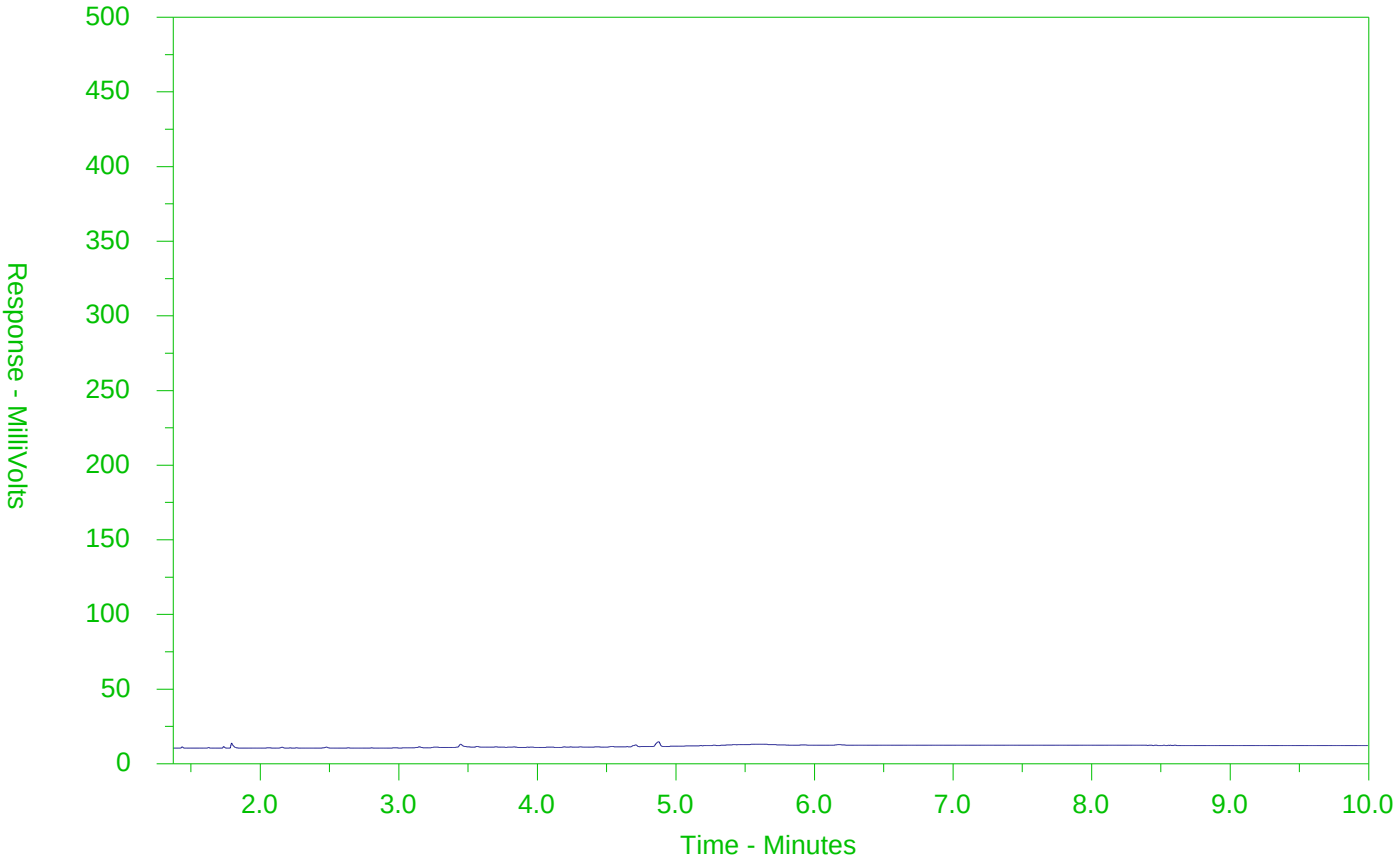
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-9
Client Sample ID: MW105



←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.

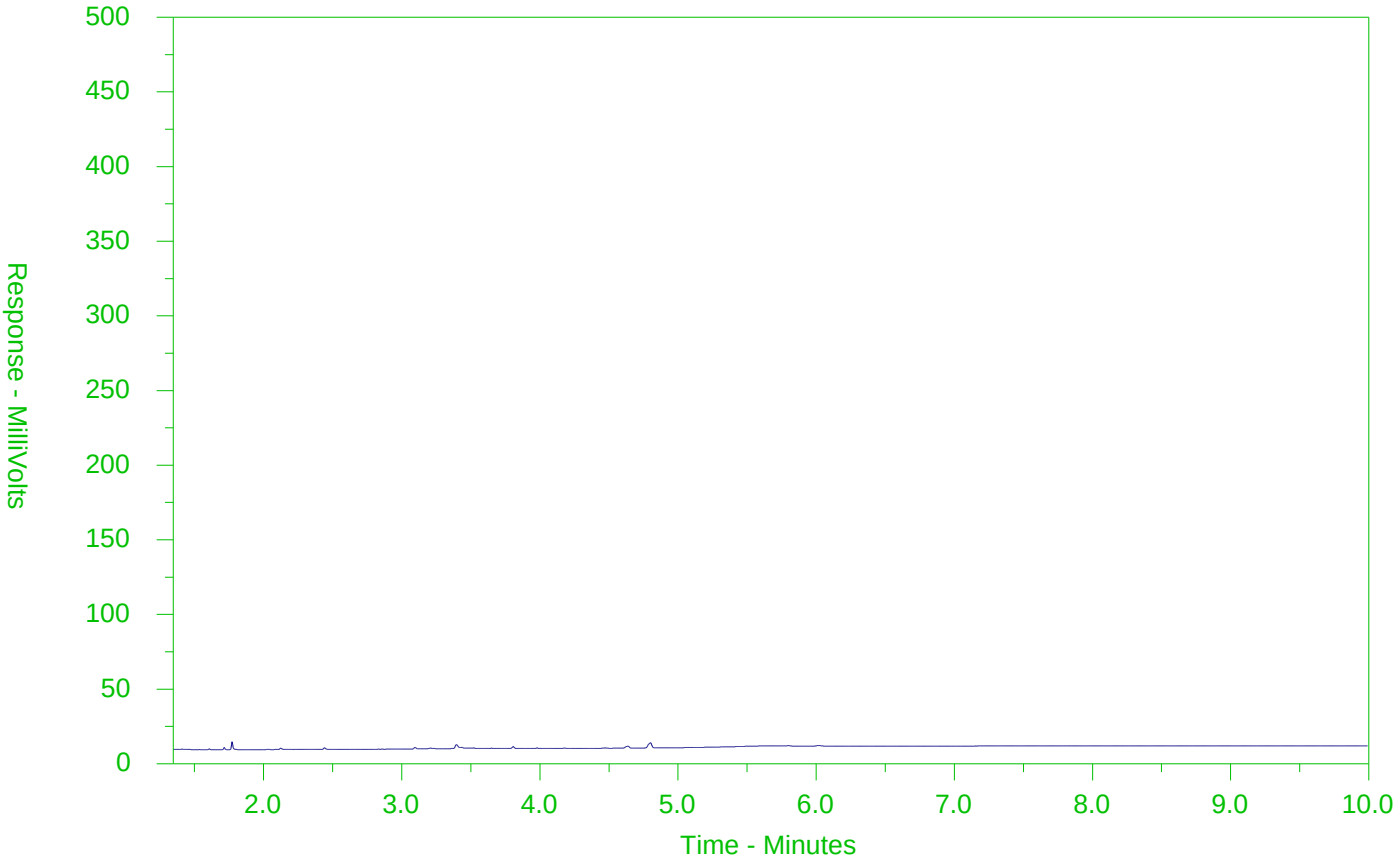
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-10
Client Sample ID: MW107



←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.

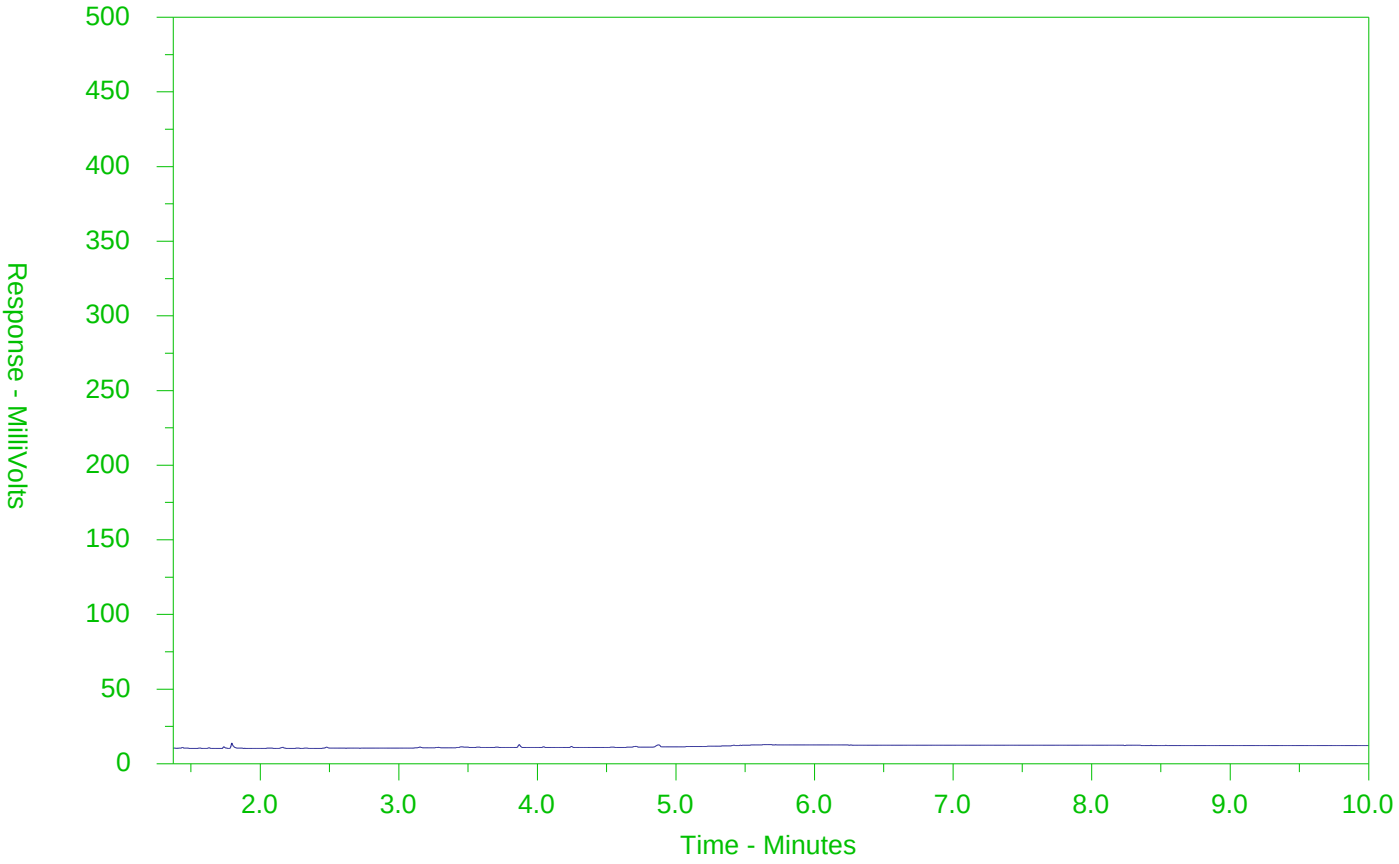
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-11
Client Sample ID: MW106



←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.

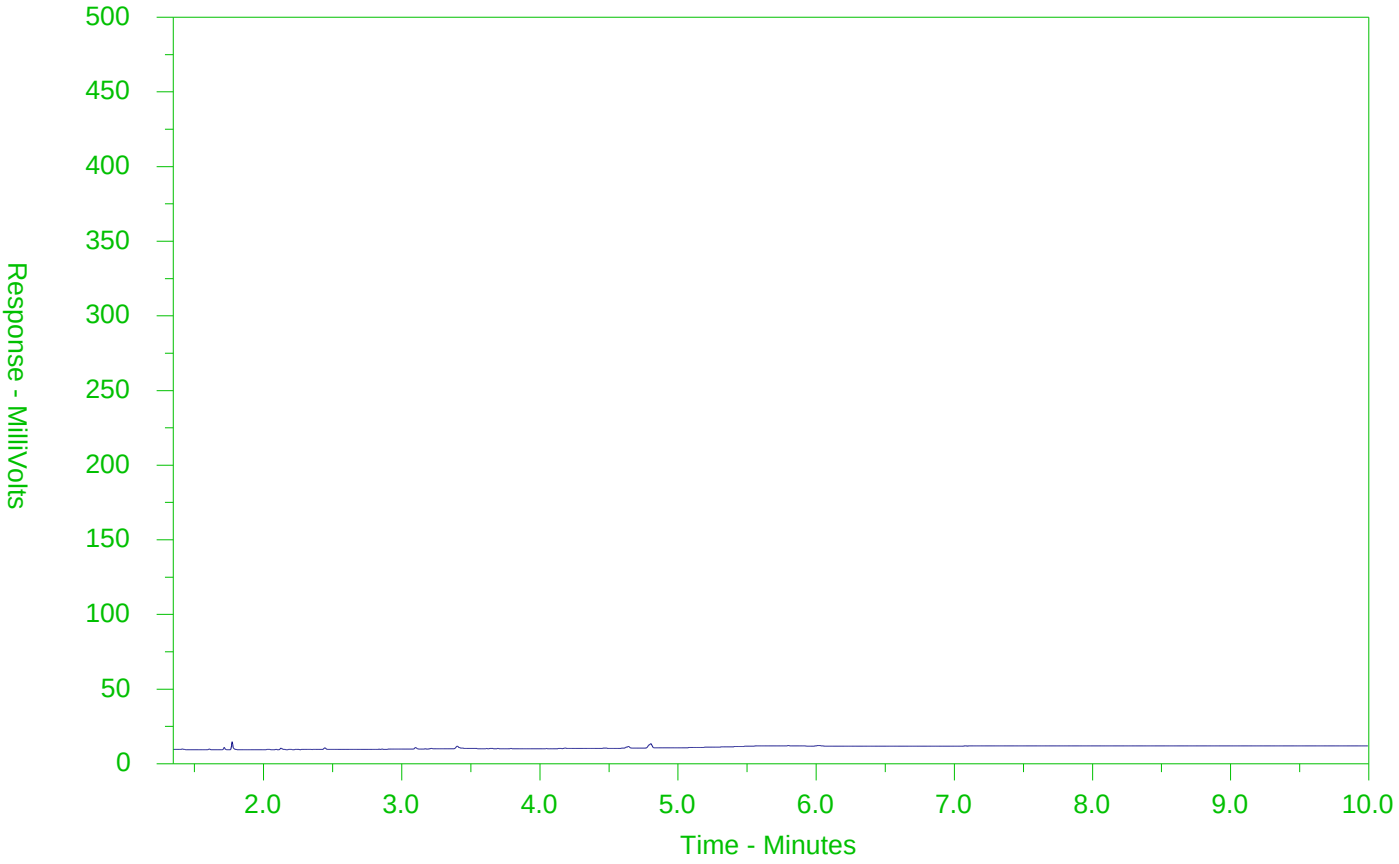
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-12
Client Sample ID: DUP1



←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.

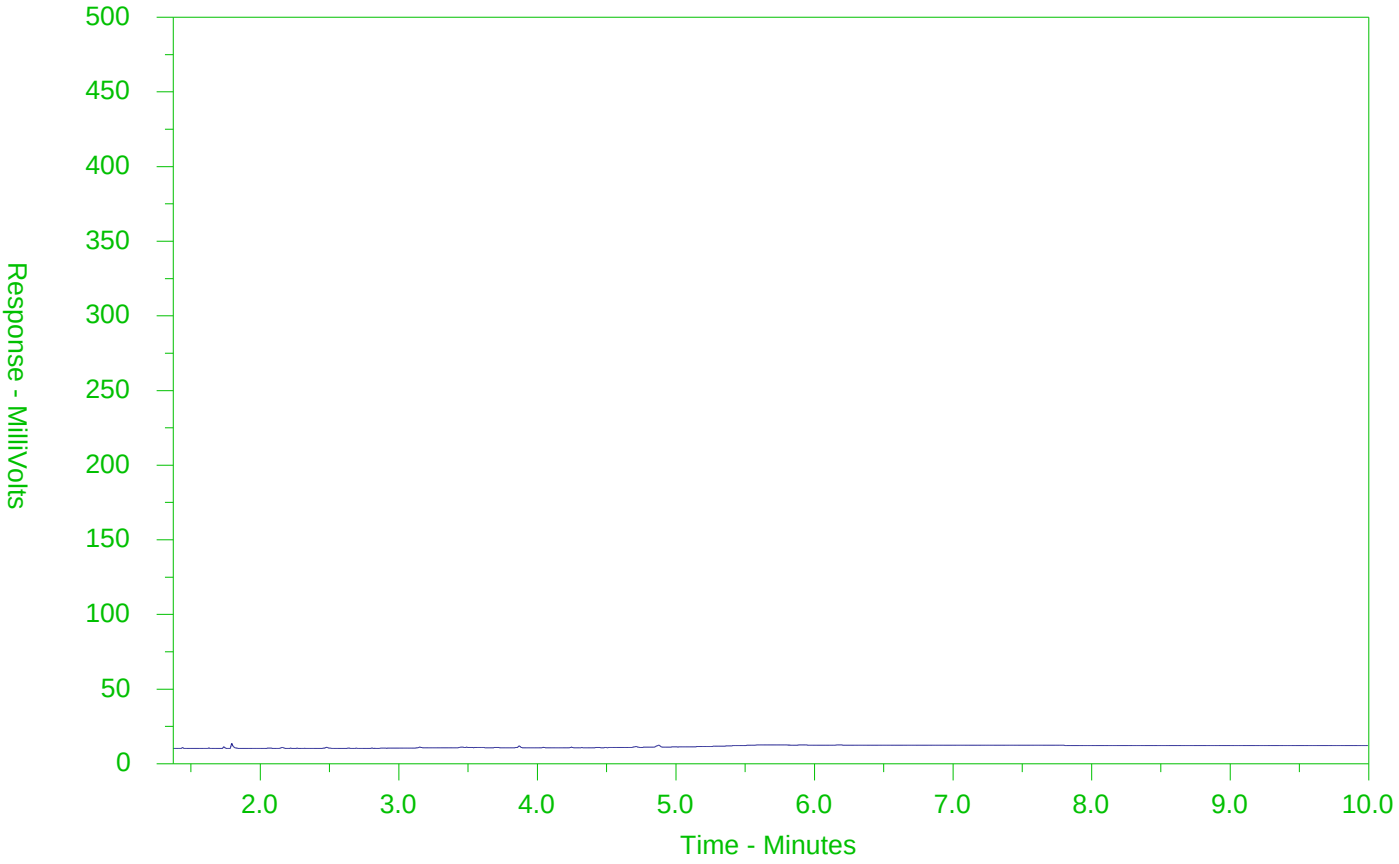
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2343122-14
Client Sample ID: DUP3



←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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2343122-COFC

COC Number: 17 - 826465

Page 1 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Company:	CH2M Hill Jacobs	Select Report Format:	PDF EXCEL EDD (DIGITAL)	Regular [R]	Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	M. Shirly	Quality Control (QC) Report with Report	YES NO	Priority (Business Days)	4 day [P4-20%]
Phone:	519-579-3500	Compare Results to Criteria on Report - provide details below if box checked			3 day [P3-25%]
	Company address below will appear on the final report	Select Distribution	EMAIL MAIL FAX		2 day [P2-50%]
Street:	72 Victoria St. S, Suite 300	Email 1 or Fax	as per quote	Emergency	1 Business day [E - 100%]
City/Province:	Kitchener ON	Email 2	michael.shirly@jacobs.com		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]
Postal Code:	N2G 4Y9	Email 3		Date and Time Required for all E&P TATs:	dd-mmm-yy hh:mm
Invoice To	Same as Report To YES NO	Invoice Distribution		For tests that can not be performed according to the service level selected, you will be contacted.	
	Copy of Invoice with Report YES NO	Select Invoice Distribution:	EMAIL MAIL FAX	Analysis Request	
Company:	CH2M Hill	Email 1 or Fax	Accounts Payable		
Contact:	Victoria Peters	Email 2			

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q71421	AFE/Cost Center:	PO#:
Job #:	CE751980.A.CS.EV.FI.19-01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2343122	ALS Contact:	Sampler: V. Peters

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Metals (O. Reg 153/04)	Inorganics (Free Cyanide, pH, EC, SAR)	PAHs	PHCs (F1-F4 incl. BTEX)	BVOCs	ABNs	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW109	05-01-19	9:50	water		X	X	X	X	X			9
	MW108	05-09-19	11:20										9
	MW104	05-09-19	13:10								X		10
	MW103	05-09-19	14:45										9
	MW101	05-09-19	16:50										9
	MW100	06-09-19	7:50										9
	MW102A	06-09-19	10:10										9
	MW102B	06-09-19	11:10										9
	MW105	06-09-19	11:50										9
	MW107	06-09-19	13:20										9
	MW106	06-09-19	14:50										9
	DUP1	05-09-19	—	water		X	X	X	X	X			9

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [X] NO	O. Reg 153/04
Are samples for human consumption/ use? [ ] YES [X] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes		No
Ice Packs	Ice Cubes	Custody seal intact	Yes		No
Cooling Initiated					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				7.8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: V. Peters	Date: 2019/9/6	Time: 16:47	Received by:	Date:	Time:	Received by:	Date: 09/06/19	Time: 16:47

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2343122-COFC

COC Number: 17 - 826466

Page 2 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	CH2M Hill/Jacobs	Select Report Format: X PDF X EXCEL X EDD (DIGITAL)	Regular [R]: X Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	M. Shiry	Quality Control (QC) Report with Report: X YES | NO	Priority (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-579-3500	☐ Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: | | EMAIL | | MAIL | | FAX	
Street:	72 Victoria St S, Suite 300	Email 1 or Fax: as per quote	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Kitchener ON	Email 2: michael.shiry@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	N2G 4X9	Email 3:	
Invoice To	Same as Report To: X YES | | NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report: X YES | | NO	Select Invoice Distribution: X EMAIL ☐ MAIL ☐ FAX	
Company:	CH2M Hill/Jacobs	Email 1 or Fax: Accounts Payable	
Contact:	M. Shiry	Email 2:	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q71421	AFE/Cost Center:	PO#:
Job #:	CE51900-A.CS.EV.19.19-01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2343122 R	ALS Contact:	Sampler: V. Peters

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	metals (O.Reg 153/04)	inorg. (free cyanide, pH, EC, SAR)	PAHs	PHC (F1-F4 incl. BTEX)	VOC	ABNs	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	DUP2	05-09-19	—	Water		X					X		9
	DUP3	06-09-19	—	water		X	X	X	X	X			9
	TB-001	—	—	QC						X			1
	TB-002	—	—	QC						X			1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ YES X NO	O.Reg. 153/04 - excel	Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human consumption/ use? ☐ YES X NO		Ice Packs ☑ Ice Cubes ☑ Custody seal intact Yes ☐ No ☐
		Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	9,8

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Vilan Peters	Date: 2019/9/6	Time: 16:47	Received by:	Date:	Time:	Received by:	Date: 09/06/19	Time: 16:47

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

CH2M HILL CANADA LIMITED
ATTN: MICHAEL SHIRY
CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 24-SEP-19
Report Date: 26-SEP-19 09:09 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2352720

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-819317
Legal Site Desc:

Emily Hansen
Account Manager

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2352720-1	MW101						
Sampled By:	M.SHIRY on 24-SEP-19 @ 10:16						
Matrix:	WATER						#1
Volatile Organic Compounds							
	Acetone	<30		30	ug/L	26-SEP-19	2700
	Benzene	<0.50		0.50	ug/L	26-SEP-19	0.5
	Bromodichloromethane	7.1		2.0	ug/L	26-SEP-19	*2
	Bromoform	<5.0		5.0	ug/L	26-SEP-19	5
	Bromomethane	<0.50		0.50	ug/L	26-SEP-19	0.89
	Carbon tetrachloride	<0.20		0.20	ug/L	26-SEP-19	0.2
	Chlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5
	Dibromochloromethane	4.5		2.0	ug/L	26-SEP-19	*2
	Chloroform	11.9		1.0	ug/L	26-SEP-19	*2
	1,2-Dibromoethane	<0.20		0.20	ug/L	26-SEP-19	0.2
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5
	1,3-Dichlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5
	Dichlorodifluoromethane	<2.0		2.0	ug/L	26-SEP-19	590
	1,1-Dichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5
	1,2-Dichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5
	1,1-Dichloroethylene	<0.50		0.50	ug/L	26-SEP-19	0.5
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	26-SEP-19	1.6
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	26-SEP-19	1.6
	Methylene Chloride	<5.0		5.0	ug/L	26-SEP-19	5
	1,2-Dichloropropane	<0.50		0.50	ug/L	26-SEP-19	0.5
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	26-SEP-19	
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	26-SEP-19	
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	26-SEP-19	0.5
	Ethylbenzene	<0.50		0.50	ug/L	26-SEP-19	0.5
	n-Hexane	<0.50		0.50	ug/L	26-SEP-19	5
	Methyl Ethyl Ketone	<20		20	ug/L	26-SEP-19	400
	Methyl Isobutyl Ketone	<20		20	ug/L	26-SEP-19	640
	MTBE	<2.0		2.0	ug/L	26-SEP-19	15
	Styrene	<0.50		0.50	ug/L	26-SEP-19	0.5
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	26-SEP-19	1.1
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5
	Tetrachloroethylene	<0.50		0.50	ug/L	26-SEP-19	0.5
	Toluene	<0.50		0.50	ug/L	26-SEP-19	0.8
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5
	Trichloroethylene	<0.50		0.50	ug/L	26-SEP-19	0.5
	Trichlorofluoromethane	<5.0		5.0	ug/L	26-SEP-19	150
	Vinyl chloride	<0.50		0.50	ug/L	26-SEP-19	0.5
	o-Xylene	<0.30		0.30	ug/L	26-SEP-19	
	m+p-Xylenes	<0.40		0.40	ug/L	26-SEP-19	
	Xylenes (Total)	<0.50		0.50	ug/L	26-SEP-19	72
	Surrogate: 4-Bromofluorobenzene	100.0		70-130	%	26-SEP-19	
	Surrogate: 1,4-Difluorobenzene	102.1		70-130	%	26-SEP-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2352720-2 MW107						
Sampled By: M.SHIRY on 24-SEP-19 @ 11:00						
Matrix: WATER						
Dissolved Metals						
Dissolved Metals Filtration Location	FIELD			No Unit	24-SEP-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	24-SEP-19	1.5
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	24-SEP-19	13
Barium (Ba)-Dissolved	87.8	DLHC	1.0	ug/L	24-SEP-19	610
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	24-SEP-19	**0.5
Boron (B)-Dissolved	<100	DLHC	100	ug/L	24-SEP-19	1700
Cadmium (Cd)-Dissolved	3.13	DLHC	0.050	ug/L	24-SEP-19	*0.5
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	24-SEP-19	11
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	24-SEP-19	3.8
Copper (Cu)-Dissolved	2.2	DLHC	2.0	ug/L	24-SEP-19	5
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	24-SEP-19	1.9
Molybdenum (Mo)-Dissolved	0.90	DLHC	0.50	ug/L	24-SEP-19	23
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	24-SEP-19	14
Selenium (Se)-Dissolved	1.11	DLHC	0.50	ug/L	24-SEP-19	5
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	24-SEP-19	**0.3
Sodium (Na)-Dissolved	436000	DLHC	500	ug/L	24-SEP-19	490000
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	24-SEP-19	0.5
Uranium (U)-Dissolved	0.63	DLHC	0.10	ug/L	24-SEP-19	8.9
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	24-SEP-19	**3.9
Zinc (Zn)-Dissolved	13	DLHC	10	ug/L	24-SEP-19	160
Volatile Organic Compounds						
Acetone	<30		30	ug/L	26-SEP-19	2700
Benzene	<0.50		0.50	ug/L	26-SEP-19	0.5
Bromodichloromethane	<2.0		2.0	ug/L	26-SEP-19	2
Bromoform	<5.0		5.0	ug/L	26-SEP-19	5
Bromomethane	<0.50		0.50	ug/L	26-SEP-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	26-SEP-19	0.2
Chlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5
Dibromochloromethane	<2.0		2.0	ug/L	26-SEP-19	2
Chloroform	10.9		1.0	ug/L	26-SEP-19	*2
1,2-Dibromoethane	<0.20		0.20	ug/L	26-SEP-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5
1,3-Dichlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5
1,4-Dichlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5
Dichlorodifluoromethane	<2.0		2.0	ug/L	26-SEP-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5
1,2-Dichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5
1,1-Dichloroethylene	<0.50		0.50	ug/L	26-SEP-19	0.5
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	26-SEP-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	26-SEP-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	26-SEP-19	5
1,2-Dichloropropane	<0.50		0.50	ug/L	26-SEP-19	0.5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	26-SEP-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	26-SEP-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	26-SEP-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	26-SEP-19	0.5

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2352720-2	MW107									
Sampled By:	M.SHIRY on 24-SEP-19 @ 11:00									
Matrix:	WATER						#1			
Volatile Organic Compounds										
	n-Hexane	<0.50		0.50	ug/L	26-SEP-19	5			
	Methyl Ethyl Ketone	<20		20	ug/L	26-SEP-19	400			
	Methyl Isobutyl Ketone	<20		20	ug/L	26-SEP-19	640			
	MTBE	<2.0		2.0	ug/L	26-SEP-19	15			
	Styrene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	26-SEP-19	1.1			
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Tetrachloroethylene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Toluene	<0.50		0.50	ug/L	26-SEP-19	0.8			
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5			
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Trichloroethylene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Trichlorofluoromethane	<5.0		5.0	ug/L	26-SEP-19	150			
	Vinyl chloride	<0.50		0.50	ug/L	26-SEP-19	0.5			
	o-Xylene	<0.30		0.30	ug/L	26-SEP-19				
	m+p-Xylenes	<0.40		0.40	ug/L	26-SEP-19				
	Xylenes (Total)	<0.50		0.50	ug/L	26-SEP-19	72			
	Surrogate: 4-Bromofluorobenzene	99.6		70-130	%	26-SEP-19				
	Surrogate: 1,4-Difluorobenzene	101.6		70-130	%	26-SEP-19				
L2352720-3	TRIP BLANK									
Sampled By:	M.SHIRY on 24-SEP-19									
Matrix:	WATER						#1			
Volatile Organic Compounds										
	Acetone	<30		30	ug/L	26-SEP-19	2700			
	Benzene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Bromodichloromethane	<2.0		2.0	ug/L	26-SEP-19	2			
	Bromoform	<5.0		5.0	ug/L	26-SEP-19	5			
	Bromomethane	<0.50		0.50	ug/L	26-SEP-19	0.89			
	Carbon tetrachloride	<0.20		0.20	ug/L	26-SEP-19	0.2			
	Chlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Dibromochloromethane	<2.0		2.0	ug/L	26-SEP-19	2			
	Chloroform	<1.0		1.0	ug/L	26-SEP-19	2			
	1,2-Dibromoethane	<0.20		0.20	ug/L	26-SEP-19	0.2			
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	1,3-Dichlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Dichlorodifluoromethane	<2.0		2.0	ug/L	26-SEP-19	590			
	1,1-Dichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5			
	1,2-Dichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5			
	1,1-Dichloroethylene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	26-SEP-19	1.6			
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	26-SEP-19	1.6			
	Methylene Chloride	<5.0		5.0	ug/L	26-SEP-19	5			
	1,2-Dichloropropane	<0.50		0.50	ug/L	26-SEP-19	0.5			
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	26-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2352720-3	TRIP BLANK									
Sampled By:	M.SHIRY on 24-SEP-19									
Matrix:	WATER						#1			
Volatile Organic Compounds										
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	26-SEP-19				
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Ethylbenzene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	n-Hexane	<0.50		0.50	ug/L	26-SEP-19	5			
	Methyl Ethyl Ketone	<20		20	ug/L	26-SEP-19	400			
	Methyl Isobutyl Ketone	<20		20	ug/L	26-SEP-19	640			
	MTBE	<2.0		2.0	ug/L	26-SEP-19	15			
	Styrene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	26-SEP-19	1.1			
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Tetrachloroethylene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Toluene	<0.50		0.50	ug/L	26-SEP-19	0.8			
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5			
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Trichloroethylene	<0.50		0.50	ug/L	26-SEP-19	0.5			
	Trichlorofluoromethane	<5.0		5.0	ug/L	26-SEP-19	150			
	Vinyl chloride	<0.50		0.50	ug/L	26-SEP-19	0.5			
	o-Xylene	<0.30		0.30	ug/L	26-SEP-19				
	m+p-Xylenes	<0.40		0.40	ug/L	26-SEP-19				
	Xylenes (Total)	<0.50		0.50	ug/L	26-SEP-19	72			
	Surrogate: 4-Bromofluorobenzene	100.5		70-130	%	26-SEP-19				
	Surrogate: 1,4-Difluorobenzene	101.9		70-130	%	26-SEP-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
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***
MET-D-UG/L-MS-WT	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).

VOC-1,3-DCP-CALC-WT	Water	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	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).

XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION

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:

17-819317

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	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.

Quality Control Report

Workorder: L2352720 Report Date: 26-SEP-19

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4838214								
WG3171623-4 DUP		**WG3171623-3**						
Antimony (Sb)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	24-SEP-19
Arsenic (As)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	24-SEP-19
Barium (Ba)-Dissolved		87.8	91.0		ug/L	3.5	20	24-SEP-19
Beryllium (Be)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	24-SEP-19
Boron (B)-Dissolved		<100	<100	RPD-NA	ug/L	N/A	20	24-SEP-19
Cadmium (Cd)-Dissolved		3.13	3.48		ug/L	10	20	24-SEP-19
Chromium (Cr)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	24-SEP-19
Cobalt (Co)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	24-SEP-19
Copper (Cu)-Dissolved		2.2	2.3		ug/L	2.3	20	24-SEP-19
Lead (Pb)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	24-SEP-19
Molybdenum (Mo)-Dissolved		0.90	0.96		ug/L	7.0	20	24-SEP-19
Nickel (Ni)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	24-SEP-19
Selenium (Se)-Dissolved		1.11	1.11		ug/L	0.2	20	24-SEP-19
Silver (Ag)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	24-SEP-19
Sodium (Na)-Dissolved		436000	449000		ug/L	2.9	20	24-SEP-19
Thallium (Tl)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	24-SEP-19
Uranium (U)-Dissolved		0.63	0.64		ug/L	1.9	20	24-SEP-19
Vanadium (V)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	24-SEP-19
Zinc (Zn)-Dissolved		13	13		ug/L	2.2	20	24-SEP-19
WG3171623-2 LCS								
Antimony (Sb)-Dissolved			99.3		%		80-120	24-SEP-19
Arsenic (As)-Dissolved			95.4		%		80-120	24-SEP-19
Barium (Ba)-Dissolved			97.2		%		80-120	24-SEP-19
Beryllium (Be)-Dissolved			93.6		%		80-120	24-SEP-19
Boron (B)-Dissolved			96.9		%		80-120	24-SEP-19
Cadmium (Cd)-Dissolved			97.3		%		80-120	24-SEP-19
Chromium (Cr)-Dissolved			98.4		%		80-120	24-SEP-19
Cobalt (Co)-Dissolved			93.8		%		80-120	24-SEP-19
Copper (Cu)-Dissolved			95.8		%		80-120	24-SEP-19
Lead (Pb)-Dissolved			100.8		%		80-120	24-SEP-19
Molybdenum (Mo)-Dissolved			98.5		%		80-120	24-SEP-19
Nickel (Ni)-Dissolved			95.9		%		80-120	24-SEP-19
Selenium (Se)-Dissolved			99.9		%		80-120	24-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4838214								
WG3171623-2 LCS								
Silver (Ag)-Dissolved			100.3		%		80-120	24-SEP-19
Sodium (Na)-Dissolved			101.6		%		80-120	24-SEP-19
Thallium (Tl)-Dissolved			100.1		%		80-120	24-SEP-19
Uranium (U)-Dissolved			99.2		%		80-120	24-SEP-19
Vanadium (V)-Dissolved			98.7		%		80-120	24-SEP-19
Zinc (Zn)-Dissolved			94.4		%		80-120	24-SEP-19
WG3171623-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	24-SEP-19
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	24-SEP-19
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	24-SEP-19
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	24-SEP-19
Boron (B)-Dissolved			<10		ug/L		10	24-SEP-19
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	24-SEP-19
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	24-SEP-19
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	24-SEP-19
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	24-SEP-19
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	24-SEP-19
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	24-SEP-19
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	24-SEP-19
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	24-SEP-19
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	24-SEP-19
Sodium (Na)-Dissolved			<50		ug/L		50	24-SEP-19
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	24-SEP-19
Uranium (U)-Dissolved			<0.010		ug/L		0.01	24-SEP-19
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	24-SEP-19
Zinc (Zn)-Dissolved			<1.0		ug/L		1	24-SEP-19
WG3171623-5 MS		**WG3171623-3**						
Antimony (Sb)-Dissolved			94.5		%		70-130	24-SEP-19
Arsenic (As)-Dissolved			94.1		%		70-130	24-SEP-19
Barium (Ba)-Dissolved			N/A	MS-B	%		-	24-SEP-19
Beryllium (Be)-Dissolved			89.9		%		70-130	24-SEP-19
Chromium (Cr)-Dissolved			79.0		%		70-130	24-SEP-19
Cobalt (Co)-Dissolved			89.7		%		70-130	24-SEP-19
Copper (Cu)-Dissolved			73.6		%		70-130	24-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4838214								
WG3171623-5 MS		**WG3171623-3**						
Lead (Pb)-Dissolved			94.5		%		70-130	24-SEP-19
Molybdenum (Mo)-Dissolved			93.2		%		70-130	24-SEP-19
Nickel (Ni)-Dissolved			87.1		%		70-130	24-SEP-19
Selenium (Se)-Dissolved			95.6		%		70-130	24-SEP-19
Silver (Ag)-Dissolved			93.2		%		70-130	24-SEP-19
Sodium (Na)-Dissolved			N/A	MS-B	%		-	24-SEP-19
Thallium (Tl)-Dissolved			91.7		%		70-130	24-SEP-19
Uranium (U)-Dissolved			N/A	MS-B	%		-	24-SEP-19
Vanadium (V)-Dissolved			96.5		%		70-130	24-SEP-19
VOC-511-HS-WT	**Water**							
Batch R4842910								
WG3173061-1 LCS								
1,1,1,2-Tetrachloroethane			93.9		%		70-130	26-SEP-19
1,1,2,2-Tetrachloroethane			82.4		%		70-130	26-SEP-19
1,1,1-Trichloroethane			99.9		%		70-130	26-SEP-19
1,1,2-Trichloroethane			88.4		%		70-130	26-SEP-19
1,1-Dichloroethane			82.9		%		70-130	26-SEP-19
1,1-Dichloroethylene			97.9		%		70-130	26-SEP-19
1,2-Dibromoethane			84.8		%		70-130	26-SEP-19
1,2-Dichlorobenzene			94.3		%		70-130	26-SEP-19
1,2-Dichloroethane			86.1		%		70-130	26-SEP-19
1,2-Dichloropropane			93.5		%		70-130	26-SEP-19
1,3-Dichlorobenzene			96.4		%		70-130	26-SEP-19
1,4-Dichlorobenzene			95.0		%		70-130	26-SEP-19
Acetone			85.5		%		60-140	26-SEP-19
Benzene			98.1		%		70-130	26-SEP-19
Bromodichloromethane			91.1		%		70-130	26-SEP-19
Bromoform			84.0		%		70-130	26-SEP-19
Bromomethane			89.2		%		60-140	26-SEP-19
Carbon tetrachloride			94.7		%		70-130	26-SEP-19
Chlorobenzene			94.8		%		70-130	26-SEP-19
Chloroform			95.4		%		70-130	26-SEP-19
cis-1,2-Dichloroethylene			92.3		%		70-130	26-SEP-19
cis-1,3-Dichloropropene			88.0		%		70-130	

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4842910								
WG3173061-1 LCS								
cis-1,3-Dichloropropene			88.0		%		70-130	26-SEP-19
Dibromochloromethane			87.7		%		70-130	26-SEP-19
Dichlorodifluoromethane			125.3		%		50-140	26-SEP-19
Ethylbenzene			96.6		%		70-130	26-SEP-19
n-Hexane			92.5		%		70-130	26-SEP-19
m+p-Xylenes			92.1		%		70-130	26-SEP-19
Methyl Ethyl Ketone			74.3		%		60-140	26-SEP-19
Methyl Isobutyl Ketone			72.7		%		60-140	26-SEP-19
Methylene Chloride			87.0		%		70-130	26-SEP-19
MTBE			97.3		%		70-130	26-SEP-19
o-Xylene			90.5		%		70-130	26-SEP-19
Styrene			88.7		%		70-130	26-SEP-19
Tetrachloroethylene			103.3		%		70-130	26-SEP-19
Toluene			99.5		%		70-130	26-SEP-19
trans-1,2-Dichloroethylene			93.6		%		70-130	26-SEP-19
trans-1,3-Dichloropropene			87.6		%		70-130	26-SEP-19
Trichloroethylene			98.3		%		70-130	26-SEP-19
Trichlorofluoromethane			104.7		%		60-140	26-SEP-19
Vinyl chloride			118.2		%		60-140	26-SEP-19
WG3173061-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	26-SEP-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	26-SEP-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	26-SEP-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	26-SEP-19
1,1-Dichloroethane			<0.50		ug/L		0.5	26-SEP-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	26-SEP-19
1,2-Dibromoethane			<0.20		ug/L		0.2	26-SEP-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	26-SEP-19
1,2-Dichloroethane			<0.50		ug/L		0.5	26-SEP-19
1,2-Dichloropropane			<0.50		ug/L		0.5	26-SEP-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	26-SEP-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	26-SEP-19
Acetone			<30		ug/L		30	26-SEP-19
Benzene			<0.50		ug/L		0.5	26-SEP-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4842910								
WG3173061-2 MB								
Bromodichloromethane			<2.0		ug/L		2	26-SEP-19
Bromoform			<5.0		ug/L		5	26-SEP-19
Bromomethane			<0.50		ug/L		0.5	26-SEP-19
Carbon tetrachloride			<0.20		ug/L		0.2	26-SEP-19
Chlorobenzene			<0.50		ug/L		0.5	26-SEP-19
Chloroform			<1.0		ug/L		1	26-SEP-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	26-SEP-19
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	26-SEP-19
Dibromochloromethane			<2.0		ug/L		2	26-SEP-19
Dichlorodifluoromethane			<2.0		ug/L		2	26-SEP-19
Ethylbenzene			<0.50		ug/L		0.5	26-SEP-19
n-Hexane			<0.50		ug/L		0.5	26-SEP-19
m+p-Xylenes			<0.40		ug/L		0.4	26-SEP-19
Methyl Ethyl Ketone			<20		ug/L		20	26-SEP-19
Methyl Isobutyl Ketone			<20		ug/L		20	26-SEP-19
Methylene Chloride			<5.0		ug/L		5	26-SEP-19
MTBE			<2.0		ug/L		2	26-SEP-19
o-Xylene			<0.30		ug/L		0.3	26-SEP-19
Styrene			<0.50		ug/L		0.5	26-SEP-19
Tetrachloroethylene			<0.50		ug/L		0.5	26-SEP-19
Toluene			<0.50		ug/L		0.5	26-SEP-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	26-SEP-19
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	26-SEP-19
Trichloroethylene			<0.50		ug/L		0.5	26-SEP-19
Trichlorofluoromethane			<5.0		ug/L		5	26-SEP-19
Vinyl chloride			<0.50		ug/L		0.5	26-SEP-19
Surrogate: 1,4-Difluorobenzene			102.9		%		70-130	26-SEP-19
Surrogate: 4-Bromofluorobenzene			100.2		%		70-130	26-SEP-19

Quality Control Report

Workorder: L2352720 Report Date: 26-SEP-19

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

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
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.

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.

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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2352720-COFC

COC Number: 17 - 819317

Page 1 of 1

VH

Report To	Contact and company name below will appear on the final report
Company:	CH2M
Contact:	M. Sky
Phone	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code	
Invoice To	Same as Report To: NO
	Copy of Invoice with Report: NO
Company:	Acct Payable
Contact:	

Report Format / Distribution

Select Report Format: PDF, EXCEL, EDD (DIGITAL)
Quality Control (QC) Report with Report: YES
Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: EMAIL
Email 1 or Fax:
Email 2:
Email 3:

Invoice Distribution

Select Invoice Distribution: EMAIL
Email 1 or Fax:
Email 2:

Project Information

ALS Account # / Quote #:
Job #: CF75190C
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only): L2352720
ALS Contact: Matty
Sampler: M. Sky

Regular [R]: Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days): 4 day [P4-20%]; 3 day [P3-25%]; 2 day [P2-50%]
Emergency: 1 Business day [E - 100%]; Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	VOCs	Metals	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW101	24-Sep-19	0916	Water	2	X			
	MW107		1100		2	X	X		
	Trip Blank				2	X			

Drinking Water (DW) Samples (client use)

Are samples taken from a Regulated DW System? NO
Are samples for human consumption/use? NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Table 1 DLS

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen: ☐ SIF Observations: Yes ☐ No ☐
Ice Packs: ☐ Ice Cubes: ☑ Custody seal intact: Yes ☐ No ☐
Cooling Initiated: ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				9.8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: M. Sky	Date: 2019/09/24	Time:	Received by:	Date:	Time:	Received by:	Date: 9/24/19	Time: 1055

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUN 2018 FRONT

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

CH2M HILL CANADA LIMITED
ATTN: MICHAEL SHIRY
CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 13-NOV-19
Report Date: 25-NOV-19 14:12 (MT)
Version: FINAL REV. 2

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2381422

Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 17-723247, 17-723248
Legal Site Desc:

Emily Hansen
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2381422-1 BH208-3-3.5									
Sampled By: V. PETERS on 12-NOV-19 @ 10:4									
Matrix: SOIL						#1			
Physical Tests									
% Moisture	8.45		0.25	%	14-NOV-19				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.050		0.050	ug/g	19-NOV-19	0.072			
Acenaphthylene	<0.050		0.050	ug/g	19-NOV-19	0.093			
Anthracene	<0.050		0.050	ug/g	19-NOV-19	0.16			
Benzo(a)anthracene	0.087		0.050	ug/g	19-NOV-19	0.36			
Benzo(a)pyrene	0.085		0.050	ug/g	19-NOV-19	0.3			
Benzo(b)fluoranthene	0.106		0.050	ug/g	19-NOV-19	0.47			
Benzo(g,h,i)perylene	0.237		0.050	ug/g	19-NOV-19	0.68			
Benzo(k)fluoranthene	<0.050		0.050	ug/g	19-NOV-19	0.48			
Chrysene	0.113		0.050	ug/g	19-NOV-19	2.8			
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	19-NOV-19	0.1			
Fluoranthene	0.160		0.050	ug/g	19-NOV-19	0.56			
Fluorene	<0.050		0.050	ug/g	19-NOV-19	0.12			
Indeno(1,2,3-cd)pyrene	0.077		0.050	ug/g	19-NOV-19	0.23			
1+2-Methylnaphthalenes	0.067		0.042	ug/g	19-NOV-19	0.59			
1-Methylnaphthalene	0.032		0.030	ug/g	19-NOV-19	0.59			
2-Methylnaphthalene	0.034		0.030	ug/g	19-NOV-19	0.59			
Naphthalene	0.039		0.013	ug/g	19-NOV-19	0.09			
Phenanthrene	0.110		0.046	ug/g	19-NOV-19	0.69			
Pyrene	0.139		0.050	ug/g	19-NOV-19	1			
Surrogate: 2-Fluorobiphenyl	85.7		50-140	%	19-NOV-19				
Surrogate: p-Terphenyl d14	75.7		50-140	%	19-NOV-19				
L2381422-2 BH207-1.75-2.25									
Sampled By: V. PETERS on 12-NOV-19 @ 14:3									
Matrix: SOIL						#1			
Physical Tests									
% Moisture	3.68		0.25	%	14-NOV-19				
Hydrocarbons									
F2 (C10-C16)	<10		10	ug/g	19-NOV-19	10			
F3 (C16-C34)	<50		50	ug/g	19-NOV-19	240			
F4 (C34-C50)	87		50	ug/g	19-NOV-19	120			
Chrom. to baseline at nC50	YES			No Unit	19-NOV-19				
Surrogate: 2-Bromobenzotrifluoride	95.6		60-140	%	19-NOV-19				
L2381422-3 BH207-2.5-3									
Sampled By: V. PETERS on 12-NOV-19 @ 14:4									
Matrix: SOIL						#1			
Physical Tests									
% Moisture	4.39		0.25	%	14-NOV-19				
Hydrocarbons									
F2 (C10-C16)	<10		10	ug/g	19-NOV-19	10			
F3 (C16-C34)	<50		50	ug/g	19-NOV-19	240			
F4 (C34-C50)	<50		50	ug/g	19-NOV-19	120			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2381422-3	BH207-2.5-3									
Sampled By:	V. PETERS on 12-NOV-19 @ 14:4									
Matrix:	SOIL						#1			
Hydrocarbons										
	Chrom. to baseline at nC50	YES			No Unit	19-NOV-19				
	Surrogate: 2-Bromobenzotrifluoride	95.4		60-140	%	19-NOV-19				
L2381422-4	BH209-0.4-0.75									
Sampled By:	V. PETERS on 13-NOV-19 @ 08:4									
Matrix:	SOIL						#1			
Physical Tests										
	% Moisture	2.68		0.25	%	14-NOV-19				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	15-NOV-19	1.3			
	Arsenic (As)	3.1		1.0	ug/g	15-NOV-19	18			
	Barium (Ba)	26.4		1.0	ug/g	15-NOV-19	220			
	Beryllium (Be)	<0.50		0.50	ug/g	15-NOV-19	2.5			
	Boron (B)	<5.0		5.0	ug/g	15-NOV-19	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	15-NOV-19	1.2			
	Chromium (Cr)	5.6		1.0	ug/g	15-NOV-19	70			
	Cobalt (Co)	2.7		1.0	ug/g	15-NOV-19	21			
	Copper (Cu)	23.6		1.0	ug/g	15-NOV-19	92			
	Lead (Pb)	15.9		1.0	ug/g	15-NOV-19	120			
	Mercury (Hg)	0.0079		0.0050	ug/g	15-NOV-19	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	15-NOV-19	2			
	Nickel (Ni)	6.6		1.0	ug/g	15-NOV-19	82			
	Selenium (Se)	<1.0		1.0	ug/g	15-NOV-19	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	15-NOV-19	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	15-NOV-19	1			
	Uranium (U)	<1.0		1.0	ug/g	15-NOV-19	2.5			
	Vanadium (V)	13.2		1.0	ug/g	15-NOV-19	86			
	Zinc (Zn)	114		5.0	ug/g	15-NOV-19	290			
Polychlorinated Biphenyls										
	Aroclor 1242	<0.010		0.010	ug/g	19-NOV-19				
	Aroclor 1248	<0.010		0.010	ug/g	19-NOV-19				
	Aroclor 1254	<0.010		0.010	ug/g	19-NOV-19				
	Aroclor 1260	<0.010		0.010	ug/g	19-NOV-19				
	Total PCBs	<0.020		0.020	ug/g	19-NOV-19	0.3			
	Surrogate: d14-Terphenyl	80.4		60-140	%	19-NOV-19				
L2381422-8	BH209-2-2.4									
Sampled By:	V. PETERS on 13-NOV-19 @ 08:5									
Matrix:	SOIL						#1			
Physical Tests										
	% Moisture	7.80		0.25	%	14-NOV-19				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	15-NOV-19	1.3			
	Arsenic (As)	2.7		1.0	ug/g	15-NOV-19	18			
	Barium (Ba)	31.4		1.0	ug/g	15-NOV-19	220			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2381422-8 BH209-2-2.4									
Sampled By: V. PETERS on 13-NOV-19 @ 08:5									
Matrix: SOIL						#1			
Metals									
Beryllium (Be)	<0.50		0.50	ug/g	15-NOV-19	2.5			
Boron (B)	<5.0		5.0	ug/g	15-NOV-19	36			
Cadmium (Cd)	<0.50		0.50	ug/g	15-NOV-19	1.2			
Chromium (Cr)	12.5		1.0	ug/g	15-NOV-19	70			
Cobalt (Co)	4.4		1.0	ug/g	15-NOV-19	21			
Copper (Cu)	11.0		1.0	ug/g	15-NOV-19	92			
Lead (Pb)	9.2		1.0	ug/g	15-NOV-19	120			
Mercury (Hg)	0.0198		0.0050	ug/g	15-NOV-19	0.27			
Molybdenum (Mo)	<1.0		1.0	ug/g	15-NOV-19	2			
Nickel (Ni)	9.5		1.0	ug/g	15-NOV-19	82			
Selenium (Se)	<1.0		1.0	ug/g	15-NOV-19	1.5			
Silver (Ag)	<0.20		0.20	ug/g	15-NOV-19	0.5			
Thallium (Tl)	<0.50		0.50	ug/g	15-NOV-19	1			
Uranium (U)	<1.0		1.0	ug/g	15-NOV-19	2.5			
Vanadium (V)	24.3		1.0	ug/g	15-NOV-19	86			
Zinc (Zn)	43.1		5.0	ug/g	15-NOV-19	290			
Polychlorinated Biphenyls									
Aroclor 1242	<0.010		0.010	ug/g	19-NOV-19				
Aroclor 1248	<0.010		0.010	ug/g	19-NOV-19				
Aroclor 1254	<0.010		0.010	ug/g	19-NOV-19				
Aroclor 1260	<0.010		0.010	ug/g	19-NOV-19				
Total PCBs	<0.020		0.020	ug/g	19-NOV-19	0.3			
Surrogate: d14-Terphenyl	82.7		60-140	%	19-NOV-19				
L2381422-17 DUP 1									
Sampled By: V. PETERS on 13-NOV-19									
Matrix: SOIL						#1			
Physical Tests									
% Moisture	7.86		0.25	%	14-NOV-19				
Hydrocarbons									
F2 (C10-C16)	<10		10	ug/g	19-NOV-19	10			
F3 (C16-C34)	<50		50	ug/g	19-NOV-19	240			
F4 (C34-C50)	<50		50	ug/g	19-NOV-19	120			
Chrom. to baseline at nC50	YES			No Unit	19-NOV-19				
Surrogate: 2-Bromobenzotrifluoride	90.7		60-140	%	19-NOV-19				
L2381422-18 DUP 2									
Sampled By: V. PETERS on 13-NOV-19									
Matrix: SOIL						#1			
Physical Tests									
% Moisture	2.41		0.25	%	14-NOV-19				
Polychlorinated Biphenyls									
Aroclor 1242	<0.010		0.010	ug/g	19-NOV-19				
Aroclor 1248	<0.010		0.010	ug/g	19-NOV-19				
Aroclor 1254	<0.010		0.010	ug/g	19-NOV-19				
Aroclor 1260	<0.010		0.010	ug/g	19-NOV-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2381422-18 DUP 2									
Sampled By: V. PETERS on 13-NOV-19									
Matrix: SOIL						#1			
Polychlorinated Biphenyls									
Total PCBs	<0.020		0.020	ug/g	19-NOV-19	0.3			
Surrogate: d14-Terphenyl	80.6		60-140	%	19-NOV-19				
L2381422-19 DUP 3									
Sampled By: V. PETERS on 13-NOV-19									
Matrix: SOIL						#1			
Physical Tests									
% Moisture	8.32		0.25	%	14-NOV-19				
Metals									
Antimony (Sb)	<1.0		1.0	ug/g	15-NOV-19	1.3			
Arsenic (As)	2.5		1.0	ug/g	15-NOV-19	18			
Barium (Ba)	28.7		1.0	ug/g	15-NOV-19	220			
Beryllium (Be)	<0.50		0.50	ug/g	15-NOV-19	2.5			
Boron (B)	<5.0		5.0	ug/g	15-NOV-19	36			
Cadmium (Cd)	<0.50		0.50	ug/g	15-NOV-19	1.2			
Chromium (Cr)	11.6		1.0	ug/g	15-NOV-19	70			
Cobalt (Co)	4.2		1.0	ug/g	15-NOV-19	21			
Copper (Cu)	9.8		1.0	ug/g	15-NOV-19	92			
Lead (Pb)	8.9		1.0	ug/g	15-NOV-19	120			
Mercury (Hg)	0.0180		0.0050	ug/g	15-NOV-19	0.27			
Molybdenum (Mo)	<1.0		1.0	ug/g	15-NOV-19	2			
Nickel (Ni)	8.2		1.0	ug/g	15-NOV-19	82			
Selenium (Se)	<1.0		1.0	ug/g	15-NOV-19	1.5			
Silver (Ag)	<0.20		0.20	ug/g	15-NOV-19	0.5			
Thallium (Tl)	<0.50		0.50	ug/g	15-NOV-19	1			
Uranium (U)	<1.0		1.0	ug/g	15-NOV-19	2.5			
Vanadium (V)	23.9		1.0	ug/g	15-NOV-19	86			
Zinc (Zn)	40.9		5.0	ug/g	15-NOV-19	290			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
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

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).

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)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

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).

PH-WT	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.

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).

Reference Information

SAR-R511-WT	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 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:

17-723247 17-723248

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	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: L2381422 Report Date: 25-NOV-19

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4915912								
WG3221434-3 DUP		**WG3221434-5**						
F2 (C10-C16)		48	39		ug/g	20	30	19-NOV-19
F3 (C16-C34)		184	161		ug/g	13	30	19-NOV-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	19-NOV-19
WG3221434-2 LCS								
F2 (C10-C16)			112.6		%		80-120	19-NOV-19
F3 (C16-C34)			113.5		%		80-120	19-NOV-19
F4 (C34-C50)			104.4		%		80-120	19-NOV-19
WG3221434-1 MB								
F2 (C10-C16)			<10		ug/g		10	19-NOV-19
F3 (C16-C34)			<50		ug/g		50	19-NOV-19
F4 (C34-C50)			<50		ug/g		50	19-NOV-19
Surrogate: 2-Bromobenzotrifluoride			96.0		%		60-140	19-NOV-19
WG3221434-4 MS		**WG3221434-5**						
F2 (C10-C16)			106.4		%		60-140	19-NOV-19
F3 (C16-C34)			105.1		%		60-140	19-NOV-19
F4 (C34-C50)			107.0		%		60-140	19-NOV-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4908617								
WG3219187-2 CRM		**WT-CANMET-TILL2**						
Mercury (Hg)			115.0		%		70-130	15-NOV-19
WG3219187-6 DUP		**WG3219187-5**						
Mercury (Hg)		0.0111	0.0068	J	ug/g	0.0044	0.01	15-NOV-19
WG3219187-3 LCS								
Mercury (Hg)			113.5		%		80-120	15-NOV-19
WG3219187-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	15-NOV-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4909398								
WG3219187-2 CRM		**WT-CANMET-TILL2**						
Antimony (Sb)			121.1		%		70-130	15-NOV-19
Arsenic (As)			95.3		%		70-130	15-NOV-19
Barium (Ba)			94.3		%		70-130	15-NOV-19
Beryllium (Be)			96.0		%		70-130	15-NOV-19
Boron (B)			3.7		mg/kg		0-8.6	15-NOV-19
Cadmium (Cd)			93.8		%		70-130	15-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4909398								
WG3219187-2 CRM		**WT-CANMET-TILL2**						
Chromium (Cr)			95.7		%		70-130	15-NOV-19
Cobalt (Co)			94.4		%		70-130	15-NOV-19
Copper (Cu)			95.1		%		70-130	15-NOV-19
Lead (Pb)			100.3		%		70-130	15-NOV-19
Molybdenum (Mo)			100.6		%		70-130	15-NOV-19
Nickel (Ni)			97.0		%		70-130	15-NOV-19
Selenium (Se)			0.35		mg/kg		0.15-0.55	15-NOV-19
Silver (Ag)			0.27		mg/kg		0.16-0.36	15-NOV-19
Thallium (Tl)			102.8		%		70-130	15-NOV-19
Uranium (U)			101.6		%		70-130	15-NOV-19
Vanadium (V)			96.3		%		70-130	15-NOV-19
Zinc (Zn)			89.7		%		70-130	15-NOV-19
WG3219187-6 DUP		**WG3219187-5**						
Antimony (Sb)		0.52	0.56		ug/g	6.3	30	15-NOV-19
Arsenic (As)		1.70	1.69		ug/g	0.4	30	15-NOV-19
Barium (Ba)		20.8	20.0		ug/g	4.1	40	15-NOV-19
Beryllium (Be)		0.11	0.13		ug/g	16	30	15-NOV-19
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	15-NOV-19
Cadmium (Cd)		0.183	0.185		ug/g	0.9	30	15-NOV-19
Chromium (Cr)		66.8	60.9		ug/g	9.2	30	15-NOV-19
Cobalt (Co)		3.34	2.79		ug/g	18	30	15-NOV-19
Copper (Cu)		25.6	31.0		ug/g	19	30	15-NOV-19
Lead (Pb)		12.5	10.3		ug/g	20	40	15-NOV-19
Molybdenum (Mo)		1.81	1.73		ug/g	4.8	40	15-NOV-19
Nickel (Ni)		20.0	18.8		ug/g	5.7	30	15-NOV-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	15-NOV-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	15-NOV-19
Thallium (Tl)		<0.050	<0.050	RPD-NA	ug/g	N/A	30	15-NOV-19
Uranium (U)		0.242	0.294		ug/g	19	30	15-NOV-19
Vanadium (V)		13.2	13.3		ug/g	1.0	30	15-NOV-19
Zinc (Zn)		94.0	115		ug/g	20	30	15-NOV-19
WG3219187-4 LCS								
Antimony (Sb)			105.0		%		80-120	15-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4909398								
WG3219187-4 LCS								
Arsenic (As)			94.6		%		80-120	15-NOV-19
Barium (Ba)			98.5		%		80-120	15-NOV-19
Beryllium (Be)			95.7		%		80-120	15-NOV-19
Boron (B)			90.8		%		80-120	15-NOV-19
Cadmium (Cd)			94.1		%		80-120	15-NOV-19
Chromium (Cr)			96.1		%		80-120	15-NOV-19
Cobalt (Co)			95.4		%		80-120	15-NOV-19
Copper (Cu)			92.7		%		80-120	15-NOV-19
Lead (Pb)			97.4		%		80-120	15-NOV-19
Molybdenum (Mo)			101.5		%		80-120	15-NOV-19
Nickel (Ni)			95.0		%		80-120	15-NOV-19
Selenium (Se)			96.4		%		80-120	15-NOV-19
Silver (Ag)			101.7		%		80-120	15-NOV-19
Thallium (Tl)			97.3		%		80-120	15-NOV-19
Uranium (U)			99.7		%		80-120	15-NOV-19
Vanadium (V)			98.3		%		80-120	15-NOV-19
Zinc (Zn)			92.2		%		80-120	15-NOV-19
WG3219187-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	15-NOV-19
Arsenic (As)			<0.10		mg/kg		0.1	15-NOV-19
Barium (Ba)			<0.50		mg/kg		0.5	15-NOV-19
Beryllium (Be)			<0.10		mg/kg		0.1	15-NOV-19
Boron (B)			<5.0		mg/kg		5	15-NOV-19
Cadmium (Cd)			<0.020		mg/kg		0.02	15-NOV-19
Chromium (Cr)			<0.50		mg/kg		0.5	15-NOV-19
Cobalt (Co)			<0.10		mg/kg		0.1	15-NOV-19
Copper (Cu)			<0.50		mg/kg		0.5	15-NOV-19
Lead (Pb)			<0.50		mg/kg		0.5	15-NOV-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	15-NOV-19
Nickel (Ni)			<0.50		mg/kg		0.5	15-NOV-19
Selenium (Se)			<0.20		mg/kg		0.2	15-NOV-19
Silver (Ag)			<0.10		mg/kg		0.1	15-NOV-19
Thallium (Tl)			<0.050		mg/kg		0.05	15-NOV-19
Uranium (U)			<0.050		mg/kg		0.05	15-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4909398								
WG3219187-1 MB								
Vanadium (V)			<0.20		mg/kg		0.2	15-NOV-19
Zinc (Zn)			<2.0		mg/kg		2	15-NOV-19
MOISTURE-WT	**Soil**							
Batch R4906065								
WG3217578-3 DUP		**L2380378-35**						
% Moisture		18.2	18.2		%	0.2	20	14-NOV-19
WG3217578-2 LCS								
% Moisture			100.7		%		90-110	14-NOV-19
WG3217578-1 MB								
% Moisture			<0.25		%		0.25	14-NOV-19
Batch R4906258								
WG3217868-3 DUP		**L2381720-1**						
% Moisture		13.0	12.5		%	4.2	20	14-NOV-19
WG3217868-2 LCS								
% Moisture			101.0		%		90-110	14-NOV-19
WG3217868-1 MB								
% Moisture			<0.25		%		0.25	14-NOV-19
PAH-511-WT	**Soil**							
Batch R4915792								
WG3217782-3 DUP		**WG3217782-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	19-NOV-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	19-NOV-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4915792								
WG3217782-3 DUP		**WG3217782-5**						
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	19-NOV-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	19-NOV-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-NOV-19
WG3217782-2 LCS								
1-Methylnaphthalene			92.6		%		50-140	19-NOV-19
2-Methylnaphthalene			87.3		%		50-140	19-NOV-19
Acenaphthene			92.3		%		50-140	19-NOV-19
Acenaphthylene			92.0		%		50-140	19-NOV-19
Anthracene			93.8		%		50-140	19-NOV-19
Benzo(a)anthracene			86.6		%		50-140	19-NOV-19
Benzo(a)pyrene			90.4		%		50-140	19-NOV-19
Benzo(b)fluoranthene			83.0		%		50-140	19-NOV-19
Benzo(g,h,i)perylene			83.2		%		50-140	19-NOV-19
Benzo(k)fluoranthene			97.5		%		50-140	19-NOV-19
Chrysene			103.7		%		50-140	19-NOV-19
Dibenzo(ah)anthracene			87.1		%		50-140	19-NOV-19
Fluoranthene			90.8		%		50-140	19-NOV-19
Fluorene			87.6		%		50-140	19-NOV-19
Indeno(1,2,3-cd)pyrene			79.1		%		50-140	19-NOV-19
Naphthalene			92.0		%		50-140	19-NOV-19
Phenanthrene			90.4		%		50-140	19-NOV-19
Pyrene			90.5		%		50-140	19-NOV-19
WG3217782-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	19-NOV-19
2-Methylnaphthalene			<0.030		ug/g		0.03	19-NOV-19
Acenaphthene			<0.050		ug/g		0.05	19-NOV-19
Acenaphthylene			<0.050		ug/g		0.05	19-NOV-19
Anthracene			<0.050		ug/g		0.05	19-NOV-19
Benzo(a)anthracene			<0.050		ug/g		0.05	19-NOV-19
Benzo(a)pyrene			<0.050		ug/g		0.05	19-NOV-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	19-NOV-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	19-NOV-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	19-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4915792								
WG3217782-1 MB								
Chrysene			<0.050		ug/g		0.05	19-NOV-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	19-NOV-19
Fluoranthene			<0.050		ug/g		0.05	19-NOV-19
Fluorene			<0.050		ug/g		0.05	19-NOV-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	19-NOV-19
Naphthalene			<0.013		ug/g		0.013	19-NOV-19
Phenanthrene			<0.046		ug/g		0.046	19-NOV-19
Pyrene			<0.050		ug/g		0.05	19-NOV-19
Surrogate: 2-Fluorobiphenyl			83.5		%		50-140	19-NOV-19
Surrogate: p-Terphenyl d14			71.6		%		50-140	19-NOV-19
WG3217782-4 MS		**WG3217782-5**						
1-Methylnaphthalene			89.3		%		50-140	19-NOV-19
2-Methylnaphthalene			83.6		%		50-140	19-NOV-19
Acenaphthene			88.7		%		50-140	19-NOV-19
Acenaphthylene			87.8		%		50-140	19-NOV-19
Anthracene			83.5		%		50-140	19-NOV-19
Benzo(a)anthracene			84.8		%		50-140	19-NOV-19
Benzo(a)pyrene			86.5		%		50-140	19-NOV-19
Benzo(b)fluoranthene			82.1		%		50-140	19-NOV-19
Benzo(g,h,i)perylene			82.5		%		50-140	19-NOV-19
Benzo(k)fluoranthene			91.2		%		50-140	19-NOV-19
Chrysene			106.3		%		50-140	19-NOV-19
Dibenzo(ah)anthracene			87.2		%		50-140	19-NOV-19
Fluoranthene			87.2		%		50-140	19-NOV-19
Fluorene			84.3		%		50-140	19-NOV-19
Indeno(1,2,3-cd)pyrene			83.4		%		50-140	19-NOV-19
Naphthalene			88.5		%		50-140	19-NOV-19
Phenanthrene			86.6		%		50-140	19-NOV-19
Pyrene			87.1		%		50-140	19-NOV-19
PCB-511-WT	**Soil**							
Batch R4915811								
WG3217782-3 DUP		**WG3217782-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	19-NOV-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	19-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT	**Soil**							
Batch R4915811								
WG3217782-3 DUP		**WG3217782-5**						
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	19-NOV-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	19-NOV-19
WG3217782-2 LCS								
Aroclor 1242			103.9		%		60-140	19-NOV-19
Aroclor 1248			95.0		%		60-140	19-NOV-19
Aroclor 1254			107.0		%		60-140	19-NOV-19
Aroclor 1260			115.9		%		60-140	19-NOV-19
WG3217782-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	19-NOV-19
Aroclor 1248			<0.010		ug/g		0.01	19-NOV-19
Aroclor 1254			<0.010		ug/g		0.01	19-NOV-19
Aroclor 1260			<0.010		ug/g		0.01	19-NOV-19
Surrogate: d14-Terphenyl			76.9		%		60-140	19-NOV-19
WG3217782-4 MS		**WG3217782-5**						
Aroclor 1242			101.0		%		60-140	19-NOV-19
Aroclor 1254			101.3		%		60-140	19-NOV-19
Aroclor 1260			112.4		%		60-140	19-NOV-19

Quality Control Report

Workorder: L2381422 Report Date: 25-NOV-19

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

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.
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.

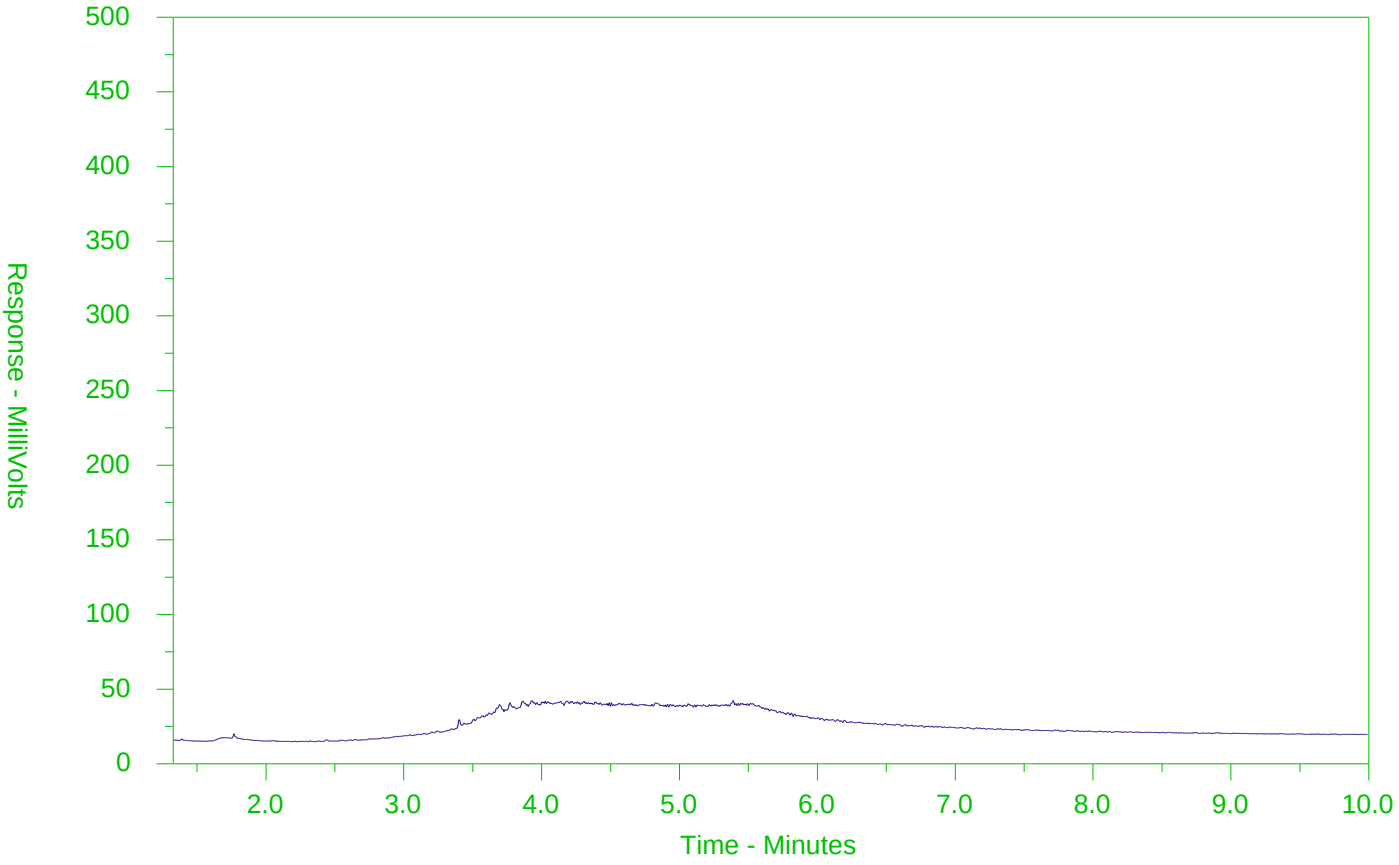
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2381422-2
Client Sample ID: BH207-1.75-2.25



←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.

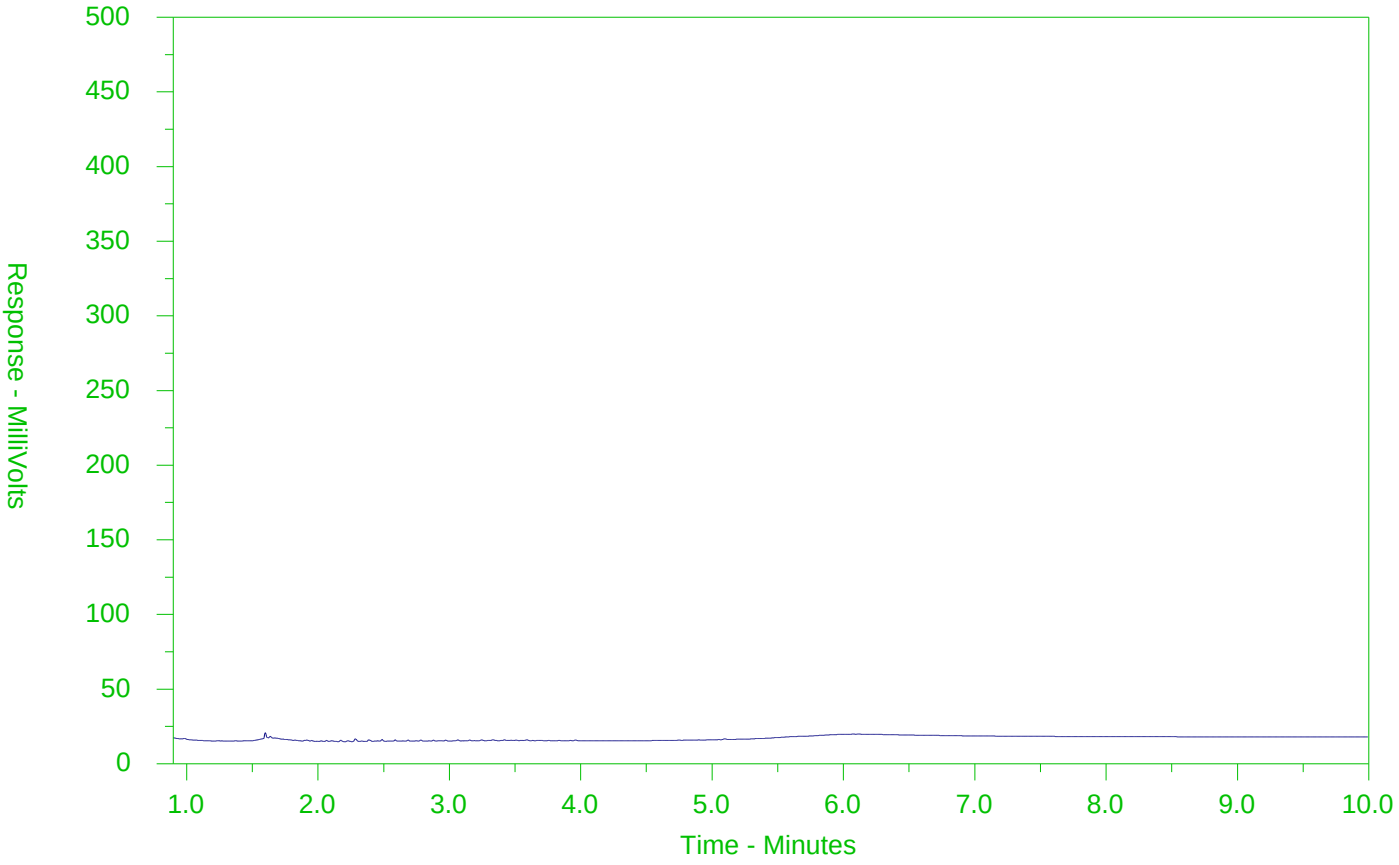
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2381422-3
Client Sample ID: BH207-2.5-3



←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.

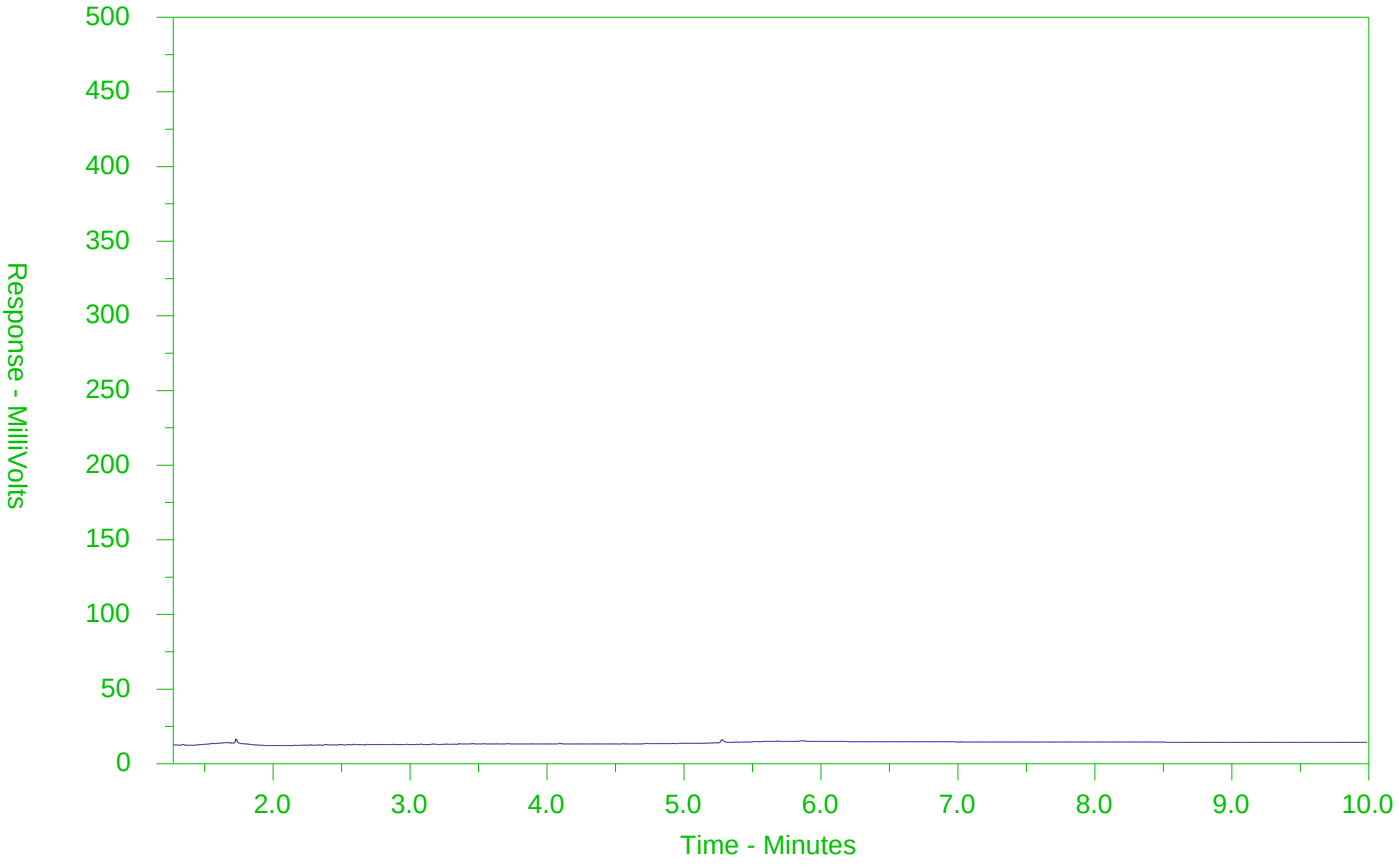
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2381422-17
Client Sample ID: DUP 1



←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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2381422-COFC

COC Number: 17 - 723247

Page 1 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Turnaround Time (TAT) Required - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Jacobs	Select Report Format: [X] PDF [X] EXCEL [X] EDD (DIGITAL)	Regular [R] [X] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact	Michael Shiry	Quality Control (QC) Report with Report [X] YES [ ] NO	PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone:	~~289-971-1779~~ 519-579-3500	[X] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [X] EMAIL [ ] MAIL [ ] FAX	
Street:	72 Victoria St S, Suite 300	Email 1 or Fax as per quote	Date and Time Required:
City/Province:	Kitchener, ON	Email 2 michael.shiry@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	N2G 4Y9	Email 3 ed.taves@jacobs.com	
Invoice To	Same as Report To [ ] YES [ ] NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report [X] YES [ ] NO	Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax Accounts Payable	
Contact:		Email 2	
Project Information		[redacted]	
ALS Account # / Quote #:	Q72950	AFE/Cost Center: PO#	
Job #:		Major/Minor Code: Routing Code:	
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2381422	ALS Contact: E. Hansen	Sampler: V. Peters

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals (O. Reg 153/04)	PHC F2-F4	PAHs	PCBs	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	BH208-3-3.5	12-11-19	10:45	Soil			X				
2	BH207-1.75-2.25	12-11-19	14:30	Soil		X					
3	BH207-2.5-3	12-11-19	14:45	Soil		X					
4	BH209-0.4-0.75	13-11-19	8:45	Soil	X			X			
5	BH209N-0.4-0.75	13-11-19	8:46	Soil					X		
6	BH209W-0.4-0.75	13-11-19	8:47	Soil					X		
7	BH209S-0.4-0.75	13-11-19	8:48	Soil					X		
8	BH209-2-2.4	13-11-19	8:55	Soil	X			X			
9	BH209N-2-2.4	13-11-19	8:56	Soil					X		
10	BH209W-2-2.4	13-11-19	8:57	Soil					X		
11	BH209S-2-2.4	13-11-19	8:58	Soil					X		
12	BH209-4-4.4	13-11-19	9:05	Soil					X		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [X] NO	O. Reg. 153/04 - Table 1 - NOT on report
Are samples for human consumption/ use? [ ] YES [X] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs [X]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No	[ ]
Cooling Initiated	[ ]				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			4.0		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Vivi Peters	Date: 2019/11/13	Time: 14:15	Received by:	Date:	Time:	Received by: MC	Date: NOV 13/19	Time: 14:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2381422-COFC

COC Number 17 - 723248

Page 2 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Jacobs	Select Report Format: [X] PDF [X] EXCEL [X] EDD (DIGITAL)	Regular [R] [X] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Michael Shiry	Quality Control (QC) Report with Report [X] YES [ ] NO	Priority (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone:	519-579-3500	[ ] Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [X] EMAIL [ ] MAIL [ ] FAX	[redacted] all E&P TATs:
Street:	72 Victoria St. S, Suite 300	Email 1 or Fax 95 per quote	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener, ON	Email 2	
Postal Code:	N2G 4Y9	Email 3	
Invoice To	Same as Report To [ ] YES [ ] NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report [X] YES [ ] NO	Select Invoice Distribution [ ] EMAIL [ ] MAIL [ ] FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax Accounts Payable	
Contact:		Email 2	
Project Information		[redacted]	
ALS Account # / Quote #:	Q72980	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location	
ALS Lab Work Order # (lab use only):	L2381422	ALS Contact: E. Hansen	Sampler: V. Peters

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals (O.Reg. 153/04)	PHC F2-F4	PAHs	PCBs	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
13	BH209N - 4-4.4	13-11-19	9:06	Soil					X		
14	BH209W - 4-4.4	13-11-19	9:07	Soil					X		
15	BH209S - 4-4.4	13-11-19	9:08	Soil					X		
16	BH209 - 8-8.5	13-11-19	9:30	Soil					X		
17	DUP1	13-11-19	—	Soil		X					
18	DUP2	13-11-19	—	Soil			X				
19	DUP3	13-11-19	—	Soil	X						

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? [ ] YES [X] NO	O. Reg. 153/04 - Table 1	Frozen [ ] SIF Observations Yes [ ] No [ ]
Are samples for human consumption/ use? [ ] YES [X] NO		Ice Packs [X] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]
		Cooling Initiated [ ]
		INITIAL COOLER TEMPERATURES °C: [ ] [ ] [ ] [ ] FINAL COOLER TEMPERATURES °C: 4.0 [ ] [ ] [ ]

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Vicky Peters	Date: 2019/11/13	Time: 14:19	Received by:	Date:	Time:	Received by: ML	Date: NOV 13/19	Time: 14:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

[1] If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

CH2M HILL CANADA LIMITED
ATTN: Michael Shiry
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 22-NOV-19
Report Date: 28-NOV-19 14:35 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2386575

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-820117
Legal Site Desc:

Emily Hansen
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2386575-1 BH208-7.5-8						
Sampled By: MS on 21-NOV-19 @ 12:39						
Matrix: SOIL						#1
Physical Tests						
% Moisture	6.60		0.25	%	25-NOV-19	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.050		0.050	ug/g	27-NOV-19	0.072
Acenaphthylene	<0.050		0.050	ug/g	27-NOV-19	0.093
Anthracene	<0.050		0.050	ug/g	27-NOV-19	0.16
Benzo(a)anthracene	<0.050		0.050	ug/g	27-NOV-19	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	27-NOV-19	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	27-NOV-19	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	27-NOV-19	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	27-NOV-19	0.48
Chrysene	<0.050		0.050	ug/g	27-NOV-19	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	27-NOV-19	0.1
Fluoranthene	<0.050		0.050	ug/g	27-NOV-19	0.56
Fluorene	<0.050		0.050	ug/g	27-NOV-19	0.12
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	27-NOV-19	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	28-NOV-19	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	27-NOV-19	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	27-NOV-19	0.59
Naphthalene	<0.013		0.013	ug/g	27-NOV-19	0.09
Phenanthrene	<0.046		0.046	ug/g	27-NOV-19	0.69
Pyrene	<0.050		0.050	ug/g	27-NOV-19	1
Surrogate: 2-Fluorobiphenyl	90.5		50-140	%	27-NOV-19	
Surrogate: p-Terphenyl d14	82.3		50-140	%	27-NOV-19	
L2386575-3 BH210-3.5						
Sampled By: MS on 21-NOV-19 @ 09:09						
Matrix: SOIL						#1
Metals						
Antimony (Sb)	<1.0		1.0	ug/g	26-NOV-19	1.3
Arsenic (As)	3.5		1.0	ug/g	26-NOV-19	18
Barium (Ba)	38.2		1.0	ug/g	26-NOV-19	220
Beryllium (Be)	<0.50		0.50	ug/g	26-NOV-19	2.5
Boron (B)	5.1		5.0	ug/g	26-NOV-19	36
Cadmium (Cd)	<0.50		0.50	ug/g	26-NOV-19	1.2
Chromium (Cr)	11.0		1.0	ug/g	26-NOV-19	70
Cobalt (Co)	3.7		1.0	ug/g	26-NOV-19	21
Copper (Cu)	10.4		1.0	ug/g	26-NOV-19	92
Lead (Pb)	38.4		1.0	ug/g	26-NOV-19	120
Molybdenum (Mo)	<1.0		1.0	ug/g	26-NOV-19	2
Nickel (Ni)	9.5		1.0	ug/g	26-NOV-19	82
Selenium (Se)	<1.0		1.0	ug/g	26-NOV-19	1.5
Silver (Ag)	<0.20		0.20	ug/g	26-NOV-19	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-NOV-19	1
Uranium (U)	<1.0		1.0	ug/g	26-NOV-19	2.5
Vanadium (V)	23.9		1.0	ug/g	26-NOV-19	86

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2386575-3 BH210-3.5									
Sampled By: MS on 21-NOV-19 @ 09:09									
Matrix: SOIL						#1			
Metals									
Zinc (Zn)	120		5.0	ug/g	26-NOV-19	290			
L2386575-4 BH210-6.5-7									
Sampled By: MS on 21-NOV-19 @ 09:17									
Matrix: SOIL						#1			
Metals									
Antimony (Sb)	<1.0		1.0	ug/g	26-NOV-19	1.3			
Arsenic (As)	4.2		1.0	ug/g	26-NOV-19	18			
Barium (Ba)	42.7		1.0	ug/g	26-NOV-19	220			
Beryllium (Be)	<0.50		0.50	ug/g	26-NOV-19	2.5			
Boron (B)	5.7		5.0	ug/g	26-NOV-19	36			
Cadmium (Cd)	<0.50		0.50	ug/g	26-NOV-19	1.2			
Chromium (Cr)	14.1		1.0	ug/g	26-NOV-19	70			
Cobalt (Co)	4.6		1.0	ug/g	26-NOV-19	21			
Copper (Cu)	13.8		1.0	ug/g	26-NOV-19	92			
Lead (Pb)	16.9		1.0	ug/g	26-NOV-19	120			
Molybdenum (Mo)	<1.0		1.0	ug/g	26-NOV-19	2			
Nickel (Ni)	11.0		1.0	ug/g	26-NOV-19	82			
Selenium (Se)	<1.0		1.0	ug/g	26-NOV-19	1.5			
Silver (Ag)	<0.20		0.20	ug/g	26-NOV-19	0.5			
Thallium (Tl)	<0.50		0.50	ug/g	26-NOV-19	1			
Uranium (U)	<1.0		1.0	ug/g	26-NOV-19	2.5			
Vanadium (V)	32.4		1.0	ug/g	26-NOV-19	86			
Zinc (Zn)	106		5.0	ug/g	26-NOV-19	290			
L2386575-7 BH211-10-12									
Sampled By: MS on 21-NOV-19 @ 10:58									
Matrix: SOIL						#1			
Metals									
Antimony (Sb)	<1.0		1.0	ug/g	26-NOV-19	1.3			
Arsenic (As)	1.7		1.0	ug/g	26-NOV-19	18			
Barium (Ba)	18.0		1.0	ug/g	26-NOV-19	220			
Beryllium (Be)	<0.50		0.50	ug/g	26-NOV-19	2.5			
Boron (B)	<5.0		5.0	ug/g	26-NOV-19	36			
Cadmium (Cd)	<0.50		0.50	ug/g	26-NOV-19	1.2			
Chromium (Cr)	6.6		1.0	ug/g	26-NOV-19	70			
Cobalt (Co)	2.1		1.0	ug/g	26-NOV-19	21			
Copper (Cu)	7.4		1.0	ug/g	26-NOV-19	92			
Lead (Pb)	18.7		1.0	ug/g	26-NOV-19	120			
Molybdenum (Mo)	<1.0		1.0	ug/g	26-NOV-19	2			
Nickel (Ni)	4.7		1.0	ug/g	26-NOV-19	82			
Selenium (Se)	<1.0		1.0	ug/g	26-NOV-19	1.5			
Silver (Ag)	<0.20		0.20	ug/g	26-NOV-19	0.5			
Thallium (Tl)	<0.50		0.50	ug/g	26-NOV-19	1			
Uranium (U)	<1.0		1.0	ug/g	26-NOV-19	2.5			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2386575-7 BH211-10-12						
Sampled By: MS on 21-NOV-19 @ 10:58						
Matrix: SOIL						#1
Metals						
Vanadium (V)	13.1		1.0	ug/g	26-NOV-19	86
Zinc (Zn)	83.1		5.0	ug/g	26-NOV-19	290
L2386575-9 DUP 4						
Sampled By: MS on 21-NOV-19						
Matrix: SOIL						#1
Physical Tests						
% Moisture	6.66		0.25	%	25-NOV-19	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.050		0.050	ug/g	27-NOV-19	0.072
Acenaphthylene	<0.050		0.050	ug/g	27-NOV-19	0.093
Anthracene	<0.050		0.050	ug/g	27-NOV-19	0.16
Benzo(a)anthracene	<0.050		0.050	ug/g	27-NOV-19	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	27-NOV-19	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	27-NOV-19	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	27-NOV-19	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	27-NOV-19	0.48
Chrysene	<0.050		0.050	ug/g	27-NOV-19	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	27-NOV-19	0.1
Fluoranthene	<0.050		0.050	ug/g	27-NOV-19	0.56
Fluorene	<0.050		0.050	ug/g	27-NOV-19	0.12
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	27-NOV-19	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	28-NOV-19	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	27-NOV-19	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	27-NOV-19	0.59
Naphthalene	<0.013		0.013	ug/g	27-NOV-19	0.09
Phenanthrene	<0.046		0.046	ug/g	27-NOV-19	0.69
Pyrene	<0.050		0.050	ug/g	27-NOV-19	1
Surrogate: 2-Fluorobiphenyl	89.3		50-140	%	27-NOV-19	
Surrogate: p-Terphenyl d14	81.8		50-140	%	27-NOV-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

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

Chain of Custody numbers:

17-820117

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	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.

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4924654								
WG3227966-2 CRM		**WT-CANMET-TILL2**						
Antimony (Sb)			103.2		%		70-130	26-NOV-19
Arsenic (As)			106.5		%		70-130	26-NOV-19
Barium (Ba)			107.6		%		70-130	26-NOV-19
Beryllium (Be)			96.7		%		70-130	26-NOV-19
Boron (B)			3.3		mg/kg		0-8.6	26-NOV-19
Cadmium (Cd)			104.4		%		70-130	26-NOV-19
Chromium (Cr)			104.9		%		70-130	26-NOV-19
Cobalt (Co)			105.3		%		70-130	26-NOV-19
Copper (Cu)			103.4		%		70-130	26-NOV-19
Lead (Pb)			105.5		%		70-130	26-NOV-19
Molybdenum (Mo)			103.3		%		70-130	26-NOV-19
Nickel (Ni)			105.0		%		70-130	26-NOV-19
Selenium (Se)			0.39		mg/kg		0.15-0.55	26-NOV-19
Silver (Ag)			0.26		mg/kg		0.16-0.36	26-NOV-19
Thallium (Tl)			104.7		%		70-130	26-NOV-19
Uranium (U)			96.8		%		70-130	26-NOV-19
Vanadium (V)			105.9		%		70-130	26-NOV-19
Zinc (Zn)			102.3		%		70-130	26-NOV-19
WG3227966-6 DUP		**WG3227966-5**						
Antimony (Sb)		0.26	0.28		ug/g	5.8	30	26-NOV-19
Arsenic (As)		6.29	6.26		ug/g	0.5	30	26-NOV-19
Barium (Ba)		43.6	45.3		ug/g	3.8	40	26-NOV-19
Beryllium (Be)		0.87	0.85		ug/g	1.4	30	26-NOV-19
Boron (B)		16.3	16.3		ug/g	0.5	30	26-NOV-19
Cadmium (Cd)		0.054	0.055		ug/g	1.3	30	26-NOV-19
Chromium (Cr)		26.1	26.4		ug/g	0.9	30	26-NOV-19
Cobalt (Co)		14.8	14.7		ug/g	0.9	30	26-NOV-19
Copper (Cu)		22.2	23.1		ug/g	3.7	30	26-NOV-19
Lead (Pb)		9.58	9.88		ug/g	3.1	40	26-NOV-19
Molybdenum (Mo)		0.65	0.66		ug/g	1.6	40	26-NOV-19
Nickel (Ni)		30.6	30.4		ug/g	0.6	30	26-NOV-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	26-NOV-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4924654								
WG3227966-6 DUP		**WG3227966-5**						
Thallium (Tl)		0.136	0.137		ug/g	0.7	30	26-NOV-19
Uranium (U)		0.657	0.641		ug/g	2.5	30	26-NOV-19
Vanadium (V)		32.5	32.9		ug/g	1.2	30	26-NOV-19
Zinc (Zn)		67.0	66.7		ug/g	0.5	30	26-NOV-19
WG3227966-4 LCS								
Antimony (Sb)			107.9		%		80-120	26-NOV-19
Arsenic (As)			96.9		%		80-120	26-NOV-19
Barium (Ba)			103.7		%		80-120	26-NOV-19
Beryllium (Be)			94.0		%		80-120	26-NOV-19
Boron (B)			89.9		%		80-120	26-NOV-19
Cadmium (Cd)			96.7		%		80-120	26-NOV-19
Chromium (Cr)			97.9		%		80-120	26-NOV-19
Cobalt (Co)			96.3		%		80-120	26-NOV-19
Copper (Cu)			94.5		%		80-120	26-NOV-19
Lead (Pb)			100.7		%		80-120	26-NOV-19
Molybdenum (Mo)			101.8		%		80-120	26-NOV-19
Nickel (Ni)			95.0		%		80-120	26-NOV-19
Selenium (Se)			98.9		%		80-120	26-NOV-19
Silver (Ag)			97.6		%		80-120	26-NOV-19
Thallium (Tl)			101.6		%		80-120	26-NOV-19
Uranium (U)			93.4		%		80-120	26-NOV-19
Vanadium (V)			100.9		%		80-120	26-NOV-19
Zinc (Zn)			94.2		%		80-120	26-NOV-19
WG3227966-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	26-NOV-19
Arsenic (As)			<0.10		mg/kg		0.1	26-NOV-19
Barium (Ba)			<0.50		mg/kg		0.5	26-NOV-19
Beryllium (Be)			<0.10		mg/kg		0.1	26-NOV-19
Boron (B)			<5.0		mg/kg		5	26-NOV-19
Cadmium (Cd)			<0.020		mg/kg		0.02	26-NOV-19
Chromium (Cr)			<0.50		mg/kg		0.5	26-NOV-19
Cobalt (Co)			<0.10		mg/kg		0.1	26-NOV-19
Copper (Cu)			<0.50		mg/kg		0.5	26-NOV-19
Lead (Pb)			<0.50		mg/kg		0.5	26-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4924654								
WG3227966-1 MB								
Molybdenum (Mo)			<0.10		mg/kg		0.1	26-NOV-19
Nickel (Ni)			<0.50		mg/kg		0.5	26-NOV-19
Selenium (Se)			<0.20		mg/kg		0.2	26-NOV-19
Silver (Ag)			<0.10		mg/kg		0.1	26-NOV-19
Thallium (Tl)			<0.050		mg/kg		0.05	26-NOV-19
Uranium (U)			<0.050		mg/kg		0.05	26-NOV-19
Vanadium (V)			<0.20		mg/kg		0.2	26-NOV-19
Zinc (Zn)			<2.0		mg/kg		2	26-NOV-19
MOISTURE-WT	**Soil**							
Batch R4922680								
WG3227066-3 DUP		**L2386552-1**						
% Moisture		17.5	18.3		%	4.8	20	25-NOV-19
WG3227066-2 LCS								
% Moisture			100.9		%		90-110	25-NOV-19
WG3227066-1 MB								
% Moisture			<0.25		%		0.25	25-NOV-19
PAH-511-WT	**Soil**							
Batch R4927129								
WG3227065-3 DUP		**WG3227065-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-NOV-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-NOV-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Benzo(a)anthracene		0.077	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Benzo(a)pyrene		0.062	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Benzo(b)fluoranthene		0.091	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Chrysene		0.092	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Fluoranthene		0.143	<0.050	DUP-H	ug/g	N/A	40	27-NOV-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4927129								
WG3227065-3 DUP		**WG3227065-5**						
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	27-NOV-19
Phenanthrene		0.076	<0.046	RPD-NA	ug/g	N/A	40	27-NOV-19
Pyrene		0.119	<0.050	DUP-H	ug/g	N/A	40	27-NOV-19
WG3227065-2 LCS								
1-Methylnaphthalene			104.5		%		50-140	27-NOV-19
2-Methylnaphthalene			100.1		%		50-140	27-NOV-19
Acenaphthene			106.5		%		50-140	27-NOV-19
Acenaphthylene			108.8		%		50-140	27-NOV-19
Anthracene			107.3		%		50-140	27-NOV-19
Benzo(a)anthracene			104.8		%		50-140	27-NOV-19
Benzo(a)pyrene			108.3		%		50-140	27-NOV-19
Benzo(b)fluoranthene			107.6		%		50-140	27-NOV-19
Benzo(g,h,i)perylene			107.7		%		50-140	27-NOV-19
Benzo(k)fluoranthene			107.5		%		50-140	27-NOV-19
Chrysene			120.5		%		50-140	27-NOV-19
Dibenzo(ah)anthracene			111.4		%		50-140	27-NOV-19
Fluoranthene			107.8		%		50-140	27-NOV-19
Fluorene			104.8		%		50-140	27-NOV-19
Indeno(1,2,3-cd)pyrene			108.2		%		50-140	27-NOV-19
Naphthalene			103.6		%		50-140	27-NOV-19
Phenanthrene			106.3		%		50-140	27-NOV-19
Pyrene			108.4		%		50-140	27-NOV-19
WG3227065-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	27-NOV-19
2-Methylnaphthalene			<0.030		ug/g		0.03	27-NOV-19
Acenaphthene			<0.050		ug/g		0.05	27-NOV-19
Acenaphthylene			<0.050		ug/g		0.05	27-NOV-19
Anthracene			<0.050		ug/g		0.05	27-NOV-19
Benzo(a)anthracene			<0.050		ug/g		0.05	27-NOV-19
Benzo(a)pyrene			<0.050		ug/g		0.05	27-NOV-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	27-NOV-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	27-NOV-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	27-NOV-19
Chrysene			<0.050		ug/g		0.05	27-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4927129								
WG3227065-1 MB								
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	27-NOV-19
Fluoranthene			<0.050		ug/g		0.05	27-NOV-19
Fluorene			<0.050		ug/g		0.05	27-NOV-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	27-NOV-19
Naphthalene			<0.013		ug/g		0.013	27-NOV-19
Phenanthrene			<0.046		ug/g		0.046	27-NOV-19
Pyrene			<0.050		ug/g		0.05	27-NOV-19
Surrogate: 2-Fluorobiphenyl			93.3		%		50-140	27-NOV-19
Surrogate: p-Terphenyl d14			81.8		%		50-140	27-NOV-19
WG3227065-4 MS		**WG3227065-5**						
1-Methylnaphthalene			102.1		%		50-140	27-NOV-19
2-Methylnaphthalene			97.1		%		50-140	27-NOV-19
Acenaphthene			102.8		%		50-140	27-NOV-19
Acenaphthylene			103.3		%		50-140	27-NOV-19
Anthracene			104.2		%		50-140	27-NOV-19
Benzo(a)anthracene			97.7		%		50-140	27-NOV-19
Benzo(a)pyrene			94.7		%		50-140	27-NOV-19
Benzo(b)fluoranthene			98.4		%		50-140	27-NOV-19
Benzo(g,h,i)perylene			96.4		%		50-140	27-NOV-19
Benzo(k)fluoranthene			100.8		%		50-140	27-NOV-19
Chrysene			111.9		%		50-140	27-NOV-19
Dibenzo(ah)anthracene			105.2		%		50-140	27-NOV-19
Fluoranthene			93.6		%		50-140	27-NOV-19
Fluorene			101.6		%		50-140	27-NOV-19
Indeno(1,2,3-cd)pyrene			97.1		%		50-140	27-NOV-19
Naphthalene			99.99		%		50-140	27-NOV-19
Phenanthrene			99.0		%		50-140	27-NOV-19
Pyrene			96.5		%		50-140	27-NOV-19

Quality Control Report

Workorder: L2386575 Report Date: 28-NOV-19

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

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
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
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.

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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2386575-COFC

COC Number: 17 - 820117

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution		Turn-around Time (TAT) Requested - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Enoabs	Select Report Format:	PDF ☒ EXCEL ☐ EDD (DIGITAL) ☐	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	M-Shay	Quality Control (QC) Report with Report	YES ☒ NO ☐	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:		Compare Results to Criteria on Report - provide details below if box checked	☐	EMERGENCY: 1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200%] (Laboratory opening fees may apply) ☐
Company address below will appear on the final report		Select Distribution:	EMAIL ☒ MAIL ☐ FAX ☐	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:		Email 1 or Fax	M.Shay, E.Taves	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	K. Appleby	
Postal Code:		Email 3		

Invoice To		Invoice Distribution	
	Same as Report To ☐ YES ☒ NO	Select Invoice Distribution:	EMAIL ☐ MAIL ☐ FAX ☐
	Copy of Invoice with Report ☐ YES ☒ NO	Email 1 or Fax	
Company:		Email 2	
Contact	Acct Payable		

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q72980	AFE/Cost Center	PO#
Job #:	CE751900	Major/Minor Code	Routing Code
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2386575RD

ALS Contact: Emily H. Sampler: M.Shay

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	O. Reg PAHs	O. Reg Metals	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	BH208-7.5-8	21-Nov-19	1239	Soil	1	X			
	BH208-11.5-12		1245		1	X		X	
	BH210-3.5		909		1		X		
	BH210-6.5-7		917		1		X		
	BH210-10-10.5		933		1		X	X	
	BH211-5-5.5		1044		1		X	X	
	BH211-10-12		1058		1		X		
	BH211-14-14.5		1108		1		X	X	
	DUP4		—		1	X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Table 1 D.L.s
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs	☐	Ice Cubes ☒	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			5.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: M Shay	Date: 2019/11/22	Time: 1455	Received by:	Date:	Time:	Received by:	Date: 11/22/19	Time: 1485

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: MICHAEL SHIRY
CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 26-NOV-19
Report Date: 06-DEC-19 12:51 (MT)
Version: FINAL REV. 2

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2387876

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-723445
Legal Site Desc:

Emily Hansen
Account Manager

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2387876-1	MW107B						
Sampled By:	M. SHIRY on 26-NOV-19 @ 08:10						
Matrix:	WATER						#1
Dissolved Metals							
	Dissolved Metals Filtration Location	FIELD			No Unit	27-NOV-19	
	Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	6
	Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	25
	Barium (Ba)-Dissolved	106	DLHC	1.0	ug/L	27-NOV-19	1000
	Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	4
	Boron (B)-Dissolved	<100	DLHC	100	ug/L	27-NOV-19	5000
	Cadmium (Cd)-Dissolved	0.075	DLHC	0.050	ug/L	27-NOV-19	2.7
	Chromium (Cr)-Dissolved	5.9	DLHC	5.0	ug/L	27-NOV-19	50
	Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	3.8
	Copper (Cu)-Dissolved	<2.0	DLHC	2.0	ug/L	27-NOV-19	87
	Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	27-NOV-19	10
	Molybdenum (Mo)-Dissolved	<0.50	DLHC	0.50	ug/L	27-NOV-19	70
	Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	100
	Selenium (Se)-Dissolved	0.97	DLHC	0.50	ug/L	27-NOV-19	10
	Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	27-NOV-19	1.5
	Sodium (Na)-Dissolved	347000	DLHC	500	ug/L	27-NOV-19	490000
	Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	27-NOV-19	2
	Uranium (U)-Dissolved	1.44	DLHC	0.10	ug/L	27-NOV-19	20
	Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	6.2
	Zinc (Zn)-Dissolved	14	DLHC	10	ug/L	27-NOV-19	1100
L2387876-2	MW110A						
Sampled By:	M. SHIRY on 26-NOV-19 @ 11:13						
Matrix:	WATER						#1
Dissolved Metals							
	Dissolved Metals Filtration Location	FIELD			No Unit	27-NOV-19	
	Antimony (Sb)-Dissolved	<6	DLHC	6.0	ug/L	27-NOV-19	6
	Arsenic (As)-Dissolved	<10	DLHC	10	ug/L	27-NOV-19	25
	Barium (Ba)-Dissolved	708	DLHC	10	ug/L	27-NOV-19	1000
	Beryllium (Be)-Dissolved	<4	DLHC	4.0	ug/L	27-NOV-19	4
	Boron (B)-Dissolved	<1000	DLHC	1000	ug/L	27-NOV-19	5000
	Cadmium (Cd)-Dissolved	1.26	DLHC	0.50	ug/L	27-NOV-19	2.7
	Chromium (Cr)-Dissolved	<50	DLHC	50	ug/L	27-NOV-19	50
	Cobalt (Co)-Dissolved	<3.8	DLHC	3.8	ug/L	27-NOV-19	3.8
	Copper (Cu)-Dissolved	<20	DLHC	20	ug/L	27-NOV-19	87
	Lead (Pb)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	10
	Molybdenum (Mo)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	70
	Nickel (Ni)-Dissolved	<50	DLHC	50	ug/L	27-NOV-19	100
	Selenium (Se)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	10
	Silver (Ag)-Dissolved	<1.5	DLHC	1.5	ug/L	27-NOV-19	1.5
	Sodium (Na)-Dissolved	4750000	DLHC	5000	ug/L	27-NOV-19	*490000
	Thallium (Tl)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	2
	Uranium (U)-Dissolved	2.2	DLHC	1.0	ug/L	27-NOV-19	20
	Vanadium (V)-Dissolved	<50	DLHC	50	ug/L	27-NOV-19	**6.2
	Zinc (Zn)-Dissolved	<100	DLHC	100	ug/L	27-NOV-19	1100

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

ANALYTICAL GUIDELINE REPORT

CE751900

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2387876-3 MW110B						
Sampled By: M. SHIRY on 26-NOV-19 @ 11:59						
Matrix: WATER						#1
Dissolved Metals						
Dissolved Metals Filtration Location	FIELD			No Unit	27-NOV-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	6
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	25
Barium (Ba)-Dissolved	150	DLHC	1.0	ug/L	27-NOV-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	4
Boron (B)-Dissolved	110	DLHC	100	ug/L	27-NOV-19	5000
Cadmium (Cd)-Dissolved	0.080	DLHC	0.050	ug/L	27-NOV-19	2.7
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	50
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	3.8
Copper (Cu)-Dissolved	2.4	DLHC	2.0	ug/L	27-NOV-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	27-NOV-19	10
Molybdenum (Mo)-Dissolved	1.06	DLHC	0.50	ug/L	27-NOV-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	100
Selenium (Se)-Dissolved	0.68	DLHC	0.50	ug/L	27-NOV-19	10
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	27-NOV-19	1.5
Sodium (Na)-Dissolved	2310000	DLHC	5000	ug/L	27-NOV-19	*490000
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	27-NOV-19	2
Uranium (U)-Dissolved	1.47	DLHC	0.10	ug/L	27-NOV-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	6.2
Zinc (Zn)-Dissolved	18	DLHC	10	ug/L	27-NOV-19	1100
L2387876-4 MW111						
Sampled By: M. SHIRY on 26-NOV-19 @ 09:30						
Matrix: WATER						#1
Dissolved Metals						
Dissolved Metals Filtration Location	FIELD			No Unit	27-NOV-19	
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	6
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	25
Barium (Ba)-Dissolved	105	DLHC	1.0	ug/L	27-NOV-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	4
Boron (B)-Dissolved	200	DLHC	100	ug/L	27-NOV-19	5000
Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	27-NOV-19	2.7
Chromium (Cr)-Dissolved	8.1	DLHC	5.0	ug/L	27-NOV-19	50
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	3.8
Copper (Cu)-Dissolved	4.0	DLHC	2.0	ug/L	27-NOV-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	27-NOV-19	10
Molybdenum (Mo)-Dissolved	1.00	DLHC	0.50	ug/L	27-NOV-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	100
Selenium (Se)-Dissolved	0.86	DLHC	0.50	ug/L	27-NOV-19	10
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	27-NOV-19	1.5
Sodium (Na)-Dissolved	2490000	DLHC	5000	ug/L	27-NOV-19	*490000
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	27-NOV-19	2
Uranium (U)-Dissolved	1.59	DLHC	0.10	ug/L	27-NOV-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	6.2
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	27-NOV-19	1100

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2387876-5	DUP						
Sampled By:	M. SHIRY on 26-NOV-19						
Matrix:	WATER						
Dissolved Metals							
	Dissolved Metals Filtration Location	FIELD			No Unit	27-NOV-19	
	Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	6
	Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	25
	Barium (Ba)-Dissolved	147	DLHC	1.0	ug/L	27-NOV-19	1000
	Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	4
	Boron (B)-Dissolved	110	DLHC	100	ug/L	27-NOV-19	5000
	Cadmium (Cd)-Dissolved	0.105	DLHC	0.050	ug/L	27-NOV-19	2.7
	Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	50
	Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	27-NOV-19	3.8
	Copper (Cu)-Dissolved	2.9	DLHC	2.0	ug/L	27-NOV-19	87
	Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	27-NOV-19	10
	Molybdenum (Mo)-Dissolved	0.98	DLHC	0.50	ug/L	27-NOV-19	70
	Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	100
	Selenium (Se)-Dissolved	0.80	DLHC	0.50	ug/L	27-NOV-19	10
	Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	27-NOV-19	1.5
	Sodium (Na)-Dissolved	2360000	DLHC	5000	ug/L	27-NOV-19	*490000
	Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	27-NOV-19	2
	Uranium (U)-Dissolved	1.43	DLHC	0.10	ug/L	27-NOV-19	20
	Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	27-NOV-19	6.2
	Zinc (Zn)-Dissolved	19	DLHC	10	ug/L	27-NOV-19	1100

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
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***
MET-D-UG/L-MS-WT	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).

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

Chain of Custody numbers:

17-723445

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	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: L2387876 Report Date: 06-DEC-19

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4927523								
WG3229139-4 DUP		**WG3229139-3**						
Antimony (Sb)-Dissolved		0.21	0.21		ug/L	0.6	20	28-NOV-19
Arsenic (As)-Dissolved		0.71	0.70		ug/L	1.3	20	28-NOV-19
Barium (Ba)-Dissolved		147	149		ug/L	1.6	20	28-NOV-19
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	28-NOV-19
Boron (B)-Dissolved		28	28		ug/L	1.5	20	28-NOV-19
Cadmium (Cd)-Dissolved		0.0119	0.0132		ug/L	10	20	28-NOV-19
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	28-NOV-19
Cobalt (Co)-Dissolved		0.14	0.15		ug/L	6.8	20	28-NOV-19
Copper (Cu)-Dissolved		1.66	1.64		ug/L	0.9	20	28-NOV-19
Lead (Pb)-Dissolved		0.598	0.599		ug/L	0.1	20	28-NOV-19
Molybdenum (Mo)-Dissolved		1.82	1.83		ug/L	0.5	20	28-NOV-19
Nickel (Ni)-Dissolved		1.06	1.05		ug/L	1.2	20	28-NOV-19
Selenium (Se)-Dissolved		0.243	0.240		ug/L	1.2	20	28-NOV-19
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	28-NOV-19
Sodium (Na)-Dissolved		24400	24300		ug/L	0.7	20	28-NOV-19
Thallium (Tl)-Dissolved		0.011	<0.010	RPD-NA	ug/L	N/A	20	28-NOV-19
Uranium (U)-Dissolved		1.63	1.68		ug/L	2.6	20	28-NOV-19
Vanadium (V)-Dissolved		1.10	1.05		ug/L	4.3	20	28-NOV-19
Zinc (Zn)-Dissolved		4.0	3.8		ug/L	4.1	20	28-NOV-19
WG3229139-2 LCS								
Antimony (Sb)-Dissolved			99.4		%		80-120	27-NOV-19
Arsenic (As)-Dissolved			101.9		%		80-120	27-NOV-19
Barium (Ba)-Dissolved			101.7		%		80-120	27-NOV-19
Beryllium (Be)-Dissolved			97.1		%		80-120	27-NOV-19
Boron (B)-Dissolved			96.3		%		80-120	27-NOV-19
Cadmium (Cd)-Dissolved			102.5		%		80-120	27-NOV-19
Chromium (Cr)-Dissolved			103.6		%		80-120	27-NOV-19
Cobalt (Co)-Dissolved			99.8		%		80-120	27-NOV-19
Copper (Cu)-Dissolved			101.2		%		80-120	27-NOV-19
Lead (Pb)-Dissolved			102.8		%		80-120	27-NOV-19
Molybdenum (Mo)-Dissolved			99.0		%		80-120	27-NOV-19
Nickel (Ni)-Dissolved			101.4		%		80-120	27-NOV-19
Selenium (Se)-Dissolved			99.6		%		80-120	27-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4927523								
WG3229139-2 LCS								
Silver (Ag)-Dissolved			102.9		%		80-120	27-NOV-19
Sodium (Na)-Dissolved			104.2		%		80-120	27-NOV-19
Thallium (Tl)-Dissolved			101.3		%		80-120	27-NOV-19
Uranium (U)-Dissolved			102.4		%		80-120	27-NOV-19
Vanadium (V)-Dissolved			104.4		%		80-120	27-NOV-19
Zinc (Zn)-Dissolved			102.2		%		80-120	27-NOV-19
WG3229139-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	27-NOV-19
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	27-NOV-19
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	27-NOV-19
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	27-NOV-19
Boron (B)-Dissolved			<10		ug/L		10	27-NOV-19
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	27-NOV-19
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	27-NOV-19
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	27-NOV-19
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	27-NOV-19
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	27-NOV-19
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	27-NOV-19
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	27-NOV-19
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	27-NOV-19
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	27-NOV-19
Sodium (Na)-Dissolved			<50		ug/L		50	27-NOV-19
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	27-NOV-19
Uranium (U)-Dissolved			<0.010		ug/L		0.01	27-NOV-19
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	27-NOV-19
Zinc (Zn)-Dissolved			<1.0		ug/L		1	27-NOV-19
WG3229139-5 MS		**WG3229139-6**						
Antimony (Sb)-Dissolved			97.9		%		70-130	27-NOV-19
Arsenic (As)-Dissolved			100.0		%		70-130	27-NOV-19
Barium (Ba)-Dissolved			N/A	MS-B	%		-	27-NOV-19
Beryllium (Be)-Dissolved			100.4		%		70-130	27-NOV-19
Cadmium (Cd)-Dissolved			94.1		%		70-130	27-NOV-19
Chromium (Cr)-Dissolved			96.8		%		70-130	27-NOV-19
Cobalt (Co)-Dissolved			86.6		%		70-130	27-NOV-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4927523								
WG3229139-5 MS		**WG3229139-6**						
Copper (Cu)-Dissolved			90.5		%		70-130	27-NOV-19
Lead (Pb)-Dissolved			94.0		%		70-130	27-NOV-19
Molybdenum (Mo)-Dissolved			76.7		%		70-130	27-NOV-19
Nickel (Ni)-Dissolved			88.4		%		70-130	27-NOV-19
Selenium (Se)-Dissolved			103.9		%		70-130	27-NOV-19
Silver (Ag)-Dissolved			94.6		%		70-130	27-NOV-19
Sodium (Na)-Dissolved			N/A	MS-B	%		-	27-NOV-19
Thallium (Tl)-Dissolved			91.3		%		70-130	27-NOV-19
Uranium (U)-Dissolved			N/A	MS-B	%		-	27-NOV-19
Vanadium (V)-Dissolved			100.9		%		70-130	27-NOV-19
Zinc (Zn)-Dissolved			73.7		%		70-130	27-NOV-19

Quality Control Report

Workorder: L2387876 Report Date: 06-DEC-19

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

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
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.

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.

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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2387876-COFC

COC Number: 17 - 723445

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	Jacobs
Contact:	M. Shiy
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To ☐ YES ☒ NO
	Copy of invoice with Report ☐ YES ☒ NO
Company:	Acct Payable
Contact:	

Report Format / Distribution

Select Report Format: ☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)

Quality Control (QC) Report with Report ☒ YES ☐ NO

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: Michael.Shiy@jacobs.com

Email 2: Ed.Tavares@jacobs.com

Email 3: Kathleen.Appleby@Jacobs.com

Invoice Distribution

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax:

Email 2:

[redacted]

Project Information

ALS Account # / Quote #: Q72980

Job #: CE75190O

PO / AFE:

LSD:

AFE/Cost Center: PO#:

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (lab use only): L2387876

ALS Contact: Emily H

Sampler: M. Shiy

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R]: ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): ☐ 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%]

EMERGENCY: ☐ 1 Business day [E-100%] ☐ Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]

[redacted] for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Metals Sec 1.22 MEND Analytical Package

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	MW107B	26-Nov-19	810	Water			1
	MW110A		1113				1
	MW110B		1159				1
	MW111		930				1
	DUP		—				1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☒ NO

Are samples for human consumption/ use? ☐ YES ☒ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations ☐ Yes ☐ No

Ice Packs ☐ Ice Cubes ☐ Custody seal intact ☐ Yes ☐ No

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6.0			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
M. Shiy	2019/11/26	1300

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
	NOV 26/19	13:08

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

* If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: Michael Shiry
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 20-DEC-19
Report Date: 20-JAN-20 08:56 (MT)
Version: DRAFT REV. 2

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2399298

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-723815
Legal Site Desc:

Comments:

Emily Hansen
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-1 MW100						
Sampled By: V.PETERS on 19-DEC-19 @ 14:2(						
Matrix: WATER						
Physical Tests						
Conductivity	23.0		0.0030	mS/cm	21-DEC-19	
pH	7.82	HTD	0.10	pH units	23-DEC-19	
Anions and Nutrients						
Chloride (Cl)	8010	DLHC	50	mg/L	27-DEC-19	*790
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	392	DLHC	10	ug/L	23-DEC-19	1000
Beryllium (Be)-Dissolved	<10	DLHC	10	ug/L	23-DEC-19	**4
Boron (B)-Dissolved	<1000	DLHC	1000	ug/L	23-DEC-19	5000
Cadmium (Cd)-Dissolved	0.72	DLHC	0.50	ug/L	23-DEC-19	2.7
Chromium (Cr)-Dissolved	<50	DLHC	50	ug/L	23-DEC-19	50
Cobalt (Co)-Dissolved	<10	DLHC	10	ug/L	23-DEC-19	**3.8
Copper (Cu)-Dissolved	<20	DLHC	20	ug/L	23-DEC-19	87
Lead (Pb)-Dissolved	<5.0	DLHC	5.0	ug/L	23-DEC-19	10
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	<5.0	DLHC	5.0	ug/L	23-DEC-19	70
Nickel (Ni)-Dissolved	<50	DLHC	50	ug/L	23-DEC-19	100
Silver (Ag)-Dissolved	<5.0	DLHC	5.0	ug/L	23-DEC-19	**1.5
Thallium (Tl)-Dissolved	<1.0	DLHC	1.0	ug/L	23-DEC-19	2
Uranium (U)-Dissolved	<1.0	DLHC	1.0	ug/L	23-DEC-19	20
Vanadium (V)-Dissolved	<50	DLHC	50	ug/L	23-DEC-19	**6.2
Zinc (Zn)-Dissolved	<100	DLHC	100	ug/L	23-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	4.15		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	<1.0		1.0	ug/L	27-DEC-19	2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-1	MW100						
Sampled By:	V.PETERS on 19-DEC-19 @ 14:2(						
Matrix:	WATER						
Volatile Organic Compounds							
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
	1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
	Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
	n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
	Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
	Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
	MTBE	<2.0		2.0	ug/L	27-DEC-19	15
	Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
	Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	Toluene	<0.50		0.50	ug/L	27-DEC-19	24
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
	Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
	Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
	o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
	m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
	Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
	Surrogate: 4-Bromofluorobenzene	89.3		70-130	%	27-DEC-19	
	Surrogate: 1,4-Difluorobenzene	91.6		70-130	%	27-DEC-19	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
	F1-BTEX	<25		25	ug/L	30-DEC-19	750
	F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
	F2-Naphth	<100		100	ug/L	30-DEC-19	
	F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
	F3-PAH	<250		250	ug/L	30-DEC-19	
	F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	
	Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
	Surrogate: 2-Bromobenzotrifluoride	97.8		60-140	%	24-DEC-19	
	Surrogate: 3,4-Dichlorotoluene	77.8		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1
	Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1
	Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4
	Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1
	Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2399298-1	MW100									
Sampled By:	V.PETERS on 19-DEC-19 @ 14:2(									
Matrix:	WATER						#1			
Polycyclic Aromatic Hydrocarbons										
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41			
	Fluorene	<0.020		0.020	ug/L	30-DEC-19	120			
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2			
	1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2			
	2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2			
	Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11			
	Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1			
	Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1			
	Surrogate: d10-Acenaphthene	104.4		60-140	%	30-DEC-19				
	Surrogate: d12-Chrysene	112.9		60-140	%	30-DEC-19				
	Surrogate: d8-Naphthalene	94.6		60-140	%	30-DEC-19				
	Surrogate: d10-Phenanthrene	108.2		60-140	%	30-DEC-19				
L2399298-2	MW101									
Sampled By:	V.PETERS on 20-DEC-19 @ 11:45									
Matrix:	WATER						#1			
Physical Tests										
	Conductivity	1.76		0.0030	mS/cm	21-DEC-19				
	pH	7.76		0.10	pH units	23-DEC-19				
Anions and Nutrients										
	Chloride (Cl)	370	DLHC	2.5	mg/L	27-DEC-19	790			
Cyanides										
	Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66			
Dissolved Metals										
	Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19				
	Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19				
	Barium (Ba)-Dissolved	53.1	DLHC	1.0	ug/L	20-DEC-19	1000			
	Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4			
	Boron (B)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	5000			
	Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	20-DEC-19	2.7			
	Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	50			
	Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8			
	Copper (Cu)-Dissolved	2.2	DLHC	2.0	ug/L	20-DEC-19	87			
	Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10			
	Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29			
	Molybdenum (Mo)-Dissolved	1.95	DLHC	0.50	ug/L	20-DEC-19	70			
	Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100			
	Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5			
	Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2			
	Uranium (U)-Dissolved	0.76	DLHC	0.10	ug/L	20-DEC-19	20			
	Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-2 MW101						
Sampled By: V.PETERS on 20-DEC-19 @ 11:45						
Matrix: WATER						
Dissolved Metals						
						6.2
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	0.51		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	6.6		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	5.4		2.0	ug/L	27-DEC-19	25
Chloroform	8.5		1.0	ug/L	27-DEC-19	*2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
MTBE	<2.0		2.0	ug/L	27-DEC-19	15
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Toluene	<0.50		0.50	ug/L	27-DEC-19	24
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2399298-2	MW101									
Sampled By:	V.PETERS on 20-DEC-19 @ 11:45									
Matrix:	WATER						#1			
Volatile Organic Compounds										
	Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300			
	Surrogate: 4-Bromofluorobenzene	90.5		70-130	%	27-DEC-19				
	Surrogate: 1,4-Difluorobenzene	92.5		70-130	%	27-DEC-19				
Hydrocarbons										
	F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750			
	F1-BTEX	<25		25	ug/L	30-DEC-19	750			
	F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150			
	F2-Naphth	<100		100	ug/L	30-DEC-19				
	F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500			
	F3-PAH	<250		250	ug/L	30-DEC-19				
	F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500			
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19				
	Chrom. to baseline at nC50	YES			No Unit	24-DEC-19				
	Surrogate: 2-Bromobenzotrifluoride	93.9		60-140	%	24-DEC-19				
	Surrogate: 3,4-Dichlorotoluene	76.4		60-140	%	27-DEC-19				
Polycyclic Aromatic Hydrocarbons										
	Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1			
	Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1			
	Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4			
	Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1			
	Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01			
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41			
	Fluorene	<0.020		0.020	ug/L	30-DEC-19	120			
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2			
	1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2			
	2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2			
	Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11			
	Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1			
	Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1			
	Surrogate: d10-Acenaphthene	99.9		60-140	%	30-DEC-19				
	Surrogate: d12-Chrysene	105.5		60-140	%	30-DEC-19				
	Surrogate: d8-Naphthalene	90.0		60-140	%	30-DEC-19				
	Surrogate: d10-Phenanthrene	104.9		60-140	%	30-DEC-19				
L2399298-3	MW102A									
Sampled By:	V.PETERS on 19-DEC-19 @ 11:35									
Matrix:	WATER						#1			
Physical Tests										
	Conductivity	23.5		0.0030	mS/cm	21-DEC-19				
	pH	7.49		0.10	pH units	21-DEC-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-3 MW102A						
Sampled By: V.PETERS on 19-DEC-19 @ 11:35						
Matrix: WATER						
Anions and Nutrients						
Chloride (Cl)	8140	DLHC	50	mg/L	27-DEC-19	*790
Cyanides						
Cyanide, Weak Acid Diss	8.4		2.0	ug/L	20-DEC-19	66
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	526	DLHC	10	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	**4
Boron (B)-Dissolved	<1000	DLHC	1000	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	2.7
Chromium (Cr)-Dissolved	<50	DLHC	50	ug/L	20-DEC-19	50
Cobalt (Co)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	**3.8
Copper (Cu)-Dissolved	<20	DLHC	20	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	10
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<50	DLHC	50	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	**1.5
Thallium (Tl)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	1.7	DLHC	1.0	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<50	DLHC	50	ug/L	20-DEC-19	**6.2
Zinc (Zn)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	0.51		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	<1.0		1.0	ug/L	27-DEC-19	2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-3 MW102A						
Sampled By: V.PETERS on 19-DEC-19 @ 11:35						
Matrix: WATER						
Volatile Organic Compounds						
1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
MTBE	<2.0		2.0	ug/L	27-DEC-19	15
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Toluene	<0.50		0.50	ug/L	27-DEC-19	24
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
Surrogate: 4-Bromofluorobenzene	89.6		70-130	%	27-DEC-19	
Surrogate: 1,4-Difluorobenzene	91.1		70-130	%	27-DEC-19	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
F1-BTEX	<25		25	ug/L	30-DEC-19	750
F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
F2-Naphth	<100		100	ug/L	30-DEC-19	
F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
F3-PAH	<250		250	ug/L	30-DEC-19	
F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	
Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
Surrogate: 2-Bromobenzotrifluoride	100.1		60-140	%	24-DEC-19	
Surrogate: 3,4-Dichlorotoluene	77.1		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1
Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1
Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4
Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1
Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01
Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-3	MW102A						
Sampled By:	V.PETERS on 19-DEC-19 @ 11:35						
Matrix:	WATER						#1
Polycyclic Aromatic Hydrocarbons							
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2
	Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41
	Fluorene	<0.020		0.020	ug/L	30-DEC-19	120
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2
	1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
	2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
	Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11
	Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1
	Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1
	Surrogate: d10-Acenaphthene	108.1		60-140	%	30-DEC-19	
	Surrogate: d12-Chrysene	115.5		60-140	%	30-DEC-19	
	Surrogate: d8-Naphthalene	98.0		60-140	%	30-DEC-19	
	Surrogate: d10-Phenanthrene	108.5		60-140	%	30-DEC-19	
L2399298-4	MW102B						
Sampled By:	V.PETERS on 19-DEC-19 @ 10:10						
Matrix:	WATER						#1
Physical Tests							
	Conductivity	24.3		0.0030	mS/cm	21-DEC-19	
	pH	7.34		0.10	pH units	21-DEC-19	
Anions and Nutrients							
	Chloride (Cl)	8500	DLHC	50	mg/L	27-DEC-19	*790
Cyanides							
	Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66
Dissolved Metals							
	Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
	Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
	Barium (Ba)-Dissolved	556	DLHC	10	ug/L	20-DEC-19	1000
	Beryllium (Be)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	**4
	Boron (B)-Dissolved	<1000	DLHC	1000	ug/L	20-DEC-19	5000
	Cadmium (Cd)-Dissolved	0.78	DLHC	0.50	ug/L	20-DEC-19	2.7
	Chromium (Cr)-Dissolved	<50	DLHC	50	ug/L	20-DEC-19	50
	Cobalt (Co)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	**3.8
	Copper (Cu)-Dissolved	<20	DLHC	20	ug/L	20-DEC-19	87
	Lead (Pb)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	10
	Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
	Molybdenum (Mo)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	70
	Nickel (Ni)-Dissolved	<50	DLHC	50	ug/L	20-DEC-19	100
	Silver (Ag)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	**1.5
	Thallium (Tl)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	2
	Uranium (U)-Dissolved	1.6	DLHC	1.0	ug/L	20-DEC-19	20
	Vanadium (V)-Dissolved	<50	DLHC	50	ug/L	20-DEC-19	**6.2
	Zinc (Zn)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	1100
Speciated Metals							

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-4 MW102B						
Sampled By: V.PETERS on 19-DEC-19 @ 10:1(						
Matrix: WATER						
Speciated Metals						
Chromium, Hexavalent	0.51		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	<1.0		1.0	ug/L	27-DEC-19	2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
MTBE	<2.0		2.0	ug/L	27-DEC-19	15
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Toluene	<0.50		0.50	ug/L	27-DEC-19	24
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
Surrogate: 4-Bromofluorobenzene	90.2		70-130	%	27-DEC-19	
Surrogate: 1,4-Difluorobenzene	91.4		70-130	%	27-DEC-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2399298-4	MW102B									
Sampled By:	V.PETERS on 19-DEC-19 @ 10:1(									
Matrix:	WATER						#1			
Hydrocarbons										
	F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750			
	F1-BTEX	<25		25	ug/L	30-DEC-19	750			
	F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150			
	F2-Naphth	<100		100	ug/L	30-DEC-19				
	F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500			
	F3-PAH	<250		250	ug/L	30-DEC-19				
	F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500			
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19				
	Chrom. to baseline at nC50	YES			No Unit	24-DEC-19				
	Surrogate: 2-Bromobenzotrifluoride	95.1		60-140	%	24-DEC-19				
	Surrogate: 3,4-Dichlorotoluene	70.5		60-140	%	27-DEC-19				
Polycyclic Aromatic Hydrocarbons										
	Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1			
	Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1			
	Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4			
	Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1			
	Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01			
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41			
	Fluorene	<0.020		0.020	ug/L	30-DEC-19	120			
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2			
	1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2			
	2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2			
	Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11			
	Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1			
	Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1			
	Surrogate: d10-Acenaphthene	102.9		60-140	%	30-DEC-19				
	Surrogate: d12-Chrysene	108.4		60-140	%	30-DEC-19				
	Surrogate: d8-Naphthalene	97.7		60-140	%	30-DEC-19				
	Surrogate: d10-Phenanthrene	103.8		60-140	%	30-DEC-19				
L2399298-5	MW103									
Sampled By:	V.PETERS on 18-DEC-19 @ 16:4[									
Matrix:	WATER						#1			
Physical Tests										
	Conductivity	15.4		0.0030	mS/cm	21-DEC-19				
	pH	7.53		0.10	pH units	21-DEC-19				
Anions and Nutrients										
	Chloride (Cl)	5890	DLHC	10	mg/L	27-DEC-19	*790			
Cyanides										
	Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-5 MW103						
Sampled By: V.PETERS on 18-DEC-19 @ 16:45						
Matrix: WATER						
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	378	DLHC	1.0	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
Boron (B)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	0.128	DLHC	0.050	ug/L	20-DEC-19	2.7
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	50
Cobalt (Co)-Dissolved	1.4	DLHC	1.0	ug/L	20-DEC-19	3.8
Copper (Cu)-Dissolved	3.0	DLHC	2.0	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	3.13	DLHC	0.50	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	5.79	DLHC	0.10	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	<0.50		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	<1.0		1.0	ug/L	27-DEC-19	2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-5 MW103						
Sampled By: V.PETERS on 18-DEC-19 @ 16:45						
Matrix: WATER						
Volatile Organic Compounds						
n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
MTBE	<2.0		2.0	ug/L	27-DEC-19	15
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Toluene	<0.50		0.50	ug/L	27-DEC-19	24
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
Surrogate: 4-Bromofluorobenzene	89.5		70-130	%	27-DEC-19	
Surrogate: 1,4-Difluorobenzene	91.5		70-130	%	27-DEC-19	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
F1-BTEX	<25		25	ug/L	30-DEC-19	750
F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
F2-Naphth	<100		100	ug/L	30-DEC-19	
F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
F3-PAH	<250		250	ug/L	30-DEC-19	
F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	
Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
Surrogate: 2-Bromobenzotrifluoride	97.4		60-140	%	24-DEC-19	
Surrogate: 3,4-Dichlorotoluene	74.5		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1
Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1
Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4
Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1
Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01
Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2
Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41
Fluorene	<0.020		0.020	ug/L	30-DEC-19	120
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-5 MW103						
Sampled By: V.PETERS on 18-DEC-19 @ 16:45						
Matrix: WATER						#1
Polycyclic Aromatic Hydrocarbons						
1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11
Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1
Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1
Surrogate: d10-Acenaphthene	102.5		60-140	%	30-DEC-19	
Surrogate: d12-Chrysene	113.6		60-140	%	30-DEC-19	
Surrogate: d8-Naphthalene	97.4		60-140	%	30-DEC-19	
Surrogate: d10-Phenanthrene	103.7		60-140	%	30-DEC-19	
L2399298-6 MW104						
Sampled By: V.PETERS on 20-DEC-19 @ 10:40						
Matrix: WATER						#1
Physical Tests						
Conductivity	11.0		0.0030	mS/cm	21-DEC-19	
pH	7.47		0.10	pH units	23-DEC-19	
Anions and Nutrients						
Chloride (Cl)	4170	DLHC	10	mg/L	27-DEC-19	*790
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	225	DLHC	1.0	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
Boron (B)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	20-DEC-19	2.7
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	50
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8
Copper (Cu)-Dissolved	2.5	DLHC	2.0	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	3.97	DLHC	0.50	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	1.53	DLHC	0.10	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	<0.50		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-6 MW104						
Sampled By: V.PETERS on 20-DEC-19 @ 10:4(						
Matrix: WATER						
Volatile Organic Compounds						
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	<1.0		1.0	ug/L	27-DEC-19	2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
MTBE	<2.0		2.0	ug/L	27-DEC-19	15
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Toluene	<0.50		0.50	ug/L	27-DEC-19	24
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
Surrogate: 4-Bromofluorobenzene	90.7		70-130	%	27-DEC-19	
Surrogate: 1,4-Difluorobenzene	91.8		70-130	%	27-DEC-19	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
F1-BTEX	<25		25	ug/L	30-DEC-19	750
F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
F2-Naphth	<100		100	ug/L	30-DEC-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-6	MW104						
Sampled By:	V.PETERS on 20-DEC-19 @ 10:4(						
Matrix:	WATER						
Hydrocarbons							
	F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
	F3-PAH	<250		250	ug/L	30-DEC-19	
	F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	
	Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
	Surrogate: 2-Bromobenzotrifluoride	97.0		60-140	%	24-DEC-19	
	Surrogate: 3,4-Dichlorotoluene	63.2		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1
	Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1
	Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4
	Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1
	Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
	Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2
	Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41
	Fluorene	<0.020		0.020	ug/L	30-DEC-19	120
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2
	1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
	2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
	Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11
	Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1
	Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1
	Surrogate: d10-Acenaphthene	103.1		60-140	%	30-DEC-19	
	Surrogate: d12-Chrysene	114.9		60-140	%	30-DEC-19	
	Surrogate: d8-Naphthalene	95.7		60-140	%	30-DEC-19	
	Surrogate: d10-Phenanthrene	102.7		60-140	%	30-DEC-19	
Semi-Volatile Organics							
	Biphenyl	<0.40		0.40	ug/L	30-DEC-19	0.5
	4-Chloroaniline	<0.40		0.40	ug/L	30-DEC-19	10
	Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	30-DEC-19	5
	Bis(2-chloroisopropyl)ether	<0.40		0.40	ug/L	30-DEC-19	120
	3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	30-DEC-19	0.5
	Diethylphthalate	<0.20		0.20	ug/L	30-DEC-19	38
	Dimethylphthalate	<0.20		0.20	ug/L	30-DEC-19	38
	2,4-Dimethylphenol	<0.50		0.50	ug/L	30-DEC-19	59
	2,4-Dinitrophenol	<1.0		1.0	ug/L	30-DEC-19	10
	2,4-Dinitrotoluene	<0.40		0.40	ug/L	30-DEC-19	
	2,6-Dinitrotoluene	<0.40		0.40	ug/L	30-DEC-19	
	2,4+2,6-Dinitrotoluene	<0.57		0.57	ug/L	30-DEC-19	5
	Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	30-DEC-19	10
	Phenol	<0.50		0.50	ug/L	30-DEC-19	890

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-6 MW104						
Sampled By: V.PETERS on 20-DEC-19 @ 10:4(						
Matrix: WATER						#1
Semi-Volatile Organics						
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	30-DEC-19	70
Surrogate: 2-Fluorobiphenyl	71.2		50-140	%	30-DEC-19	
Surrogate: Nitrobenzene d5	75.9		50-140	%	30-DEC-19	
Surrogate: p-Terphenyl d14	84.3		60-140	%	30-DEC-19	
Surrogate: 2,4,6-Tribromophenol	82.8		50-140	%	30-DEC-19	
L2399298-7 MW106						
Sampled By: V.PETERS on 19-DEC-19 @ 15:45						
Matrix: WATER						#1
Physical Tests						
Conductivity	8.20		0.0030	mS/cm	21-DEC-19	
pH	7.58	HTD	0.10	pH units	23-DEC-19	
Anions and Nutrients						
Chloride (Cl)	2730	DLHC	10	mg/L	27-DEC-19	*790
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	212	DLHC	1.0	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
Boron (B)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	0.456	DLHC	0.050	ug/L	20-DEC-19	2.7
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	50
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8
Copper (Cu)-Dissolved	3.2	DLHC	2.0	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
Mercury (Hg)-Dissolved	0.0054		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	2.41	DLHC	0.50	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	0.93	DLHC	0.10	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
Zinc (Zn)-Dissolved	17	DLHC	10	ug/L	20-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	2.14		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-7	MW106						
Sampled By:	V.PETERS on 19-DEC-19 @ 15:45						
Matrix:	WATER						#1
Volatile Organic Compounds							
	Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
	Chloroform	5.6		1.0	ug/L	27-DEC-19	*2.4
	1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
	1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
	Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
	1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
	1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
	1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
	1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
	Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
	n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
	Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
	Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
	MTBE	<2.0		2.0	ug/L	27-DEC-19	15
	Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
	Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	Toluene	<0.50		0.50	ug/L	27-DEC-19	24
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
	Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
	Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
	o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
	m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
	Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
	Surrogate: 4-Bromofluorobenzene	88.8		70-130	%	27-DEC-19	
	Surrogate: 1,4-Difluorobenzene	90.6		70-130	%	27-DEC-19	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
	F1-BTEX	<25		25	ug/L	30-DEC-19	750
	F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
	F2-Naphth	<100		100	ug/L	30-DEC-19	
	F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
	F3-PAH	<250		250	ug/L	30-DEC-19	
	F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-7 MW106						
Sampled By: V.PETERS on 19-DEC-19 @ 15:45						
Matrix: WATER						#1
Hydrocarbons						
Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
Surrogate: 2-Bromobenzotrifluoride	92.5		60-140	%	24-DEC-19	
Surrogate: 3,4-Dichlorotoluene	73.0		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1
Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1
Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4
Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1
Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01
Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2
Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41
Fluorene	<0.020		0.020	ug/L	30-DEC-19	120
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2
1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11
Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1
Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1
Surrogate: d10-Acenaphthene	102.6		60-140	%	30-DEC-19	
Surrogate: d12-Chrysene	108.5		60-140	%	30-DEC-19	
Surrogate: d8-Naphthalene	90.8		60-140	%	30-DEC-19	
Surrogate: d10-Phenanthrene	104.1		60-140	%	30-DEC-19	
L2399298-8 MW107						
Sampled By: V.PETERS on 18-DEC-19 @ 12:35						
Matrix: WATER						#1
Physical Tests						
Conductivity	2.71		0.0030	mS/cm	21-DEC-19	
pH	7.78		0.10	pH units	21-DEC-19	
Anions and Nutrients						
Chloride (Cl)	722	DLHC	2.5	mg/L	27-DEC-19	790
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	87.2	DLHC	1.0	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
Boron (B)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	3.37	DLHC	0.050	ug/L	20-DEC-19	*2.7
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	50

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-8 MW107						
Sampled By: V.PETERS on 18-DEC-19 @ 12:35						
Matrix: WATER						
Dissolved Metals						
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8
Copper (Cu)-Dissolved	<2.0	DLHC	2.0	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	1.09	DLHC	0.50	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	0.67	DLHC	0.10	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
Zinc (Zn)-Dissolved	14	DLHC	10	ug/L	20-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	0.87		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	7.8		1.0	ug/L	27-DEC-19	*2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
MTBE	<2.0		2.0	ug/L	27-DEC-19	15
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-8 MW107						
Sampled By: V.PETERS on 18-DEC-19 @ 12:35						
Matrix: WATER						
Volatile Organic Compounds						
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Toluene	<0.50		0.50	ug/L	27-DEC-19	24
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
Surrogate: 4-Bromofluorobenzene	87.8		70-130	%	27-DEC-19	
Surrogate: 1,4-Difluorobenzene	91.5		70-130	%	27-DEC-19	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
F1-BTEX	<25		25	ug/L	30-DEC-19	750
F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
F2-Naphth	<100		100	ug/L	30-DEC-19	
F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
F3-PAH	<250		250	ug/L	30-DEC-19	
F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	
Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
Surrogate: 2-Bromobenzotrifluoride	100.1		60-140	%	24-DEC-19	
Surrogate: 3,4-Dichlorotoluene	72.6		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1
Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1
Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4
Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1
Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01
Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2
Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41
Fluorene	<0.020		0.020	ug/L	30-DEC-19	120
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2
1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11
Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1
Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1
Surrogate: d10-Acenaphthene	106.2		60-140	%	30-DEC-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-8	MW107						
Sampled By:	V.PETERS on 18-DEC-19 @ 12:35						
Matrix:	WATER						#1
Polycyclic Aromatic Hydrocarbons							
	Surrogate: d12-Chrysene	114.0		60-140	%	30-DEC-19	
	Surrogate: d8-Naphthalene	96.7		60-140	%	30-DEC-19	
	Surrogate: d10-Phenanthrene	109.1		60-140	%	30-DEC-19	
L2399298-9	MW107B						
Sampled By:	V.PETERS on 18-DEC-19 @ 13:00						
Matrix:	WATER						#1
Dissolved Metals							
	Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
	Barium (Ba)-Dissolved	109	DLHC	1.0	ug/L	20-DEC-19	1000
	Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
	Boron (B)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	5000
	Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	20-DEC-19	2.7
	Chromium (Cr)-Dissolved	5.5	DLHC	5.0	ug/L	20-DEC-19	50
	Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8
	Copper (Cu)-Dissolved	4.7	DLHC	2.0	ug/L	20-DEC-19	87
	Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
	Molybdenum (Mo)-Dissolved	0.68	DLHC	0.50	ug/L	20-DEC-19	70
	Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
	Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
	Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
	Uranium (U)-Dissolved	1.30	DLHC	0.10	ug/L	20-DEC-19	20
	Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
	Zinc (Zn)-Dissolved	12	DLHC	10	ug/L	20-DEC-19	1100
L2399298-10	MW108						
Sampled By:	V.PETERS on 19-DEC-19 @ 10:50						
Matrix:	WATER						#1
Physical Tests							
	Conductivity	1.88		0.0030	mS/cm	21-DEC-19	
	pH	7.73		0.10	pH units	21-DEC-19	
Anions and Nutrients							
	Chloride (Cl)	272	DLHC	2.5	mg/L	27-DEC-19	790
Cyanides							
	Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66
Dissolved Metals							
	Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
	Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
	Barium (Ba)-Dissolved	93.3		0.10	ug/L	23-DEC-19	1000
	Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	23-DEC-19	4
	Boron (B)-Dissolved	60		10	ug/L	23-DEC-19	5000
	Cadmium (Cd)-Dissolved	0.017		0.010	ug/L	23-DEC-19	2.7
	Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	23-DEC-19	50
	Cobalt (Co)-Dissolved	0.37		0.10	ug/L	23-DEC-19	3.8
	Copper (Cu)-Dissolved	2.02		0.20	ug/L	23-DEC-19	87

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-10 MW108						
Sampled By: V.PETERS on 19-DEC-19 @ 10:5(						
Matrix: WATER						
Dissolved Metals						
Lead (Pb)-Dissolved	0.066		0.050	ug/L	23-DEC-19	10
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	2.70		0.050	ug/L	23-DEC-19	70
Nickel (Ni)-Dissolved	3.36		0.50	ug/L	23-DEC-19	100
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	23-DEC-19	1.5
Thallium (Tl)-Dissolved	0.042		0.010	ug/L	23-DEC-19	2
Uranium (U)-Dissolved	3.25		0.010	ug/L	23-DEC-19	20
Vanadium (V)-Dissolved	<0.50		0.50	ug/L	23-DEC-19	6.2
Zinc (Zn)-Dissolved	2.9		1.0	ug/L	23-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	<0.50		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	<1.0		1.0	ug/L	27-DEC-19	2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	0.56		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
MTBE	<2.0		2.0	ug/L	27-DEC-19	15
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-10 MW108						
Sampled By: V.PETERS on 19-DEC-19 @ 10:5(						
Matrix: WATER						
Volatile Organic Compounds						
Toluene	<0.50		0.50	ug/L	27-DEC-19	24
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
Surrogate: 4-Bromofluorobenzene	89.8		70-130	%	27-DEC-19	
Surrogate: 1,4-Difluorobenzene	91.0		70-130	%	27-DEC-19	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
F1-BTEX	<25		25	ug/L	30-DEC-19	750
F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
F2-Naphth	<100		100	ug/L	30-DEC-19	
F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
F3-PAH	<250		250	ug/L	30-DEC-19	
F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	
Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
Surrogate: 2-Bromobenzotrifluoride	99.2		60-140	%	24-DEC-19	
Surrogate: 3,4-Dichlorotoluene	73.9		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1
Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1
Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4
Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1
Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01
Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2
Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41
Fluorene	<0.020		0.020	ug/L	30-DEC-19	120
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2
1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11
Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1
Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1
Surrogate: d10-Acenaphthene	103.9		60-140	%	30-DEC-19	
Surrogate: d12-Chrysene	107.4		60-140	%	30-DEC-19	
Surrogate: d8-Naphthalene	98.0		60-140	%	30-DEC-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-10 MW108						
Sampled By: V.PETERS on 19-DEC-19 @ 10:5(						
Matrix: WATER						#1
Polycyclic Aromatic Hydrocarbons						
Surrogate: d10-Phenanthrene	104.6		60-140	%	30-DEC-19	
L2399298-11 MW109						
Sampled By: V.PETERS on 19-DEC-19 @ 08:45						
Matrix: WATER						#1
Physical Tests						
Conductivity	1.81		0.0030	mS/cm	21-DEC-19	
pH	8.22		0.10	pH units	21-DEC-19	
Anions and Nutrients						
Chloride (Cl)	459	DLHC	2.5	mg/L	27-DEC-19	790
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	38.9	DLHC	1.0	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
Boron (B)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	20-DEC-19	2.7
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	50
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8
Copper (Cu)-Dissolved	2.5	DLHC	2.0	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	4.47	DLHC	0.50	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	0.37	DLHC	0.10	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	2.05		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	<1.0		1.0	ug/L	27-DEC-19	2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-11	MW109						
Sampled By:	V.PETERS on 19-DEC-19 @ 08:45						
Matrix:	WATER						
Volatile Organic Compounds							
	1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
	Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
	1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
	1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
	1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
	1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
	Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
	n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
	Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
	Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
	MTBE	<2.0		2.0	ug/L	27-DEC-19	15
	Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
	Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	Toluene	<0.50		0.50	ug/L	27-DEC-19	24
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
	Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
	Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
	Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
	o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
	m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
	Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
	Surrogate: 4-Bromofluorobenzene	88.4		70-130	%	27-DEC-19	
	Surrogate: 1,4-Difluorobenzene	91.5		70-130	%	27-DEC-19	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
	F1-BTEX	<25		25	ug/L	30-DEC-19	750
	F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
	F2-Naphth	<100		100	ug/L	30-DEC-19	
	F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
	F3-PAH	<250		250	ug/L	30-DEC-19	
	F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	
	Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
	Surrogate: 2-Bromobenzotrifluoride	108.4		60-140	%	24-DEC-19	
	Surrogate: 3,4-Dichlorotoluene	76.6		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons							

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2399298-11	MW109									
Sampled By:	V.PETERS on 19-DEC-19 @ 08:45									
Matrix:	WATER						#1			
Polycyclic Aromatic Hydrocarbons										
	Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1			
	Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1			
	Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4			
	Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1			
	Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01			
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1			
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41			
	Fluorene	<0.020		0.020	ug/L	30-DEC-19	120			
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2			
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2			
	1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2			
	2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2			
	Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11			
	Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1			
	Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1			
	Surrogate: d10-Acenaphthene	107.0		60-140	%	30-DEC-19				
	Surrogate: d12-Chrysene	110.3		60-140	%	30-DEC-19				
	Surrogate: d8-Naphthalene	98.3		60-140	%	30-DEC-19				
	Surrogate: d10-Phenanthrene	106.4		60-140	%	30-DEC-19				
L2399298-12	MW110A									
Sampled By:	V.PETERS on 20-DEC-19 @ 08:55									
Matrix:	WATER						#1			
Dissolved Metals										
	Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19				
	Barium (Ba)-Dissolved	744	DLHC	10	ug/L	20-DEC-19	1000			
	Beryllium (Be)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	**4			
	Boron (B)-Dissolved	<1000	DLHC	1000	ug/L	20-DEC-19	5000			
	Cadmium (Cd)-Dissolved	1.50	DLHC	0.50	ug/L	20-DEC-19	2.7			
	Chromium (Cr)-Dissolved	<50	DLHC	50	ug/L	20-DEC-19	50			
	Cobalt (Co)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	**3.8			
	Copper (Cu)-Dissolved	<20	DLHC	20	ug/L	20-DEC-19	87			
	Lead (Pb)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	10			
	Molybdenum (Mo)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	70			
	Nickel (Ni)-Dissolved	<50	DLHC	50	ug/L	20-DEC-19	100			
	Silver (Ag)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	**1.5			
	Thallium (Tl)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	2			
	Uranium (U)-Dissolved	1.8	DLHC	1.0	ug/L	20-DEC-19	20			
	Vanadium (V)-Dissolved	<50	DLHC	50	ug/L	20-DEC-19	**6.2			
	Zinc (Zn)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	1100			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-13 MW110B						
Sampled By: V.PETERS on 20-DEC-19 @ 09:4(						
Matrix: WATER						#1
Dissolved Metals						
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	147	DLHC	1.0	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
Boron (B)-Dissolved	120	DLHC	100	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	0.109	DLHC	0.050	ug/L	20-DEC-19	2.7
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	50
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8
Copper (Cu)-Dissolved	4.9	DLHC	2.0	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
Molybdenum (Mo)-Dissolved	1.14	DLHC	0.50	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	1.40	DLHC	0.10	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
Zinc (Zn)-Dissolved	16	DLHC	10	ug/L	20-DEC-19	1100
L2399298-14 MW111						
Sampled By: V.PETERS on 19-DEC-19 @ 14:4(						
Matrix: WATER						#1
Dissolved Metals						
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	102	DLHC	1.0	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
Boron (B)-Dissolved	240	DLHC	100	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	20-DEC-19	2.7
Chromium (Cr)-Dissolved	9.3	DLHC	5.0	ug/L	20-DEC-19	50
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8
Copper (Cu)-Dissolved	5.3	DLHC	2.0	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
Molybdenum (Mo)-Dissolved	1.17	DLHC	0.50	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	1.84	DLHC	0.10	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	1100
L2399298-15 DUP1						
Sampled By: V.PETERS on 19-DEC-19						
Matrix: WATER						#1
Physical Tests						
Conductivity	1.82		0.0030	mS/cm	21-DEC-19	
pH	8.23		0.10	pH units	21-DEC-19	
Anions and Nutrients						

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-15 DUP1						
Sampled By: V.PETERS on 19-DEC-19						
Matrix: WATER						
Anions and Nutrients						
Chloride (Cl)	469	DLHC	2.5	mg/L	27-DEC-19	790
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	39.9	DLHC	1.0	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
Boron (B)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	<0.050	DLHC	0.050	ug/L	20-DEC-19	2.7
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	50
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8
Copper (Cu)-Dissolved	<2.0	DLHC	2.0	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	4.53	DLHC	0.50	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	0.38	DLHC	0.10	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	20-DEC-19	1100
Speciated Metals						
Chromium, Hexavalent	2.04		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	<1.0		1.0	ug/L	27-DEC-19	2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-15 DUP1						
Sampled By: V.PETERS on 19-DEC-19						
Matrix: WATER						
Volatile Organic Compounds						
1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
MTBE	<2.0		2.0	ug/L	27-DEC-19	15
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Toluene	<0.50		0.50	ug/L	27-DEC-19	24
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
Surrogate: 4-Bromofluorobenzene	88.8		70-130	%	27-DEC-19	
Surrogate: 1,4-Difluorobenzene	91.1		70-130	%	27-DEC-19	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
F1-BTEX	<25		25	ug/L	30-DEC-19	750
F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
F2-Naphth	<100		100	ug/L	30-DEC-19	
F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
F3-PAH	<250		250	ug/L	30-DEC-19	
F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	
Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
Surrogate: 2-Bromobenzotrifluoride	98.7		60-140	%	24-DEC-19	
Surrogate: 3,4-Dichlorotoluene	80.3		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1
Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1
Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4
Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1
Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01
Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-15 DUP1						
Sampled By: V.PETERS on 19-DEC-19						
Matrix: WATER						#1
Polycyclic Aromatic Hydrocarbons						
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2
Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41
Fluorene	<0.020		0.020	ug/L	30-DEC-19	120
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2
1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11
Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1
Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1
Surrogate: d10-Acenaphthene	105.7		60-140	%	30-DEC-19	
Surrogate: d12-Chrysene	108.3		60-140	%	30-DEC-19	
Surrogate: d8-Naphthalene	99.0		60-140	%	30-DEC-19	
Surrogate: d10-Phenanthrene	104.1		60-140	%	30-DEC-19	
L2399298-16 DUP2						
Sampled By: V.PETERS on 19-DEC-19						
Matrix: WATER						#1
Physical Tests						
Conductivity	8.20		0.0030	mS/cm	21-DEC-19	
pH	7.64		0.10	pH units	21-DEC-19	
Anions and Nutrients						
Chloride (Cl)	2920	DLHC	10	mg/L	27-DEC-19	*790
Cyanides						
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	20-DEC-19	66
Dissolved Metals						
Dissolved Mercury Filtration Location	FIELD			No Unit	23-DEC-19	
Dissolved Metals Filtration Location	FIELD			No Unit	20-DEC-19	
Barium (Ba)-Dissolved	215	DLHC	1.0	ug/L	20-DEC-19	1000
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	4
Boron (B)-Dissolved	<100	DLHC	100	ug/L	20-DEC-19	5000
Cadmium (Cd)-Dissolved	0.504	DLHC	0.050	ug/L	20-DEC-19	2.7
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	50
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	20-DEC-19	3.8
Copper (Cu)-Dissolved	3.3	DLHC	2.0	ug/L	20-DEC-19	87
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	10
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	23-DEC-19	0.29
Molybdenum (Mo)-Dissolved	2.69	DLHC	0.50	ug/L	20-DEC-19	70
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	100
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	20-DEC-19	1.5
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	20-DEC-19	2
Uranium (U)-Dissolved	0.92	DLHC	0.10	ug/L	20-DEC-19	20
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	20-DEC-19	6.2
Zinc (Zn)-Dissolved	17	DLHC	10	ug/L	20-DEC-19	1100
Speciated Metals						

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2399298-16 DUP2						
Sampled By: V.PETERS on 19-DEC-19						
Matrix: WATER						
Speciated Metals						
Chromium, Hexavalent	2.01		0.50	ug/L	23-DEC-19	25
Volatile Organic Compounds						
Acetone	<30		30	ug/L	27-DEC-19	2700
Benzene	<0.50		0.50	ug/L	27-DEC-19	5
Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16
Bromoform	<5.0		5.0	ug/L	27-DEC-19	25
Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79
Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30
Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25
Chloroform	5.7		1.0	ug/L	27-DEC-19	*2.4
1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3
1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59
1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1
Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590
1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5
1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6
1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50
1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5
Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4
n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51
Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800
Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640
MTBE	<2.0		2.0	ug/L	27-DEC-19	15
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Toluene	<0.50		0.50	ug/L	27-DEC-19	24
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5
o-Xylene	<0.30		0.30	ug/L	27-DEC-19	
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19	
Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300
Surrogate: 4-Bromofluorobenzene	89.1		70-130	%	27-DEC-19	
Surrogate: 1,4-Difluorobenzene	91.1		70-130	%	27-DEC-19	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2399298-16	DUP2						
Sampled By:	V.PETERS on 19-DEC-19						
Matrix:	WATER						#1
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	27-DEC-19	750
	F1-BTEX	<25		25	ug/L	30-DEC-19	750
	F2 (C10-C16)	<100		100	ug/L	24-DEC-19	150
	F2-Naphth	<100		100	ug/L	30-DEC-19	
	F3 (C16-C34)	<250		250	ug/L	24-DEC-19	500
	F3-PAH	<250		250	ug/L	30-DEC-19	
	F4 (C34-C50)	<250		250	ug/L	24-DEC-19	500
	Total Hydrocarbons (C6-C50)	<370		370	ug/L	30-DEC-19	
	Chrom. to baseline at nC50	YES			No Unit	24-DEC-19	
	Surrogate: 2-Bromobenzotrifluoride	101.6		60-140	%	24-DEC-19	
	Surrogate: 3,4-Dichlorotoluene	75.0		60-140	%	27-DEC-19	
Polycyclic Aromatic Hydrocarbons							
	Acenaphthene	<0.020		0.020	ug/L	30-DEC-19	4.1
	Acenaphthylene	<0.020		0.020	ug/L	30-DEC-19	1
	Anthracene	<0.020		0.020	ug/L	30-DEC-19	2.4
	Benzo(a)anthracene	<0.020		0.020	ug/L	30-DEC-19	1
	Benzo(a)pyrene	<0.010		0.010	ug/L	30-DEC-19	0.01
	Benzo(b)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
	Benzo(g,h,i)perylene	<0.020		0.020	ug/L	30-DEC-19	0.2
	Benzo(k)fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.1
	Chrysene	<0.020		0.020	ug/L	30-DEC-19	0.1
	Dibenzo(ah)anthracene	<0.020		0.020	ug/L	30-DEC-19	0.2
	Fluoranthene	<0.020		0.020	ug/L	30-DEC-19	0.41
	Fluorene	<0.020		0.020	ug/L	30-DEC-19	120
	Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	30-DEC-19	0.2
	1+2-Methylnaphthalenes	<0.028		0.028	ug/L	30-DEC-19	3.2
	1-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
	2-Methylnaphthalene	<0.020		0.020	ug/L	30-DEC-19	3.2
	Naphthalene	<0.050		0.050	ug/L	30-DEC-19	11
	Phenanthrene	<0.020		0.020	ug/L	30-DEC-19	1
	Pyrene	<0.020		0.020	ug/L	30-DEC-19	4.1
	Surrogate: d10-Acenaphthene	105.8		60-140	%	30-DEC-19	
	Surrogate: d12-Chrysene	113.5		60-140	%	30-DEC-19	
	Surrogate: d8-Naphthalene	95.4		60-140	%	30-DEC-19	
	Surrogate: d10-Phenanthrene	105.6		60-140	%	30-DEC-19	
L2399298-17	DUP3						
Sampled By:	V.PETERS on 20-DEC-19						
Matrix:	WATER						#1
Semi-Volatile Organics							
	Biphenyl	<0.40		0.40	ug/L	30-DEC-19	0.5
	4-Chloroaniline	<0.40		0.40	ug/L	30-DEC-19	10
	Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	30-DEC-19	5
	Bis(2-chloroisopropyl)ether	<0.40		0.40	ug/L	30-DEC-19	120
	3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	30-DEC-19	0.5
	Diethylphthalate	<0.20		0.20	ug/L	30-DEC-19	38

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2399298-17 DUP3										
Sampled By: V.PETERS on 20-DEC-19										
Matrix: WATER							#1			
Semi-Volatile Organics										
	Dimethylphthalate	<0.20		0.20	ug/L	30-DEC-19	38			
	2,4-Dimethylphenol	<0.50		0.50	ug/L	30-DEC-19	59			
	2,4-Dinitrophenol	<1.0		1.0	ug/L	30-DEC-19	10			
	2,4-Dinitrotoluene	<0.40		0.40	ug/L	30-DEC-19				
	2,6-Dinitrotoluene	<0.40		0.40	ug/L	30-DEC-19				
	2,4+2,6-Dinitrotoluene	<0.57		0.57	ug/L	30-DEC-19	5			
	Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	30-DEC-19	10			
	Phenol	<0.50		0.50	ug/L	30-DEC-19	890			
	1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	30-DEC-19	70			
	Surrogate: 2-Fluorobiphenyl	86.2		50-140	%	30-DEC-19				
	Surrogate: Nitrobenzene d5	86.7		50-140	%	30-DEC-19				
	Surrogate: p-Terphenyl d14	103.1		60-140	%	30-DEC-19				
	Surrogate: 2,4,6-Tribromophenol	97.1		50-140	%	30-DEC-19				
L2399298-18 TRIP BLANK										
Sampled By: V.PETERS on 19-DEC-19										
Matrix: WATER							#1			
Volatile Organic Compounds										
	Acetone	<30		30	ug/L	27-DEC-19	2700			
	Benzene	<0.50		0.50	ug/L	27-DEC-19	5			
	Bromodichloromethane	<2.0		2.0	ug/L	27-DEC-19	16			
	Bromoform	<5.0		5.0	ug/L	27-DEC-19	25			
	Bromomethane	<0.50		0.50	ug/L	27-DEC-19	0.89			
	Carbon tetrachloride	<0.20		0.20	ug/L	27-DEC-19	0.79			
	Chlorobenzene	<0.50		0.50	ug/L	27-DEC-19	30			
	Dibromochloromethane	<2.0		2.0	ug/L	27-DEC-19	25			
	Chloroform	<1.0		1.0	ug/L	27-DEC-19	2.4			
	1,2-Dibromoethane	<0.20		0.20	ug/L	27-DEC-19	0.2			
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	3			
	1,3-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	59			
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	27-DEC-19	1			
	Dichlorodifluoromethane	<2.0		2.0	ug/L	27-DEC-19	590			
	1,1-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	5			
	1,2-Dichloroethane	<0.50		0.50	ug/L	27-DEC-19	1.6			
	1,1-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6			
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6			
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6			
	Methylene Chloride	<5.0		5.0	ug/L	27-DEC-19	50			
	1,2-Dichloropropane	<0.50		0.50	ug/L	27-DEC-19	5			
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19				
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	27-DEC-19				
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	27-DEC-19	0.5			
	Ethylbenzene	<0.50		0.50	ug/L	27-DEC-19	2.4			
	n-Hexane	<0.50		0.50	ug/L	27-DEC-19	51			
	Methyl Ethyl Ketone	<20		20	ug/L	27-DEC-19	1800			
	Methyl Isobutyl Ketone	<20		20	ug/L	27-DEC-19	640			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1			
L2399298-18 TRIP BLANK Sampled By: V.PETERS on 19-DEC-19 Matrix: WATER									
Volatile Organic Compounds									
MTBE	<2.0		2.0	ug/L	27-DEC-19	15			
Styrene	<0.50		0.50	ug/L	27-DEC-19	5.4			
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1.1			
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	27-DEC-19	1			
Tetrachloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6			
Toluene	<0.50		0.50	ug/L	27-DEC-19	24			
1,1,1-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	200			
1,1,2-Trichloroethane	<0.50		0.50	ug/L	27-DEC-19	4.7			
Trichloroethylene	<0.50		0.50	ug/L	27-DEC-19	1.6			
Trichlorofluoromethane	<5.0		5.0	ug/L	27-DEC-19	150			
Vinyl chloride	<0.50		0.50	ug/L	27-DEC-19	0.5			
o-Xylene	<0.30		0.30	ug/L	27-DEC-19				
m+p-Xylenes	<0.40		0.40	ug/L	27-DEC-19				
Xylenes (Total)	<0.50		0.50	ug/L	27-DEC-19	300			
Surrogate: 4-Bromofluorobenzene	88.3		70-130	%	27-DEC-19				
Surrogate: 1,4-Difluorobenzene	90.8		70-130	%	27-DEC-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T2-Ground Water (Coarse Soil)-All Types of Property Use

#1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
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***
625-511-WT	Water	ABN,CP,PAH-O.Reg 153/04	SW846 8270 (511)

Ground water sample extraction is carried out at a pH <2 (acid extractables) and pH>11 (base neutral extractables). Extracts are dried, concentrated and exchanged into a solvent compatible with the cleanup. Analysis is by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

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).

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).

DINITROTOL-CALC-WT	Water	ABN-Calculated Parameters	SW846 8270
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).

EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

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.
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

F1-HS-511-WT	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).

F2-F4-511-WT	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).

HG-D-UG/L-CVAA-WT	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).

MET-D-UG/L-MS-WT	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).

METHYLNAPS-CALC-WT	Water	PAH-Calculated Parameters	SW846 8270
PAH-511-WT	Water	PAH-O. Reg 153/04 (July 2011)	SW846 3510/8270

Aqueous samples, fortified with surrogates, are extracted using liquid/liquid extraction technique. The sample extracts are concentrated and then analyzed using GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	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

VOC-1,3-DCP-CALC-WT	Water	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	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).

XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION

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:

17-723815

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:

Reference Information

Laboratory Definition Code	Laboratory Location	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: L2399298 Report Date: 20-JAN-20

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Water**							
Batch R4957588								
WG3248749-2 LCS								
1,2,4-Trichlorobenzene			70.1		%		50-140	30-DEC-19
2,4-Dimethylphenol			85.1		%		30-130	30-DEC-19
2,4-Dinitrophenol			125.1		%		50-140	30-DEC-19
2,4-Dinitrotoluene			116.1		%		50-140	30-DEC-19
2,6-Dinitrotoluene			118.9		%		50-140	30-DEC-19
3,3'-Dichlorobenzidine			58.9		%		30-130	30-DEC-19
4-Chloroaniline			40.9		%		30-130	30-DEC-19
Biphenyl			99.1		%		50-140	30-DEC-19
Bis(2-chloroethyl)ether			107.4		%		50-140	30-DEC-19
Bis(2-chloroisopropyl)ether			102.9		%		50-140	30-DEC-19
Bis(2-ethylhexyl)phthalate			120.1		%		50-140	30-DEC-19
Diethylphthalate			115.5		%		50-140	30-DEC-19
Dimethylphthalate			112.1		%		50-140	30-DEC-19
Phenol			111.7		%		30-130	30-DEC-19
WG3248749-1 MB								
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	30-DEC-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	30-DEC-19
2,4-Dinitrophenol			<1.0		ug/L		1	30-DEC-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	30-DEC-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	30-DEC-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	30-DEC-19
4-Chloroaniline			<0.40		ug/L		0.4	30-DEC-19
Biphenyl			<0.40		ug/L		0.4	30-DEC-19
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	30-DEC-19
Bis(2-chloroisopropyl)ether			<0.40		ug/L		0.4	30-DEC-19
Bis(2-ethylhexyl)phthalate			<2.0		ug/L		2	30-DEC-19
Diethylphthalate			<0.20		ug/L		0.2	30-DEC-19
Dimethylphthalate			<0.20		ug/L		0.2	30-DEC-19
Phenol			<0.50		ug/L		0.5	30-DEC-19
Surrogate: 2-Fluorobiphenyl			82.7		%		50-140	30-DEC-19
Surrogate: 2,4,6-Tribromophenol			88.5		%		50-140	30-DEC-19
Surrogate: Nitrobenzene d5			86.8		%		50-140	30-DEC-19
Surrogate: p-Terphenyl d14			103.6		%		60-140	30-DEC-19
CL-IC-N-WT	**Water**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R4957584								
WG3249775-3 DUP		**L2399174-2**						
Chloride (Cl)		110	110		mg/L	0.1	20	27-DEC-19
WG3249775-2 LCS								
Chloride (Cl)			103.2		%		90-110	27-DEC-19
WG3249775-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	27-DEC-19
WG3249775-4 MS		**L2399174-2**						
Chloride (Cl)			N/A	MS-B	%		-	27-DEC-19
CN-WAD-R511-WT	**Water**							
Batch R4952090								
WG3247351-8 DUP		**L2399298-10**						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	20-DEC-19
WG3247351-6 LCS								
Cyanide, Weak Acid Diss			94.8		%		80-120	20-DEC-19
WG3247351-5 MB								
Cyanide, Weak Acid Diss			<2.0		ug/L		2	20-DEC-19
WG3247351-7 MS		**L2399298-10**						
Cyanide, Weak Acid Diss			90.3		%		75-125	20-DEC-19
CR-CR6-IC-R511-WT	**Water**							
Batch R4953948								
WG3248687-4 DUP		**WG3248687-3**						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	23-DEC-19
WG3248687-2 LCS								
Chromium, Hexavalent			99.9		%		80-120	23-DEC-19
WG3248687-1 MB								
Chromium, Hexavalent			<0.50		ug/L		0.5	23-DEC-19
WG3248687-5 MS		**WG3248687-3**						
Chromium, Hexavalent			100.8		%		70-130	23-DEC-19
EC-R511-WT	**Water**							
Batch R4952970								
WG3247929-4 DUP		**WG3247929-3**						
Conductivity		0.663	0.662		mS/cm	0.2	10	21-DEC-19
WG3247929-2 LCS								
Conductivity			99.0		%		90-110	21-DEC-19
WG3247929-1 MB								
Conductivity			<0.0030		mS/cm		0.003	21-DEC-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-R511-WT	**Water**							
Batch R4953069								
WG3247931-4 DUP		**WG3247931-3**						
Conductivity		23.0	22.8		mS/cm	0.9	10	21-DEC-19
WG3247931-2 LCS								
Conductivity			99.3		%		90-110	21-DEC-19
WG3247931-1 MB								
Conductivity			<0.0030		mS/cm		0.003	21-DEC-19
F1-HS-511-WT	**Water**							
Batch R4955031								
WG3249431-4 DUP		**WG3249431-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	27-DEC-19
WG3249431-1 LCS								
F1 (C6-C10)			92.2		%		80-120	27-DEC-19
WG3249431-2 MB								
F1 (C6-C10)			<25		ug/L		25	27-DEC-19
Surrogate: 3,4-Dichlorotoluene			87.6		%		60-140	27-DEC-19
WG3249431-5 MS		**WG3249431-3**						
F1 (C6-C10)			87.4		%		60-140	27-DEC-19
F2-F4-511-WT	**Water**							
Batch R4955251								
WG3248379-2 LCS								
F2 (C10-C16)			103.0		%		70-130	24-DEC-19
F3 (C16-C34)			107.2		%		70-130	24-DEC-19
F4 (C34-C50)			107.4		%		70-130	24-DEC-19
WG3248379-1 MB								
F2 (C10-C16)			<100		ug/L		100	24-DEC-19
F3 (C16-C34)			<250		ug/L		250	24-DEC-19
F4 (C34-C50)			<250		ug/L		250	24-DEC-19
Surrogate: 2-Bromobenzotrifluoride			94.2		%		60-140	24-DEC-19
HG-D-UG/L-CVAA-WT	**Water**							
Batch R4952963								
WG3248554-4 DUP		**WG3248554-3**						
Mercury (Hg)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	23-DEC-19
WG3248554-2 LCS								
Mercury (Hg)-Dissolved			106.0		%		80-120	23-DEC-19
WG3248554-1 MB								
Mercury (Hg)-Dissolved			<0.0050		ug/L		0.005	23-DEC-19
WG3248554-6 MS		**WG3248554-5**						

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-D-UG/L-CVAA-WT	**Water**							
Batch R4952963								
WG3248554-6 MS		**WG3248554-5**						
Mercury (Hg)-Dissolved			101.8		%		70-130	23-DEC-19
MET-D-UG/L-MS-WT	**Water**							
Batch R4952030								
WG3247784-4 DUP		**WG3247784-3**						
Barium (Ba)-Dissolved		392	385		ug/L	1.7	20	23-DEC-19
Beryllium (Be)-Dissolved		<10	<10	RPD-NA	ug/L	N/A	20	23-DEC-19
Boron (B)-Dissolved		<1000	<1000	RPD-NA	ug/L	N/A	20	23-DEC-19
Cadmium (Cd)-Dissolved		0.72	0.63		ug/L	13	20	23-DEC-19
Chromium (Cr)-Dissolved		<50	<50	RPD-NA	ug/L	N/A	20	23-DEC-19
Cobalt (Co)-Dissolved		<10	<10	RPD-NA	ug/L	N/A	20	23-DEC-19
Copper (Cu)-Dissolved		<20	<20	RPD-NA	ug/L	N/A	20	23-DEC-19
Lead (Pb)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	23-DEC-19
Molybdenum (Mo)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	23-DEC-19
Nickel (Ni)-Dissolved		<50	<50	RPD-NA	ug/L	N/A	20	23-DEC-19
Silver (Ag)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	23-DEC-19
Thallium (Tl)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	23-DEC-19
Uranium (U)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	23-DEC-19
Vanadium (V)-Dissolved		<50	<50	RPD-NA	ug/L	N/A	20	23-DEC-19
Zinc (Zn)-Dissolved		<100	<100	RPD-NA	ug/L	N/A	20	23-DEC-19
WG3247784-2 LCS								
Barium (Ba)-Dissolved			106.2		%		80-120	20-DEC-19
Beryllium (Be)-Dissolved			104.9		%		80-120	20-DEC-19
Boron (B)-Dissolved			100.9		%		80-120	20-DEC-19
Cadmium (Cd)-Dissolved			101.5		%		80-120	20-DEC-19
Chromium (Cr)-Dissolved			105.3		%		80-120	20-DEC-19
Cobalt (Co)-Dissolved			104.1		%		80-120	20-DEC-19
Copper (Cu)-Dissolved			102.7		%		80-120	20-DEC-19
Lead (Pb)-Dissolved			103.6		%		80-120	20-DEC-19
Molybdenum (Mo)-Dissolved			105.4		%		80-120	20-DEC-19
Nickel (Ni)-Dissolved			103.7		%		80-120	20-DEC-19
Silver (Ag)-Dissolved			105.0		%		80-120	20-DEC-19
Thallium (Tl)-Dissolved			102.6		%		80-120	20-DEC-19
Uranium (U)-Dissolved			100.9		%		80-120	20-DEC-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4952030								
WG3247784-2 LCS								
Vanadium (V)-Dissolved			107.2		%		80-120	20-DEC-19
Zinc (Zn)-Dissolved			102.1		%		80-120	20-DEC-19
WG3247784-1 MB								
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	20-DEC-19
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	20-DEC-19
Boron (B)-Dissolved			<10		ug/L		10	20-DEC-19
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	20-DEC-19
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	20-DEC-19
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	20-DEC-19
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	20-DEC-19
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	20-DEC-19
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	20-DEC-19
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	20-DEC-19
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	20-DEC-19
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	20-DEC-19
Uranium (U)-Dissolved			<0.010		ug/L		0.01	20-DEC-19
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	20-DEC-19
Zinc (Zn)-Dissolved			<1.0		ug/L		1	20-DEC-19
WG3247784-5 MS		**WG3247784-6**						
Barium (Ba)-Dissolved			N/A	MS-B	%		-	20-DEC-19
Beryllium (Be)-Dissolved			98.1		%		70-130	20-DEC-19
Cadmium (Cd)-Dissolved			91.2		%		70-130	20-DEC-19
Chromium (Cr)-Dissolved			93.2		%		70-130	20-DEC-19
Cobalt (Co)-Dissolved			94.0		%		70-130	20-DEC-19
Copper (Cu)-Dissolved			75.5		%		70-130	20-DEC-19
Lead (Pb)-Dissolved			91.2		%		70-130	20-DEC-19
Molybdenum (Mo)-Dissolved			83.1		%		70-130	20-DEC-19
Nickel (Ni)-Dissolved			90.6		%		70-130	20-DEC-19
Silver (Ag)-Dissolved			92.2		%		70-130	20-DEC-19
Thallium (Tl)-Dissolved			89.9		%		70-130	20-DEC-19
Uranium (U)-Dissolved			N/A	MS-B	%		-	20-DEC-19
Vanadium (V)-Dissolved			98.7		%		70-130	20-DEC-19
Zinc (Zn)-Dissolved			73.5		%		70-130	20-DEC-19
PAH-511-WT	**Water**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4957468								
WG3248379-2 LCS								
1-Methylnaphthalene			56.0		%		50-140	30-DEC-19
2-Methylnaphthalene			52.1		%		50-140	30-DEC-19
Acenaphthene			60.0		%		50-140	30-DEC-19
Acenaphthylene			61.6		%		50-140	30-DEC-19
Anthracene			60.5		%		50-140	30-DEC-19
Benzo(a)anthracene			68.7		%		50-140	30-DEC-19
Benzo(a)pyrene			58.4		%		50-140	30-DEC-19
Benzo(b)fluoranthene			55.0		%		50-140	30-DEC-19
Benzo(g,h,i)perylene			63.0		%		50-140	30-DEC-19
Benzo(k)fluoranthene			62.1		%		50-140	30-DEC-19
Chrysene			70.4		%		50-140	30-DEC-19
Dibenzo(ah)anthracene			59.3		%		50-140	30-DEC-19
Fluoranthene			61.8		%		50-140	30-DEC-19
Fluorene			61.7		%		50-140	30-DEC-19
Indeno(1,2,3-cd)pyrene			66.4		%		50-140	30-DEC-19
Naphthalene			55.6		%		50-140	30-DEC-19
Phenanthrene			62.4		%		50-140	30-DEC-19
Pyrene			63.3		%		50-140	30-DEC-19
WG3248379-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	30-DEC-19
2-Methylnaphthalene			<0.020		ug/L		0.02	30-DEC-19
Acenaphthene			<0.020		ug/L		0.02	30-DEC-19
Acenaphthylene			<0.020		ug/L		0.02	30-DEC-19
Anthracene			<0.020		ug/L		0.02	30-DEC-19
Benzo(a)anthracene			<0.020		ug/L		0.02	30-DEC-19
Benzo(a)pyrene			<0.010		ug/L		0.01	30-DEC-19
Benzo(b)fluoranthene			<0.020		ug/L		0.02	30-DEC-19
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	30-DEC-19
Benzo(k)fluoranthene			<0.020		ug/L		0.02	30-DEC-19
Chrysene			<0.020		ug/L		0.02	30-DEC-19
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	30-DEC-19
Fluoranthene			<0.020		ug/L		0.02	30-DEC-19
Fluorene			<0.020		ug/L		0.02	30-DEC-19
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	30-DEC-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4957468								
WG3248379-1 MB								
Naphthalene			<0.050		ug/L		0.05	30-DEC-19
Phenanthrene			<0.020		ug/L		0.02	30-DEC-19
Pyrene			<0.020		ug/L		0.02	30-DEC-19
Surrogate: d8-Naphthalene			100.2		%		60-140	30-DEC-19
Surrogate: d10-Phenanthrene			109.1		%		60-140	30-DEC-19
Surrogate: d12-Chrysene			114.1		%		60-140	30-DEC-19
Surrogate: d10-Acenaphthene			105.7		%		60-140	30-DEC-19
PH-WT	**Water**							
Batch R4952970								
WG3247929-4 DUP		**WG3247929-3**						
pH		8.04	7.99	J	pH units	0.05	0.2	21-DEC-19
WG3247929-2 LCS								
pH			7.02		pH units		6.9-7.1	21-DEC-19
Batch R4953331								
WG3248895-4 DUP		**WG3248895-3**						
pH		7.82	7.87	J	pH units	0.05	0.2	23-DEC-19
WG3248895-2 LCS								
pH			7.03		pH units		6.9-7.1	23-DEC-19
Batch R4953333								
WG3248934-4 DUP		**WG3248934-3**						
pH		7.47	7.47	J	pH units	0.00	0.2	23-DEC-19
WG3248934-2 LCS								
pH			7.03		pH units		6.9-7.1	23-DEC-19
VOC-511-HS-WT	**Water**							
Batch R4955031								
WG3249431-4 DUP		**WG3249431-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	27-DEC-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,2-Dichloroethane		<0.50	<0.50					

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4955031								
WG3249431-4 DUP		**WG3249431-3**						
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	27-DEC-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	27-DEC-19
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	27-DEC-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	27-DEC-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
Chloroform		7.8	7.6		ug/L	2.2	30	27-DEC-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	27-DEC-19
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	27-DEC-19
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	27-DEC-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	27-DEC-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	27-DEC-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	27-DEC-19
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	27-DEC-19
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	27-DEC-19
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	27-DEC-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	27-DEC-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	27-DEC-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	27-DEC-19
WG3249431-1 LCS								

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4955031								
WG3249431-1 LCS								
1,1,1,2-Tetrachloroethane			85.9		%		70-130	27-DEC-19
1,1,2,2-Tetrachloroethane			81.1		%		70-130	27-DEC-19
1,1,1-Trichloroethane			90.1		%		70-130	27-DEC-19
1,1,2-Trichloroethane			83.4		%		70-130	27-DEC-19
1,1-Dichloroethane			89.9		%		70-130	27-DEC-19
1,1-Dichloroethylene			88.8		%		70-130	27-DEC-19
1,2-Dibromoethane			80.4		%		70-130	27-DEC-19
1,2-Dichlorobenzene			87.0		%		70-130	27-DEC-19
1,2-Dichloroethane			84.2		%		70-130	27-DEC-19
1,2-Dichloropropane			89.0		%		70-130	27-DEC-19
1,3-Dichlorobenzene			88.1		%		70-130	27-DEC-19
1,4-Dichlorobenzene			87.5		%		70-130	27-DEC-19
Acetone			86.5		%		60-140	27-DEC-19
Benzene			92.7		%		70-130	27-DEC-19
Bromodichloromethane			86.3		%		70-130	27-DEC-19
Bromoform			80.7		%		70-130	27-DEC-19
Bromomethane			82.5		%		60-140	27-DEC-19
Carbon tetrachloride			90.9		%		70-130	27-DEC-19
Chlorobenzene			87.1		%		70-130	27-DEC-19
Chloroform			90.0		%		70-130	27-DEC-19
cis-1,2-Dichloroethylene			85.2		%		70-130	27-DEC-19
cis-1,3-Dichloropropene			82.0		%		70-130	27-DEC-19
Dibromochloromethane			82.6		%		70-130	27-DEC-19
Dichlorodifluoromethane			101.9		%		50-140	27-DEC-19
Ethylbenzene			84.4		%		70-130	27-DEC-19
n-Hexane			88.4		%		70-130	27-DEC-19
m+p-Xylenes			86.5		%		70-130	27-DEC-19
Methyl Ethyl Ketone			78.8		%		60-140	27-DEC-19
Methyl Isobutyl Ketone			69.6		%		60-140	27-DEC-19
Methylene Chloride			87.4		%		70-130	27-DEC-19
MTBE			86.4		%		70-130	27-DEC-19
o-Xylene			82.3		%		70-130	27-DEC-19
Styrene			80.3		%		70-130	27-DEC-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4955031								
WG3249431-1 LCS								
Tetrachloroethylene			88.1		%		70-130	27-DEC-19
Toluene			87.3		%		70-130	27-DEC-19
trans-1,2-Dichloroethylene			87.0		%		70-130	27-DEC-19
trans-1,3-Dichloropropene			78.7		%		70-130	27-DEC-19
Trichloroethylene			87.9		%		70-130	27-DEC-19
Trichlorofluoromethane			92.3		%		60-140	27-DEC-19
Vinyl chloride			104.9		%		60-140	27-DEC-19
WG3249431-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	27-DEC-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	27-DEC-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	27-DEC-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	27-DEC-19
1,1-Dichloroethane			<0.50		ug/L		0.5	27-DEC-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	27-DEC-19
1,2-Dibromoethane			<0.20		ug/L		0.2	27-DEC-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	27-DEC-19
1,2-Dichloroethane			<0.50		ug/L		0.5	27-DEC-19
1,2-Dichloropropane			<0.50		ug/L		0.5	27-DEC-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	27-DEC-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	27-DEC-19
Acetone			<30		ug/L		30	27-DEC-19
Benzene			<0.50		ug/L		0.5	27-DEC-19
Bromodichloromethane			<2.0		ug/L		2	27-DEC-19
Bromoform			<5.0		ug/L		5	27-DEC-19
Bromomethane			<0.50		ug/L		0.5	27-DEC-19
Carbon tetrachloride			<0.20		ug/L		0.2	27-DEC-19
Chlorobenzene			<0.50		ug/L		0.5	27-DEC-19
Chloroform			<1.0		ug/L		1	27-DEC-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	27-DEC-19
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	27-DEC-19
Dibromochloromethane			<2.0		ug/L		2	27-DEC-19
Dichlorodifluoromethane			<2.0		ug/L		2	27-DEC-19
Ethylbenzene			<0.50		ug/L		0.5	27-DEC-19
n-Hexane			<0.50		ug/L		0.5	27-DEC-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4955031								
WG3249431-2 MB								
m+p-Xylenes			<0.40		ug/L		0.4	27-DEC-19
Methyl Ethyl Ketone			<20		ug/L		20	27-DEC-19
Methyl Isobutyl Ketone			<20		ug/L		20	27-DEC-19
Methylene Chloride			<5.0		ug/L		5	27-DEC-19
MTBE			<2.0		ug/L		2	27-DEC-19
o-Xylene			<0.30		ug/L		0.3	27-DEC-19
Styrene			<0.50		ug/L		0.5	27-DEC-19
Tetrachloroethylene			<0.50		ug/L		0.5	27-DEC-19
Toluene			<0.50		ug/L		0.5	27-DEC-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	27-DEC-19
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	27-DEC-19
Trichloroethylene			<0.50		ug/L		0.5	27-DEC-19
Trichlorofluoromethane			<5.0		ug/L		5	27-DEC-19
Vinyl chloride			<0.50		ug/L		0.5	27-DEC-19
Surrogate: 1,4-Difluorobenzene			91.5		%		70-130	27-DEC-19
Surrogate: 4-Bromofluorobenzene			89.7		%		70-130	27-DEC-19
WG3249431-5 MS		**WG3249431-3**						
1,1,1,2-Tetrachloroethane			87.2		%		50-140	27-DEC-19
1,1,2,2-Tetrachloroethane			81.8		%		50-140	27-DEC-19
1,1,1-Trichloroethane			90.3		%		50-140	27-DEC-19
1,1,2-Trichloroethane			83.3		%		50-140	27-DEC-19
1,1-Dichloroethane			93.6		%		50-140	27-DEC-19
1,1-Dichloroethylene			83.8		%		50-140	27-DEC-19
1,2-Dibromoethane			79.7		%		50-140	27-DEC-19
1,2-Dichlorobenzene			87.4		%		50-140	27-DEC-19
1,2-Dichloroethane			83.7		%		50-140	27-DEC-19
1,2-Dichloropropane			90.0		%		50-140	27-DEC-19
1,3-Dichlorobenzene			87.7		%		50-140	27-DEC-19
1,4-Dichlorobenzene			86.8		%		50-140	27-DEC-19
Acetone			85.9		%		50-140	27-DEC-19
Benzene			92.5		%		50-140	27-DEC-19
Bromodichloromethane			88.0		%		50-140	27-DEC-19
Bromoform			80.4		%		50-140	27-DEC-19
Bromomethane			72.7		%		50-140	27-DEC-19

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4955031								
WG3249431-5 MS		**WG3249431-3**						
Carbon tetrachloride			90.1		%		50-140	27-DEC-19
Chlorobenzene			87.1		%		50-140	27-DEC-19
Chloroform			90.7		%		50-140	27-DEC-19
cis-1,2-Dichloroethylene			82.9		%		50-140	27-DEC-19
cis-1,3-Dichloropropene			78.2		%		50-140	27-DEC-19
Dibromochloromethane			82.4		%		50-140	27-DEC-19
Dichlorodifluoromethane			77.3		%		50-140	27-DEC-19
Ethylbenzene			84.0		%		50-140	27-DEC-19
n-Hexane			81.9		%		50-140	27-DEC-19
m+p-Xylenes			86.6		%		50-140	27-DEC-19
Methyl Ethyl Ketone			72.2		%		50-140	27-DEC-19
Methyl Isobutyl Ketone			69.1		%		50-140	27-DEC-19
Methylene Chloride			86.7		%		50-140	27-DEC-19
MTBE			87.5		%		50-140	27-DEC-19
o-Xylene			82.3		%		50-140	27-DEC-19
Styrene			79.7		%		50-140	27-DEC-19
Tetrachloroethylene			86.8		%		50-140	27-DEC-19
Toluene			86.5		%		50-140	27-DEC-19
trans-1,2-Dichloroethylene			83.3		%		50-140	27-DEC-19
trans-1,3-Dichloropropene			73.4		%		50-140	27-DEC-19
Trichloroethylene			87.4		%		50-140	27-DEC-19
Trichlorofluoromethane			85.0		%		50-140	27-DEC-19
Vinyl chloride			89.7		%		50-140	27-DEC-19

Quality Control Report

Workorder: L2399298 Report Date: 20-JAN-20

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

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.
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.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

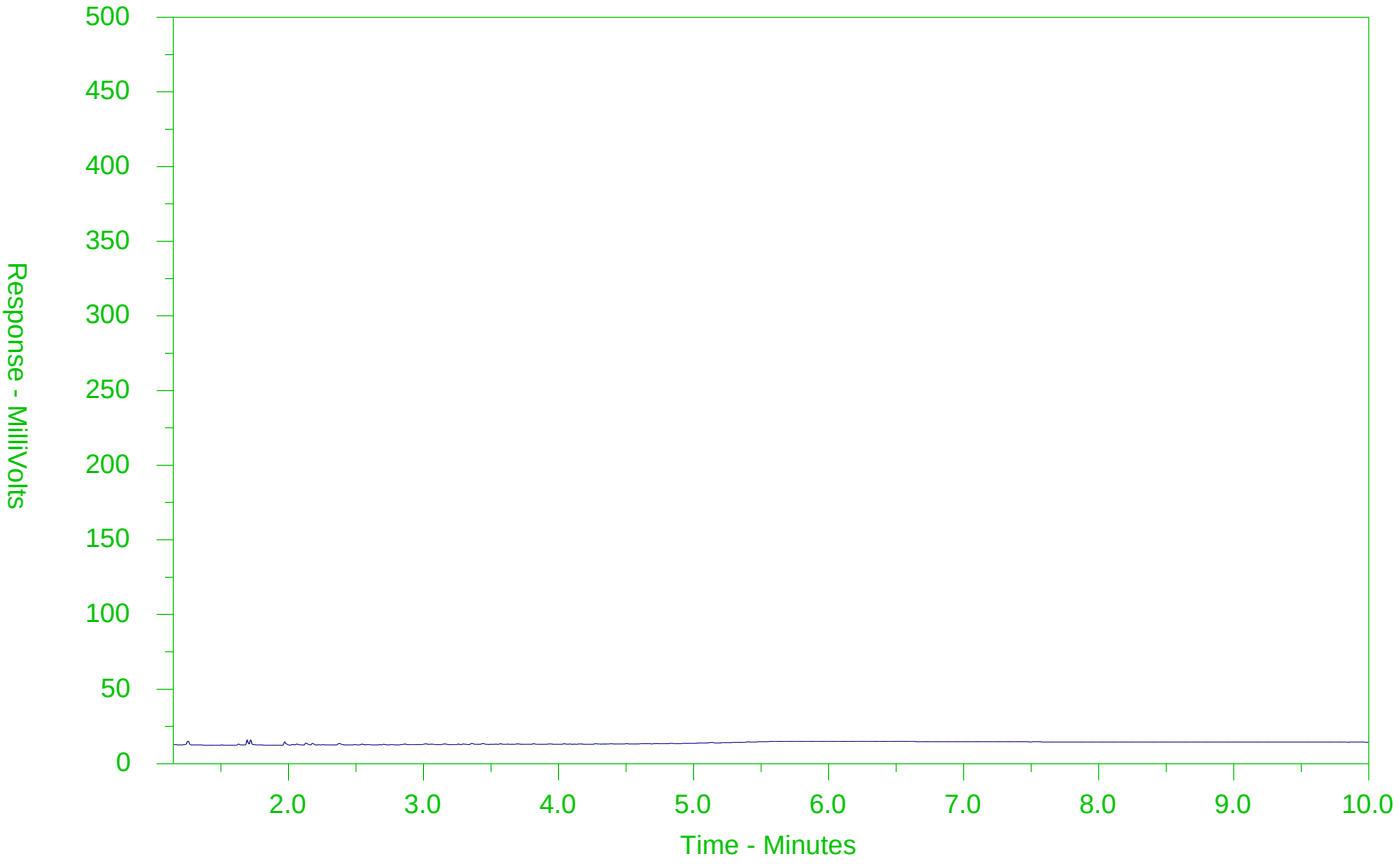
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2399298-1
Client Sample ID: MW100



←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.

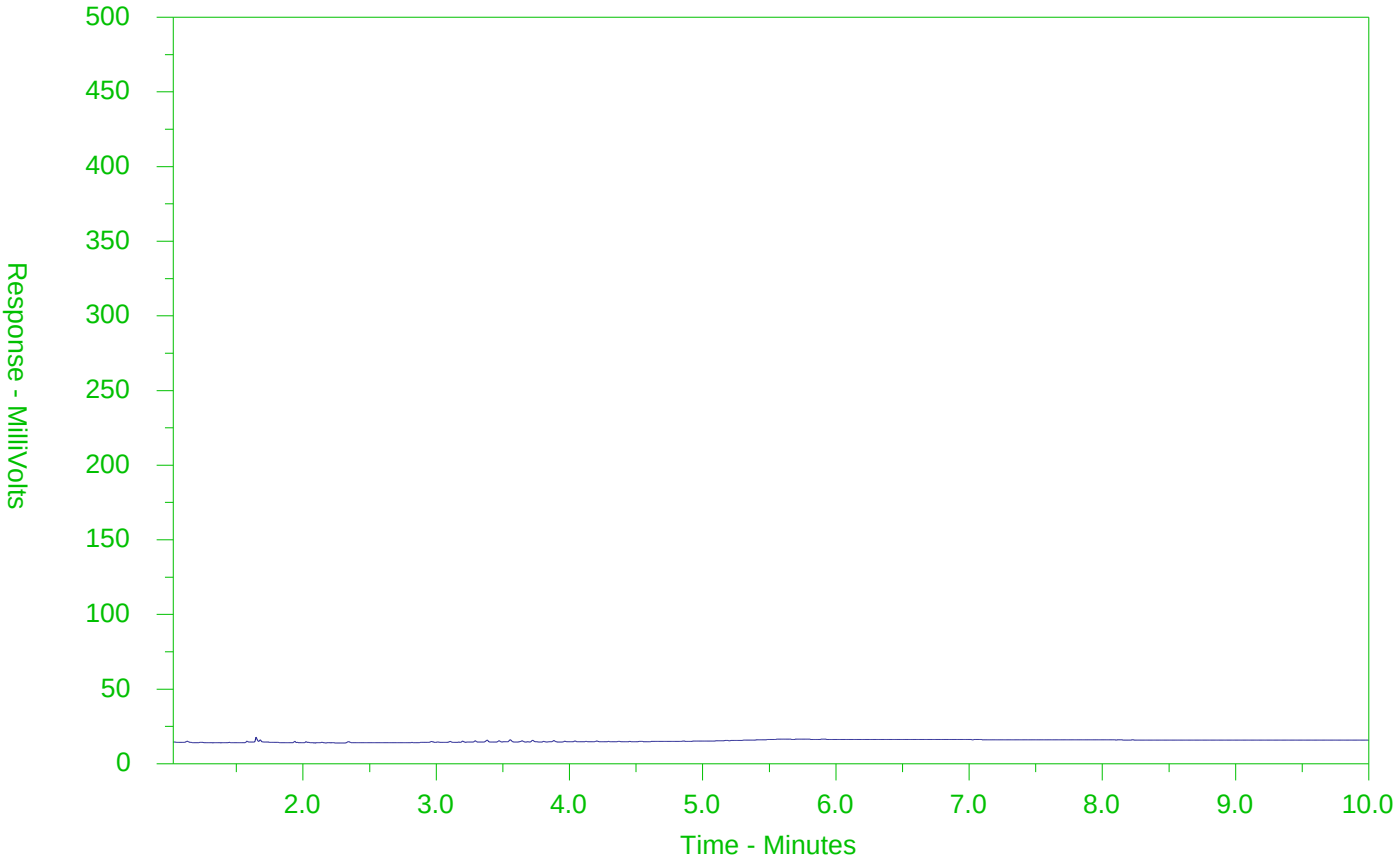
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-2
Client Sample ID: MW101



←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.

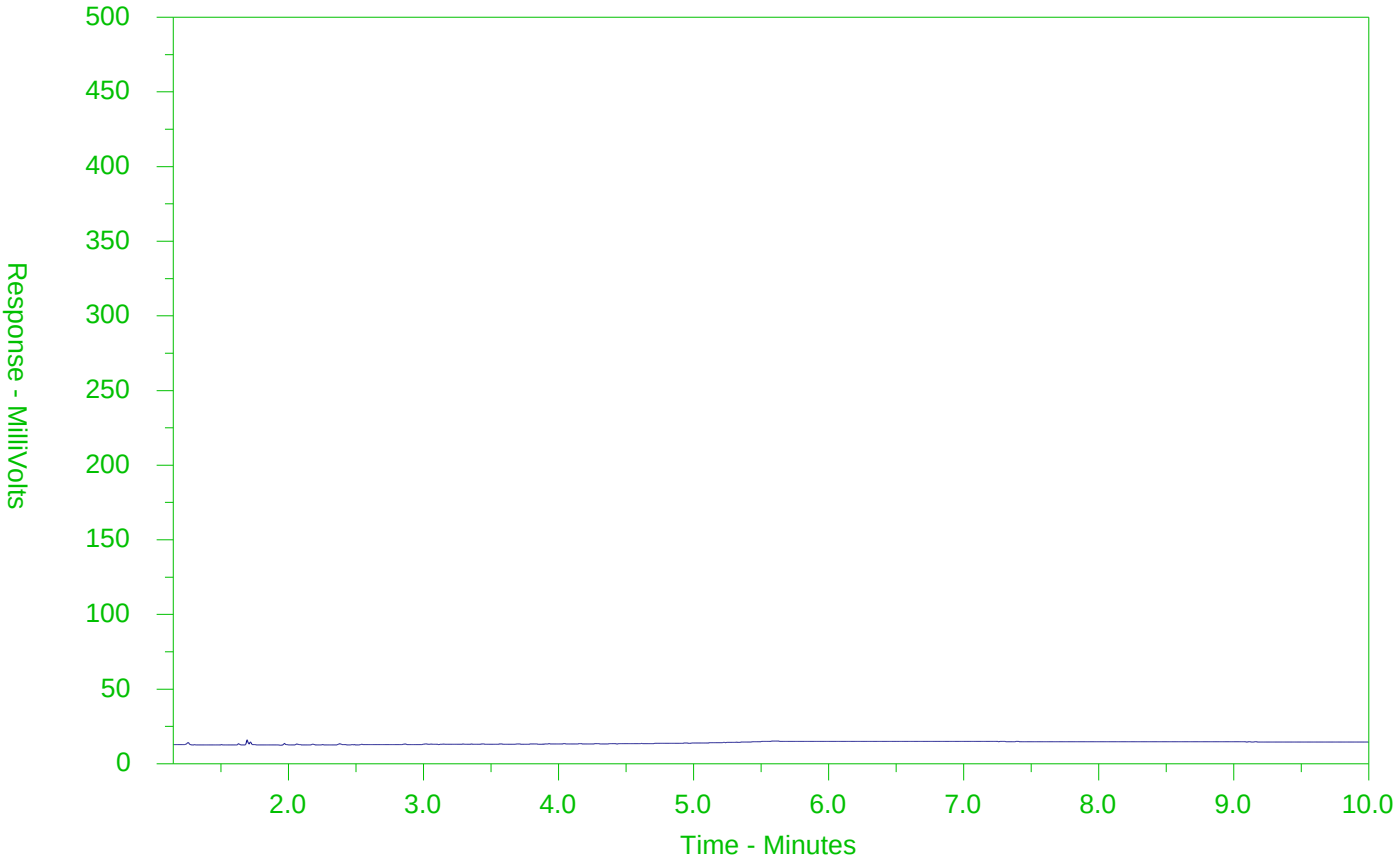
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-3
Client Sample ID: MW102A



←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.

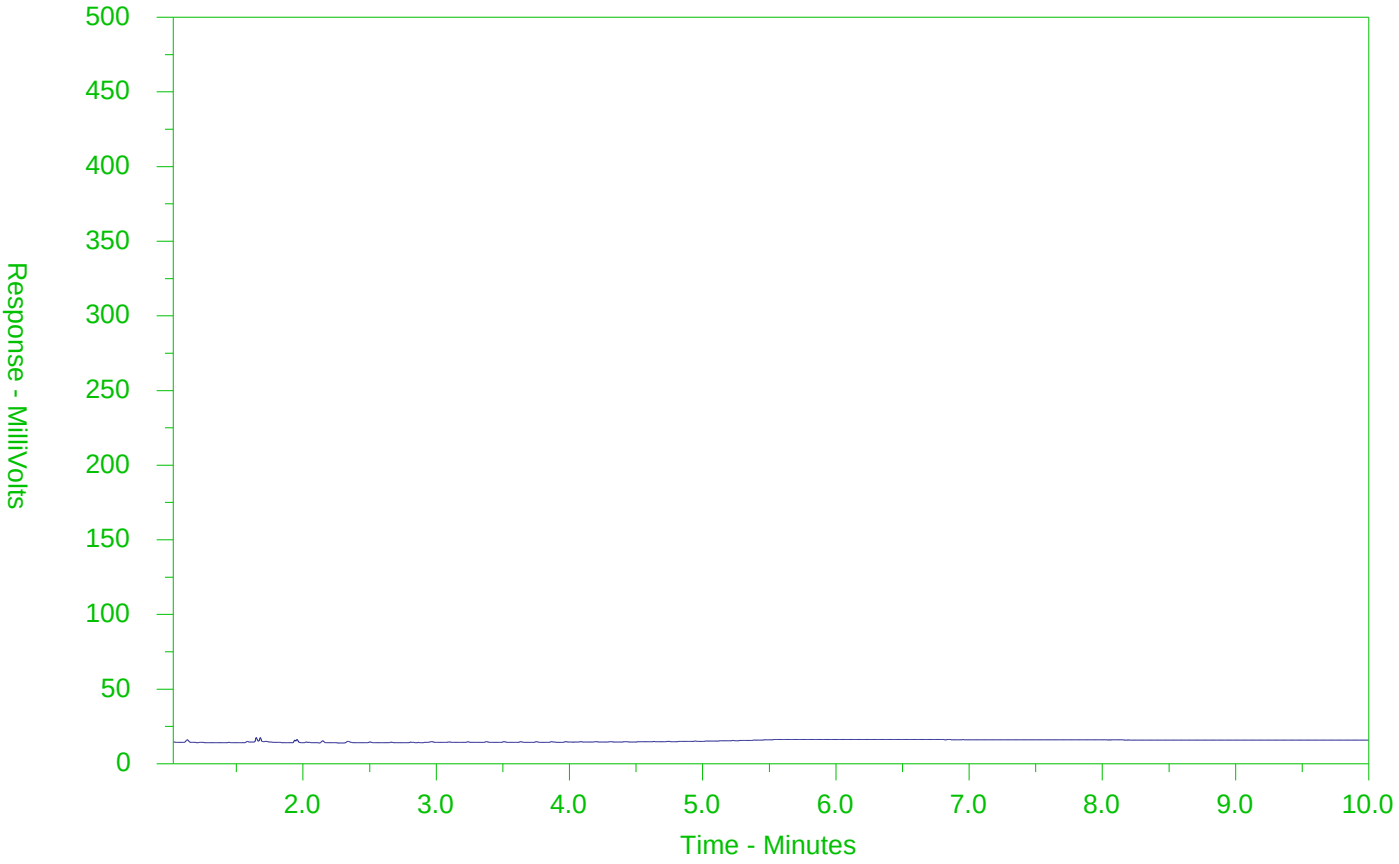
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-4
Client Sample ID: MW102B



←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.

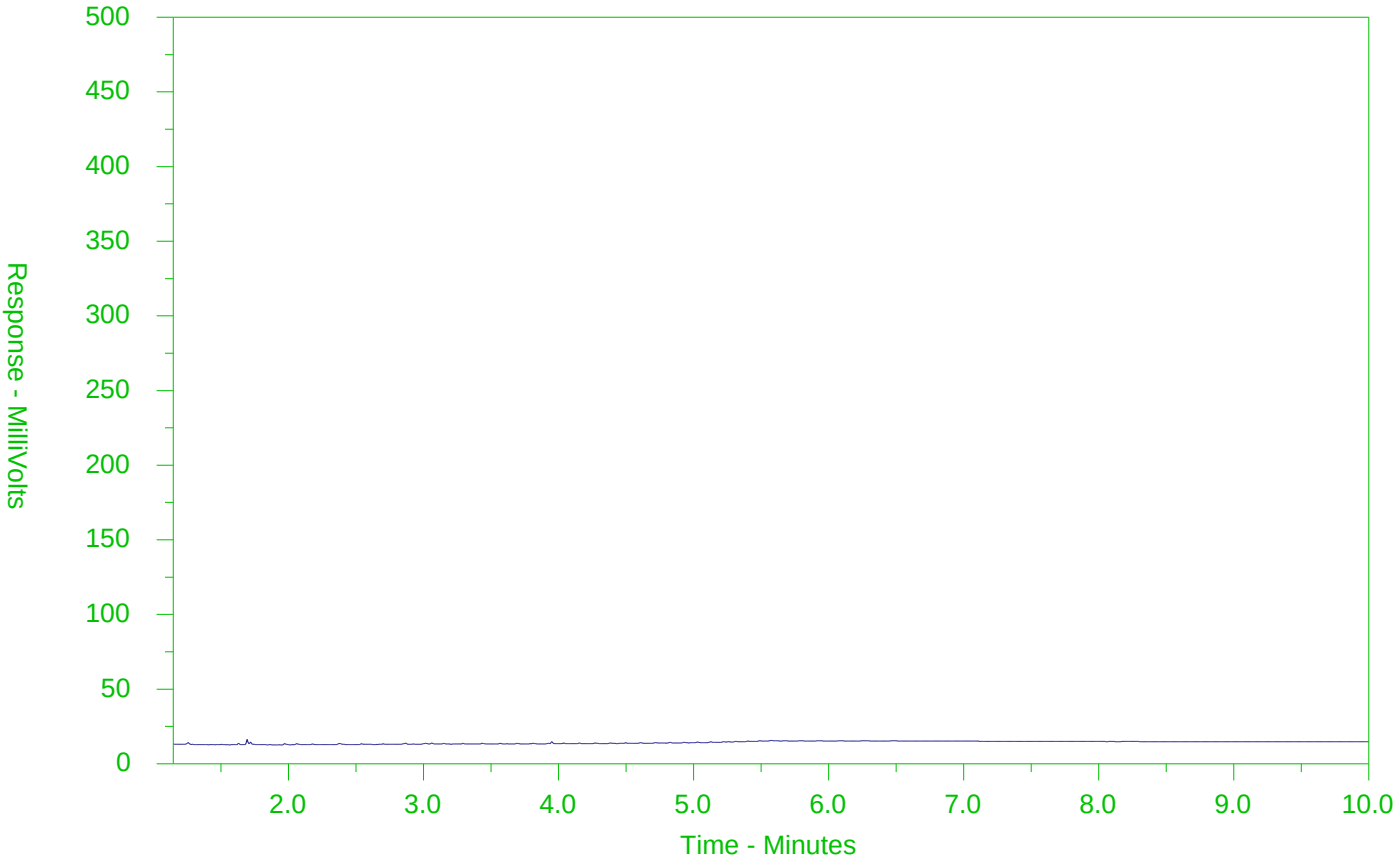
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-5
Client Sample ID: MW103



←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.

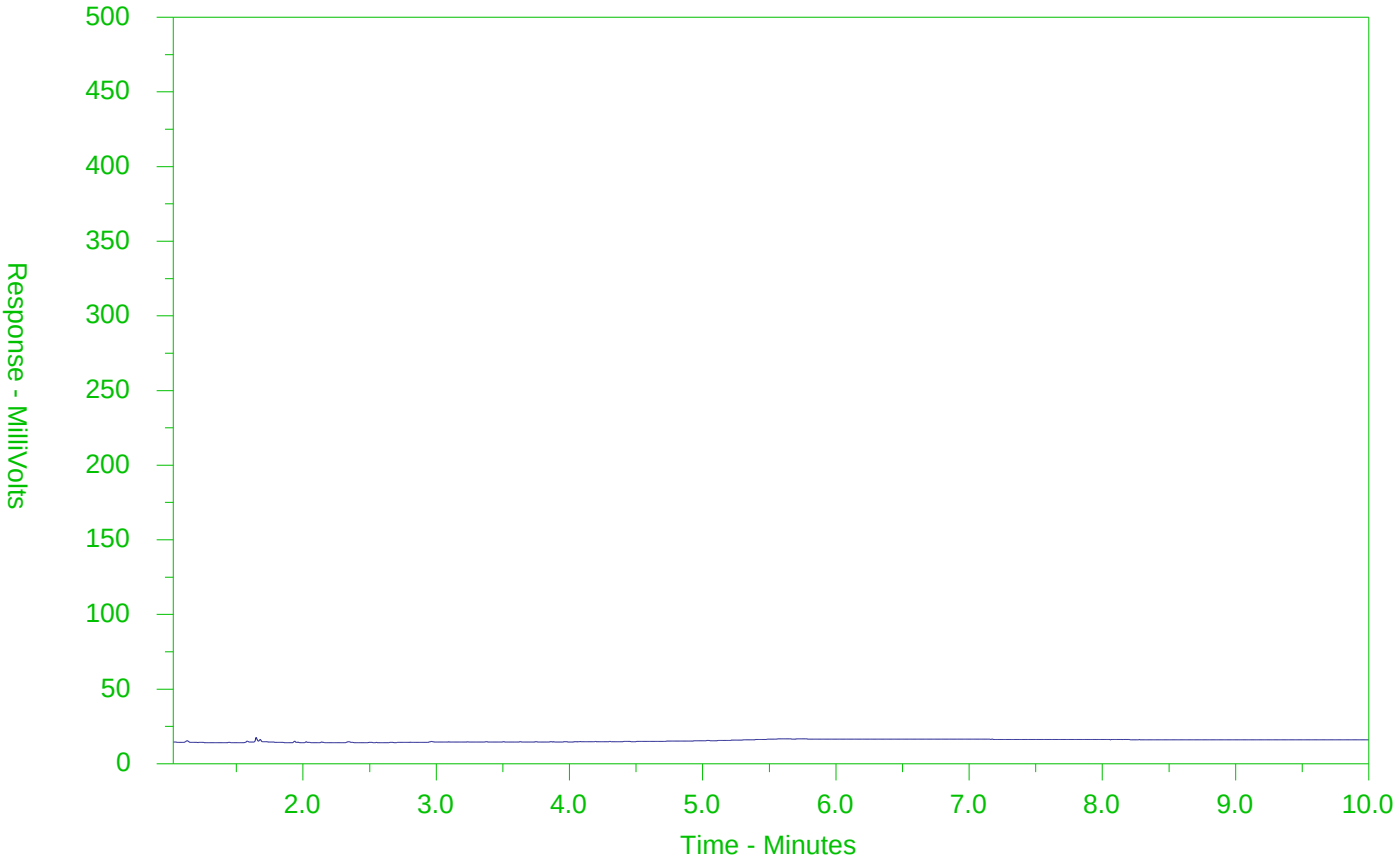
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-6
Client Sample ID: MW104



←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.

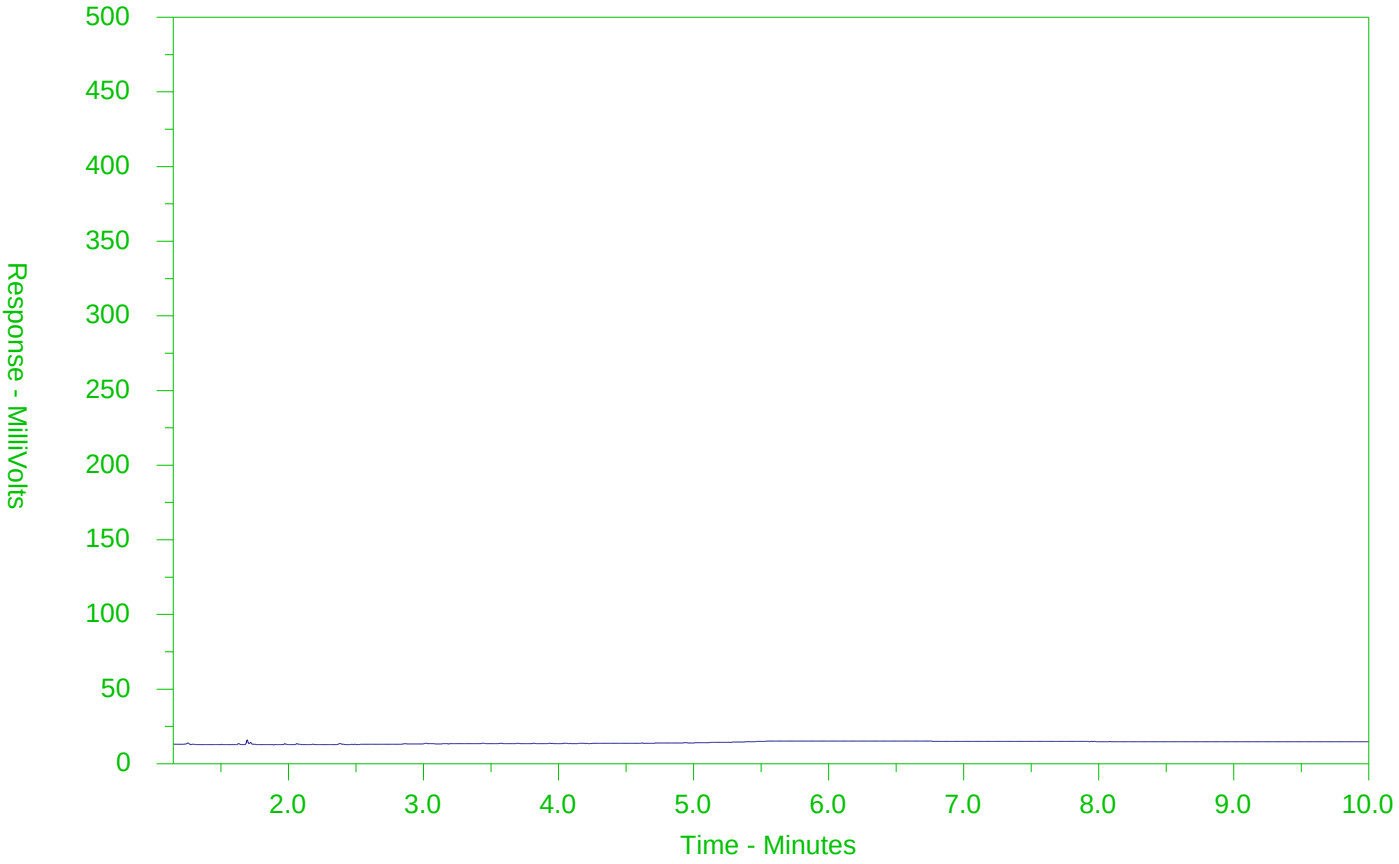
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-7
Client Sample ID: MW106



←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.

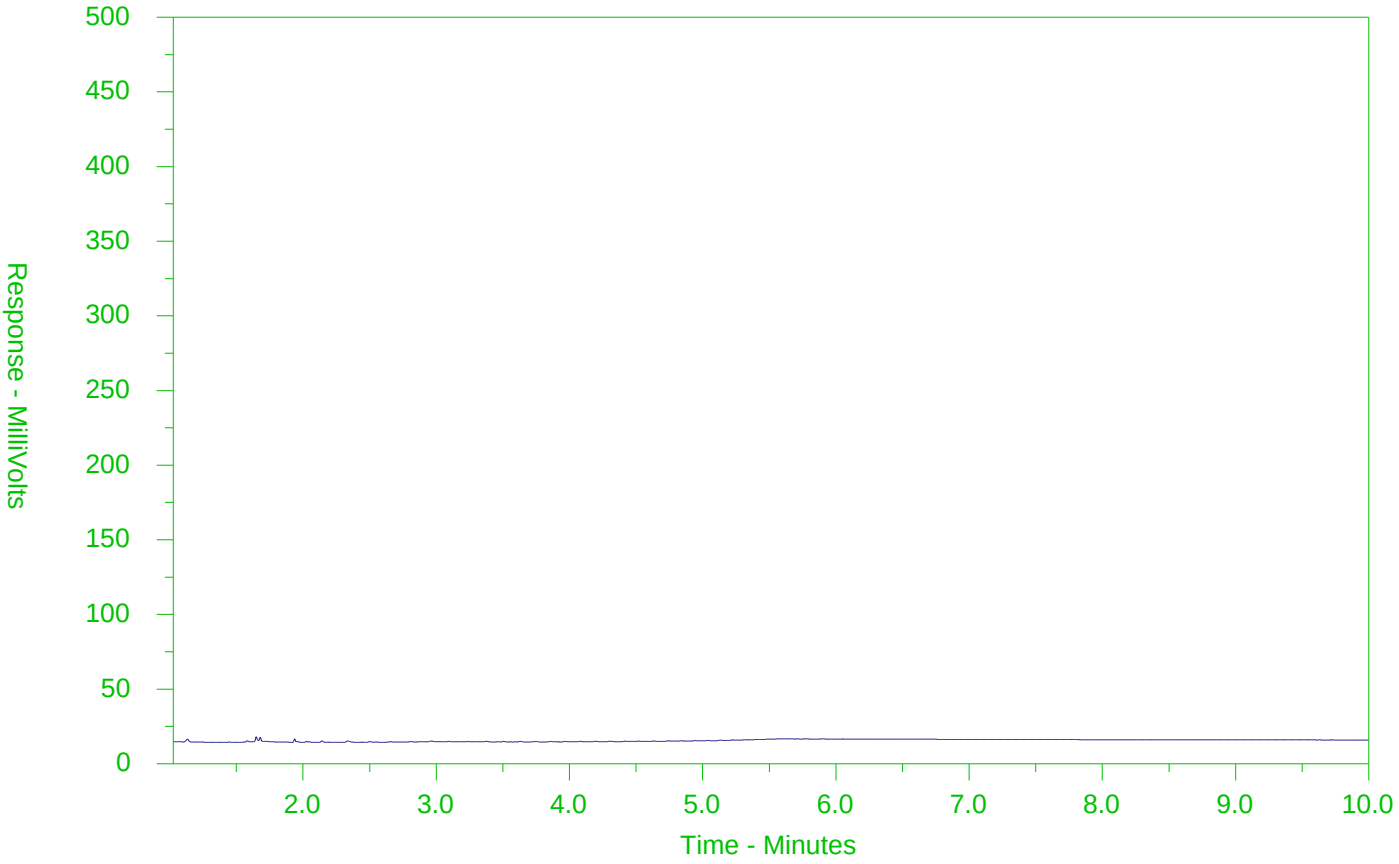
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-8
Client Sample ID: MW107



←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.

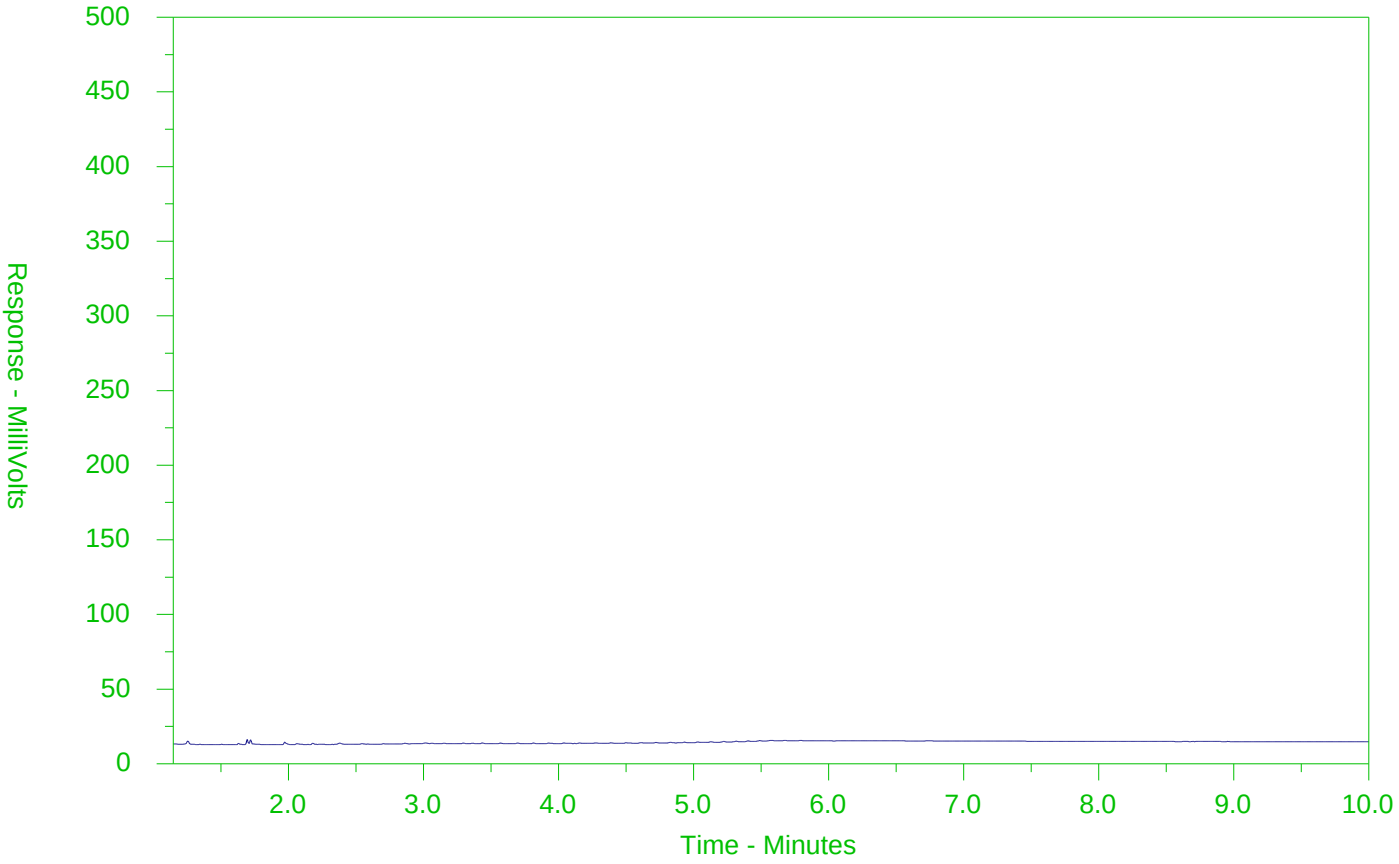
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-10
Client Sample ID: MW108



←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.

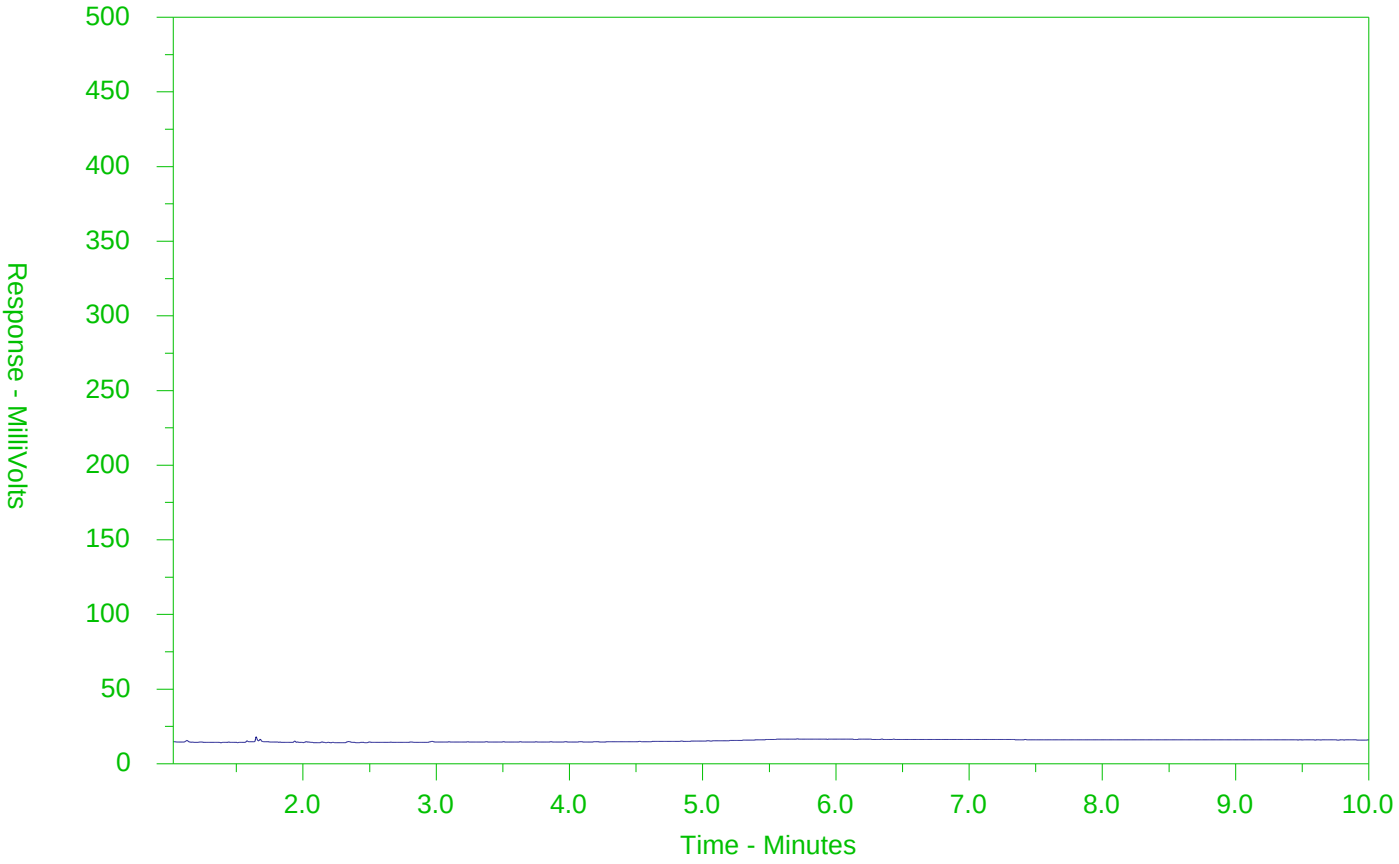
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-11
Client Sample ID: MW109



←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.

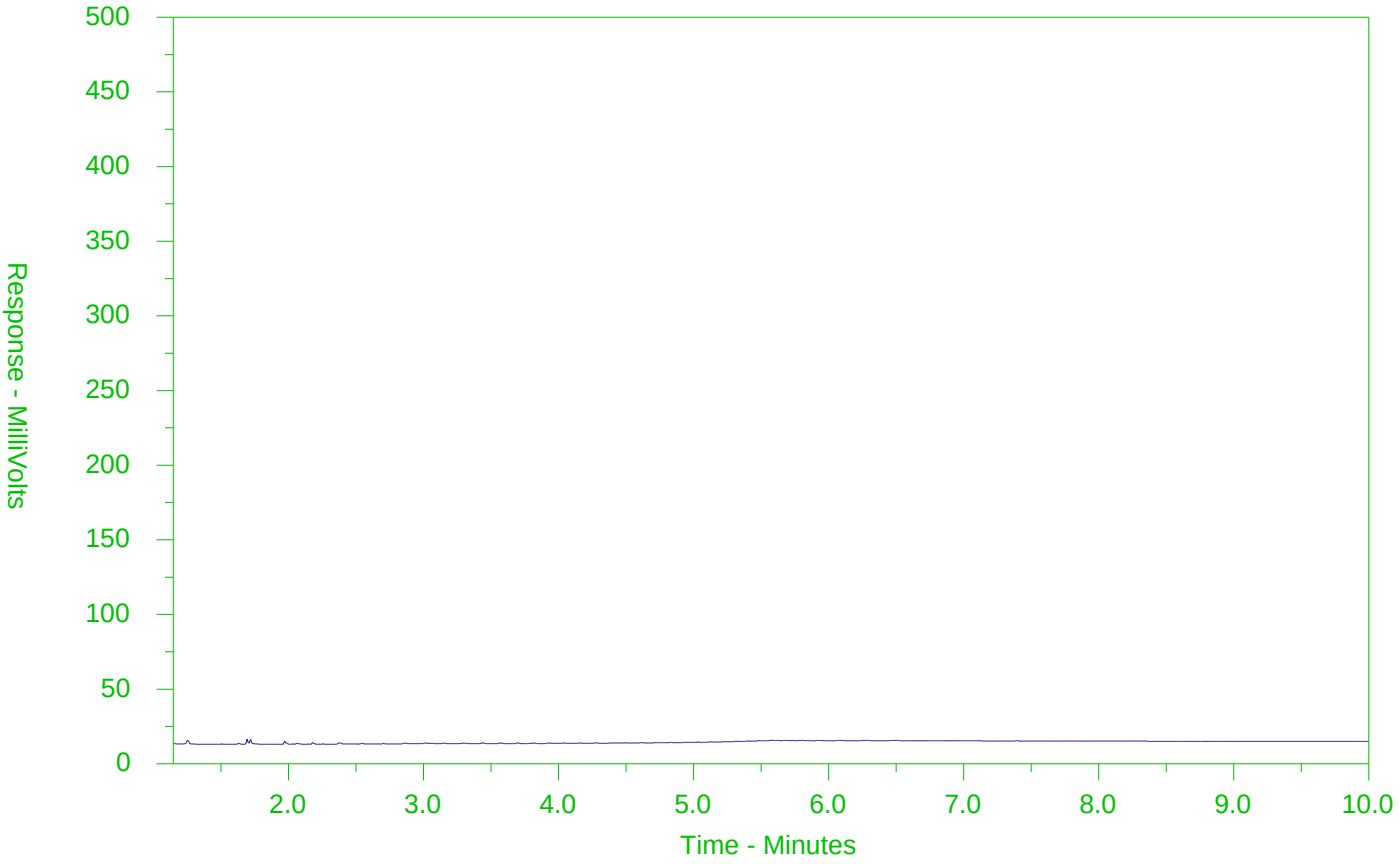
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-15
Client Sample ID: DUP1



←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.

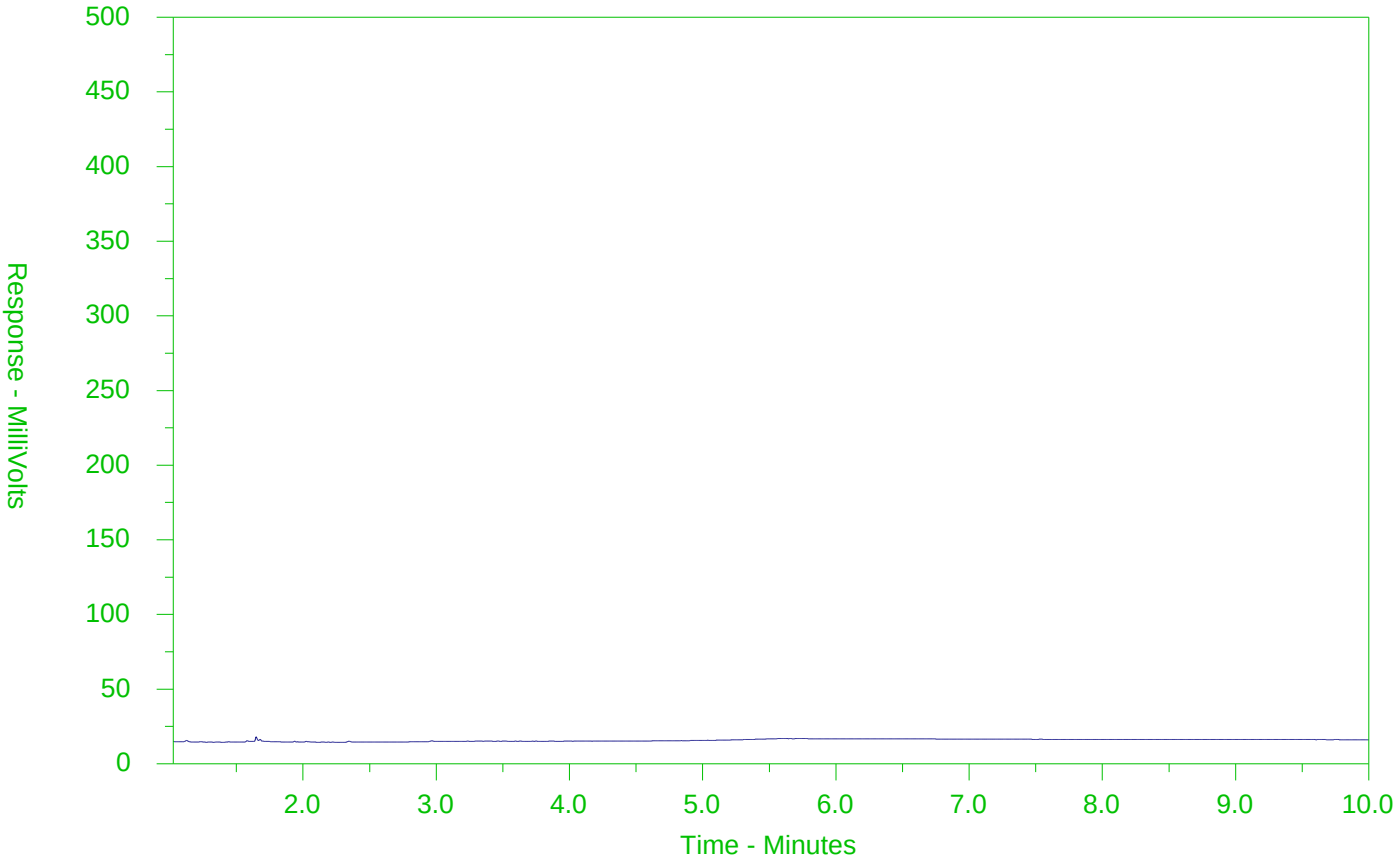
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2399298-16
Client Sample ID: DUP2



←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.

Chain of Custody (COC) / Analyt Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2399298-COFC

COC Number: 17 - 723815

Page 1 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Turnaround Time (TAT) Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Jacobs | CH2M	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Michael Shiry	Quality Control (QC) Report with Report YES NO	PRIORITY (Business Days): 4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%]
Phone:	519-579-3500	Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs:
Street:	72 Victoria St S Suite 300	Email 1 or Fax michael.shiry@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener, ON	Email 2 ed.taves@jacobs.com	
Postal Code:	N2G 4Y9	Email 3 katherine.appleby@jacobs.com	Analysis Request
Invoice To	Same as Report To YES NO	Invoice Distribution	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	
Company:	Jacobs	Email 1 or Fax	
Contact:	Accounts Payable	Email 2	
Project Information			
ALS Account # / Quote #:	Q72980	AFE/Cost Center	PO#
Job #:	CE751900	Major/Minor Code	Routing Code
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2399298	ALS Contact: EH	Sampler: V Peters

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals (Section 1.2.2)	Metals + Inorg (O. Reg 153/04)	PAH (F1-F4 incl. BTEX)	PAHs	VOCs	ABNs	SAMPLES ON HOLD	Sample is Hazardous (please provide further details)	NUMBER OF CONTAINERS
1	MW100	19-12-19	14:20	Water		X	X	X	X				9
2	MW101	20-12-19	11:45										9
3	MW102A	19-12-19	11:35										9
4	MW102B	19-12-19	10:10										9
5	MW105	18-12-19	16:45			X	X	X	X				9
6	MW104	20-12-19	10:40			X	X	X	X	X			10
7	MW106	19-12-19	15:45			X	X	X	X				9
8	MW107	18-12-19	12:35			X	X	X	X				9
9	MW107B	18-12-19	13:00		X								1
10	MW108	19-12-19	10:50			X	X	X	X				9
11	MW109	19-12-19	8:45			X	X	X	X				9
12	MW110A	20-12-19	8:55	Water	X								1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [X] NO	Table 1 Standards (O. Reg)
Are samples for human consumption/ use? [ ] YES [X] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes		No
Ice Packs	X	Ice Cubes	Custody seal intact	Yes	No
Cooling Initiated					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				7.6	4.9		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Vicki Peters	Date: 2019/12/20	Time: 14:15	Received by:	Date:	Time:	Received by:	Date: Dec 20/19	Time: 14:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2399298-COFC

COC Number: 17 - 826468

Page 2 of 2

Report To	Contact and company name below will appear on the final report
Company:	Jacobs/CH2M
Contact:	Michael Shirm
Phone:	519-579-3500
Company address below will appear on the final report	
Street	72 Victoria St. S, Suite 300
City/Province:	Kitchener, ON
Postal Code:	N2G 4Y9
Invoice To	Same as Report To: YES / NO
	Copy of Invoice with Report: YES / NO
Company:	Jacobs
Contact:	Accounts Payable

Project Information

ALS Account # / Quote #	Q72980
Job #:	CE751980
PO / AFE:	
LSD	
ALS Lab Work Order # (lab use only):	L2399298

Report Format / Distribution

Select Report Format: PDF, EXCEL, EDD (DIGITAL)

Quality Control (QC) Report with Report: YES / NO

Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: EMAIL / MAIL / FAX

Email 1 or Fax: Michael.Shirm@jacobs.com

Email 2: ed.taves@jacobs.com

Email 3: katherine.oppelby@jacobs.com

Invoice Distribution

Select Invoice Distribution: EMAIL / MAIL / FAX

Email 1 or Fax:

Email 2:

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code
Requisitioner:	
Location:	
ALS Contact:	Sampler: V. Peters

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R]: Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%]

EMERGENCY: 1 Business day [E - 100%] / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Metals (Sat on 1,2,2)	Metals (Inorg (O. Reg 153/04))	PHC (F1-F4 incl BTEX)	PAHs	VOCs	ABNs	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
						F/P	F/P	F/P					
13	MW110B	20-12-19	9:40	water	1	X							
14	MW111	19-12-19	14:40	water	1	X							
15	DUP 1	19-12-19	—	water	9		X	X	X	X			
16	DUP 2	19-12-19	—	water	9		X	X	X	X			
17	DUP 3	20-12-19	—	water	1						X		
18	Trip Blank	—	—	QC	2					X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? YES / NO

Are samples for human consumption/ use? YES / NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Table 1 Standards (O. Reg)

DUP 3 - limited quantity

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen / SIF Observations: Yes / No

Ice Packs / Ice Cubes / Custody seal intact: Yes / No

Cooling Initiated

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				7.8	11.9		

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Vicki Peters	2019/12/20	14:15

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
VR	Dec 20/19	14:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

CH2M HILL CANADA LIMITED
ATTN: Michael Shiry
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 10-JAN-20
Report Date: 15-JAN-20 14:50 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2404428

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-724135
Legal Site Desc:

Emily Hansen
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2404428-1 MW112- 5.2-5.5						
Sampled By: V.PETERS on 09-JAN-20 @ 11:15						
Matrix: SOIL						
Physical Tests						
% Moisture	14.4		0.25	%	11-JAN-20	
Volatile Organic Compounds						
Acetone	<0.50		0.50	ug/g	14-JAN-20	0.5
Benzene	<0.0068		0.0068	ug/g	14-JAN-20	0.02
Bromodichloromethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Bromoform	<0.050		0.050	ug/g	14-JAN-20	0.05
Bromomethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	14-JAN-20	0.05
Chlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05
Dibromochloromethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Chloroform	<0.050		0.050	ug/g	14-JAN-20	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05
Methylene Chloride	<0.050		0.050	ug/g	14-JAN-20	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	14-JAN-20	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	14-JAN-20	
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	14-JAN-20	
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	14-JAN-20	0.05
Ethylbenzene	<0.018		0.018	ug/g	14-JAN-20	0.05
n-Hexane	<0.050		0.050	ug/g	14-JAN-20	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	14-JAN-20	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	14-JAN-20	0.5
MTBE	<0.050		0.050	ug/g	14-JAN-20	0.05
Styrene	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05
Toluene	<0.080		0.080	ug/g	14-JAN-20	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Trichloroethylene	<0.010		0.010	ug/g	14-JAN-20	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	14-JAN-20	0.25
Vinyl chloride	<0.020		0.020	ug/g	14-JAN-20	0.02
o-Xylene	<0.020		0.020	ug/g	14-JAN-20	
m+p-Xylenes	<0.030		0.030	ug/g	14-JAN-20	
Xylenes (Total)	<0.050		0.050	ug/g	14-JAN-20	0.05
Surrogate: 4-Bromofluorobenzene	88.1		50-140	%	14-JAN-20	
Surrogate: 1,4-Difluorobenzene	100.7		50-140	%	14-JAN-20	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2404428-1 MW112- 5.2-5.5						
Sampled By: V.PETERS on 09-JAN-20 @ 11:15						
Matrix: SOIL						#1
Hydrocarbons						
F1 (C6-C10)	<5.0		5.0	ug/g	14-JAN-20	25
F1-BTEX	<5.0		5.0	ug/g	14-JAN-20	25
F2 (C10-C16)	<10		10	ug/g	13-JAN-20	10
F2-Naphth	<10		10	ug/g	14-JAN-20	
F3 (C16-C34)	<50		50	ug/g	13-JAN-20	240
F3-PAH	<50		50	ug/g	14-JAN-20	
F4 (C34-C50)	<50		50	ug/g	13-JAN-20	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	14-JAN-20	
Chrom. to baseline at nC50	YES			No Unit	13-JAN-20	
Surrogate: 2-Bromobenzotrifluoride	100.8		60-140	%	13-JAN-20	
Surrogate: 3,4-Dichlorotoluene	88.7		60-140	%	14-JAN-20	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.050		0.050	ug/g	14-JAN-20	0.072
Acenaphthylene	<0.050		0.050	ug/g	14-JAN-20	0.093
Anthracene	<0.050		0.050	ug/g	14-JAN-20	0.16
Benzo(a)anthracene	0.119		0.050	ug/g	14-JAN-20	0.36
Benzo(a)pyrene	0.121		0.050	ug/g	14-JAN-20	0.3
Benzo(b)fluoranthene	0.188		0.050	ug/g	14-JAN-20	0.47
Benzo(g,h,i)perylene	0.125		0.050	ug/g	14-JAN-20	0.68
Benzo(k)fluoranthene	0.067		0.050	ug/g	14-JAN-20	0.48
Chrysene	0.143		0.050	ug/g	14-JAN-20	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	14-JAN-20	0.1
Fluoranthene	0.191		0.050	ug/g	14-JAN-20	0.56
Fluorene	<0.050		0.050	ug/g	14-JAN-20	0.12
Indeno(1,2,3-cd)pyrene	0.130		0.050	ug/g	14-JAN-20	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	14-JAN-20	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	14-JAN-20	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	14-JAN-20	0.59
Naphthalene	<0.013		0.013	ug/g	14-JAN-20	0.09
Phenanthrene	0.108		0.046	ug/g	14-JAN-20	0.69
Pyrene	0.207		0.050	ug/g	14-JAN-20	1
Surrogate: 2-Fluorobiphenyl	90.8		50-140	%	14-JAN-20	
Surrogate: p-Terphenyl d14	91.6		50-140	%	14-JAN-20	
L2404428-2 MW112-7.25-7.5						
Sampled By: V.PETERS on 09-JAN-20 @ 11:30						
Matrix: SOIL						#1
Physical Tests						
% Moisture	10.5		0.25	%	11-JAN-20	
Volatile Organic Compounds						
Acetone	<0.50		0.50	ug/g	14-JAN-20	0.5
Benzene	<0.0068		0.0068	ug/g	14-JAN-20	0.02
Bromodichloromethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Bromoform	<0.050		0.050	ug/g	14-JAN-20	0.05
Bromomethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	14-JAN-20	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2404428-2 MW112-7.25-7.5						
Sampled By: V.PETERS on 09-JAN-20 @ 11:30						
Matrix: SOIL						
Volatile Organic Compounds						
Chlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05
Dibromochloromethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Chloroform	<0.050		0.050	ug/g	14-JAN-20	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05
Methylene Chloride	<0.050		0.050	ug/g	14-JAN-20	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	14-JAN-20	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	14-JAN-20	
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	14-JAN-20	
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	14-JAN-20	0.05
Ethylbenzene	<0.018		0.018	ug/g	14-JAN-20	0.05
n-Hexane	<0.050		0.050	ug/g	14-JAN-20	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	14-JAN-20	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	14-JAN-20	0.5
MTBE	<0.050		0.050	ug/g	14-JAN-20	0.05
Styrene	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05
Toluene	<0.080		0.080	ug/g	14-JAN-20	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Trichloroethylene	<0.010		0.010	ug/g	14-JAN-20	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	14-JAN-20	0.25
Vinyl chloride	<0.020		0.020	ug/g	14-JAN-20	0.02
o-Xylene	<0.020		0.020	ug/g	14-JAN-20	
m+p-Xylenes	<0.030		0.030	ug/g	14-JAN-20	
Xylenes (Total)	<0.050		0.050	ug/g	14-JAN-20	0.05
Surrogate: 4-Bromofluorobenzene	84.6		50-140	%	14-JAN-20	
Surrogate: 1,4-Difluorobenzene	98.0		50-140	%	14-JAN-20	
Hydrocarbons						
F1 (C6-C10)	<5.0		5.0	ug/g	14-JAN-20	25
F1-BTEX	<5.0		5.0	ug/g	14-JAN-20	25
F2 (C10-C16)	<10		10	ug/g	13-JAN-20	10
F2-Naphth	<10		10	ug/g	14-JAN-20	
F3 (C16-C34)	<50		50	ug/g	13-JAN-20	240
F3-PAH	<50		50	ug/g	14-JAN-20	
F4 (C34-C50)	<50		50	ug/g	13-JAN-20	120

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2404428-2 MW112-7.25-7.5						
Sampled By: V.PETERS on 09-JAN-20 @ 11:30						
Matrix: SOIL						#1
Hydrocarbons						
Total Hydrocarbons (C6-C50)	<72		72	ug/g	14-JAN-20	
Chrom. to baseline at nC50	YES			No Unit	13-JAN-20	
Surrogate: 2-Bromobenzotrifluoride	101.5		60-140	%	13-JAN-20	
Surrogate: 3,4-Dichlorotoluene	82.4		60-140	%	14-JAN-20	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.050		0.050	ug/g	14-JAN-20	0.072
Acenaphthylene	<0.050		0.050	ug/g	14-JAN-20	0.093
Anthracene	<0.050		0.050	ug/g	14-JAN-20	0.16
Benzo(a)anthracene	<0.050		0.050	ug/g	14-JAN-20	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	14-JAN-20	0.3
Benzo(b)fluoranthene	0.054		0.050	ug/g	14-JAN-20	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	14-JAN-20	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	14-JAN-20	0.48
Chrysene	<0.050		0.050	ug/g	14-JAN-20	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	14-JAN-20	0.1
Fluoranthene	<0.050		0.050	ug/g	14-JAN-20	0.56
Fluorene	<0.050		0.050	ug/g	14-JAN-20	0.12
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	14-JAN-20	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	14-JAN-20	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	14-JAN-20	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	14-JAN-20	0.59
Naphthalene	<0.013		0.013	ug/g	14-JAN-20	0.09
Phenanthrene	<0.046		0.046	ug/g	14-JAN-20	0.69
Pyrene	<0.050		0.050	ug/g	14-JAN-20	1
Surrogate: 2-Fluorobiphenyl	90.5		50-140	%	14-JAN-20	
Surrogate: p-Terphenyl d14	89.7		50-140	%	14-JAN-20	
L2404428-3 TB-001						
Sampled By: V.PETERS on 09-JAN-20						
Matrix: SOIL						#1
Physical Tests						
% Moisture	<0.25		0.25	%	11-JAN-20	
Volatile Organic Compounds						
Acetone	<0.50		0.50	ug/g	14-JAN-20	0.5
Benzene	<0.0068		0.0068	ug/g	14-JAN-20	0.02
Bromodichloromethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Bromoform	<0.050		0.050	ug/g	14-JAN-20	0.05
Bromomethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Carbon Disulfide	<0.050		0.050	ug/g	14-JAN-20	
Carbon tetrachloride	<0.050		0.050	ug/g	14-JAN-20	0.05
Chlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05
Dibromochloromethane	<0.050		0.050	ug/g	14-JAN-20	0.05
Chloroethane	<0.020		0.020	ug/g	14-JAN-20	
Chloroform	<0.050		0.050	ug/g	14-JAN-20	0.05
Chloromethane	<0.020		0.020	ug/g	14-JAN-20	
1,2-Dibromoethane	<0.050		0.050	ug/g	14-JAN-20	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2404428-3 TB-001 Sampled By: V.PETERS on 09-JAN-20 Matrix: SOIL						#1			
Volatile Organic Compounds									
Dibromomethane	<0.050		0.050	ug/g	14-JAN-20				
1,2-Dichlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05			
1,3-Dichlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05			
1,4-Dichlorobenzene	<0.050		0.050	ug/g	14-JAN-20	0.05			
Dichlorodifluoromethane	<0.050		0.050	ug/g	14-JAN-20	0.05			
1,1-Dichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05			
1,2-Dichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05			
1,1-Dichloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05			
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05			
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05			
Dichloromethane	<0.050		0.050	ug/g	14-JAN-20	0.05			
1,2-Dichloropropane	<0.050		0.050	ug/g	14-JAN-20	0.05			
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	14-JAN-20				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	14-JAN-20				
Ethylbenzene	<0.018		0.018	ug/g	14-JAN-20	0.05			
n-Hexane	<0.050		0.050	ug/g	14-JAN-20	0.05			
2-Hexanone	<0.50		0.50	ug/g	14-JAN-20				
Methyl Ethyl Ketone	<0.50		0.50	ug/g	14-JAN-20	0.5			
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	14-JAN-20	0.5			
MTBE	<0.050		0.050	ug/g	14-JAN-20	0.05			
Styrene	<0.050		0.050	ug/g	14-JAN-20	0.05			
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05			
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05			
Tetrachloroethylene	<0.050		0.050	ug/g	14-JAN-20	0.05			
Toluene	<0.080		0.080	ug/g	14-JAN-20	0.2			
1,1,1-Trichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05			
1,1,2-Trichloroethane	<0.050		0.050	ug/g	14-JAN-20	0.05			
Trichloroethylene	<0.010		0.010	ug/g	14-JAN-20	0.05			
Trichlorofluoromethane	<0.050		0.050	ug/g	14-JAN-20	0.25			
Vinyl chloride	<0.020		0.020	ug/g	14-JAN-20	0.02			
o-Xylene	<0.020		0.020	ug/g	14-JAN-20				
m+p-Xylenes	<0.030		0.030	ug/g	14-JAN-20				
Xylenes (Total)	<0.050		0.050	ug/g	14-JAN-20	0.05			
Surrogate: 4-Bromofluorobenzene	88.6		70-130	%	14-JAN-20				
Surrogate: 1,4-Difluorobenzene	104.8		70-130	%	14-JAN-20				
Trihalomethanes									
Total THMs	<0.10		0.10	ug/g	14-JAN-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
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.

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).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

THM-SUM-CALC-WT	Soil	Total Trihalomethanes (THMs)	CALCULATION

Total Trihalomethanes (THMs) represents the sum of bromodichloromethane, bromoform, chlorodibromomethane and chloroform. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C

Reference Information

VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

VOC-ROU-HS-WT	Soil	Volatile Organic Compounds	SW846 8260

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

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:

17-724135

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	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.

Quality Control Report

Workorder: L2404428 Report Date: 15-JAN-20

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4967521								
WG3255867-4 DUP		**WG3255867-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	14-JAN-20
WG3255867-2 LCS								
F1 (C6-C10)			102.3		%		80-120	14-JAN-20
WG3255867-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	14-JAN-20
Surrogate: 3,4-Dichlorotoluene			97.2		%		60-140	14-JAN-20
WG3255867-8 MS		**L2404483-1**						
F1 (C6-C10)			89.7		%		60-140	14-JAN-20
F2-F4-511-WT	**Soil**							
Batch R4967911								
WG3255955-3 DUP		**WG3255955-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	13-JAN-20
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	13-JAN-20
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	13-JAN-20
WG3255955-2 LCS								
F2 (C10-C16)			112.2		%		80-120	13-JAN-20
F3 (C16-C34)			110.4		%		80-120	13-JAN-20
F4 (C34-C50)			111.9		%		80-120	13-JAN-20
WG3255955-1 MB								
F2 (C10-C16)			<10		ug/g		10	13-JAN-20
F3 (C16-C34)			<50		ug/g		50	13-JAN-20
F4 (C34-C50)			<50		ug/g		50	13-JAN-20
Surrogate: 2-Bromobenzotrifluoride			75.0		%		60-140	13-JAN-20
WG3255955-4 MS		**WG3255955-5**						
F2 (C10-C16)			101.0		%		60-140	13-JAN-20
F3 (C16-C34)			107.0		%		60-140	13-JAN-20
F4 (C34-C50)			108.6		%		60-140	13-JAN-20
MOISTURE-WT	**Soil**							
Batch R4966763								
WG3255763-3 DUP		**L2404428-2**						
% Moisture		10.5	11.1		%	5.3	20	11-JAN-20
WG3255763-2 LCS								
% Moisture			100.0		%		90-110	11-JAN-20
WG3255763-1 MB								
% Moisture			<0.25		%		0.25	11-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4968474								
WG3255801-3 DUP		**WG3255801-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	14-JAN-20
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	14-JAN-20
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	14-JAN-20
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	14-JAN-20
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
WG3255801-2 LCS								
1-Methylnaphthalene			102.3		%		50-140	14-JAN-20
2-Methylnaphthalene			97.7		%		50-140	14-JAN-20
Acenaphthene			107.8		%		50-140	14-JAN-20
Acenaphthylene			110.6		%		50-140	14-JAN-20
Anthracene			114.1		%		50-140	14-JAN-20
Benzo(a)anthracene			118.8		%		50-140	14-JAN-20
Benzo(a)pyrene			112.8		%		50-140	14-JAN-20
Benzo(b)fluoranthene			111.6		%		50-140	14-JAN-20
Benzo(g,h,i)perylene			106.9		%		50-140	14-JAN-20
Benzo(k)fluoranthene			117.3		%		50-140	14-JAN-20
Chrysene			124.1		%		50-140	14-JAN-20
Dibenzo(ah)anthracene			110.1		%		50-140	14-JAN-20
Fluoranthene			112.8		%		50-140	14-JAN-20
Fluorene			109.7		%		50-140	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4968474								
WG3255801-2 LCS								
Indeno(1,2,3-cd)pyrene			113.1		%		50-140	14-JAN-20
Naphthalene			98.6		%		50-140	14-JAN-20
Phenanthrene			110.7		%		50-140	14-JAN-20
Pyrene			112.4		%		50-140	14-JAN-20
WG3255801-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	14-JAN-20
2-Methylnaphthalene			<0.030		ug/g		0.03	14-JAN-20
Acenaphthene			<0.050		ug/g		0.05	14-JAN-20
Acenaphthylene			<0.050		ug/g		0.05	14-JAN-20
Anthracene			<0.050		ug/g		0.05	14-JAN-20
Benzo(a)anthracene			<0.050		ug/g		0.05	14-JAN-20
Benzo(a)pyrene			<0.050		ug/g		0.05	14-JAN-20
Benzo(b)fluoranthene			<0.050		ug/g		0.05	14-JAN-20
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	14-JAN-20
Benzo(k)fluoranthene			<0.050		ug/g		0.05	14-JAN-20
Chrysene			<0.050		ug/g		0.05	14-JAN-20
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	14-JAN-20
Fluoranthene			<0.050		ug/g		0.05	14-JAN-20
Fluorene			<0.050		ug/g		0.05	14-JAN-20
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	14-JAN-20
Naphthalene			<0.013		ug/g		0.013	14-JAN-20
Phenanthrene			<0.046		ug/g		0.046	14-JAN-20
Pyrene			<0.050		ug/g		0.05	14-JAN-20
Surrogate: 2-Fluorobiphenyl			90.1		%		50-140	14-JAN-20
Surrogate: p-Terphenyl d14			86.9		%		50-140	14-JAN-20
WG3255801-4 MS		**WG3255801-5**						
1-Methylnaphthalene			102.9		%		50-140	14-JAN-20
2-Methylnaphthalene			99.1		%		50-140	14-JAN-20
Acenaphthene			108.4		%		50-140	14-JAN-20
Acenaphthylene			110.7		%		50-140	14-JAN-20
Anthracene			109.7		%		50-140	14-JAN-20
Benzo(a)anthracene			118.4		%		50-140	14-JAN-20
Benzo(a)pyrene			113.4		%		50-140	14-JAN-20
Benzo(b)fluoranthene			112.3		%		50-140	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4968474								
WG3255801-4 MS		**WG3255801-5**						
Benzo(g,h,i)perylene			107.0		%		50-140	14-JAN-20
Benzo(k)fluoranthene			117.2		%		50-140	14-JAN-20
Chrysene			121.8		%		50-140	14-JAN-20
Dibenzo(ah)anthracene			115.0		%		50-140	14-JAN-20
Fluoranthene			114.3		%		50-140	14-JAN-20
Fluorene			111.0		%		50-140	14-JAN-20
Indeno(1,2,3-cd)pyrene			116.6		%		50-140	14-JAN-20
Naphthalene			99.8		%		50-140	14-JAN-20
Phenanthrene			110.8		%		50-140	14-JAN-20
Pyrene			112.4		%		50-140	14-JAN-20
VOC-511-HS-WT	**Soil**							
Batch R4967521								
WG3255867-4 DUP		**WG3255867-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	14-JAN-20
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	14-JAN-20
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4967521								
WG3255867-4 DUP		**WG3255867-3**						
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	14-JAN-20
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	14-JAN-20
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	14-JAN-20
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	14-JAN-20
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	14-JAN-20
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	14-JAN-20
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	14-JAN-20
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	14-JAN-20
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	14-JAN-20
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	14-JAN-20
WG3255867-2 LCS								
1,1,1,2-Tetrachloroethane			91.9		%		60-130	14-JAN-20
1,1,2,2-Tetrachloroethane			99.7		%		60-130	14-JAN-20
1,1,1-Trichloroethane			90.0		%		60-130	14-JAN-20
1,1,2-Trichloroethane			95.7		%		60-130	14-JAN-20
1,1-Dichloroethane			97.3		%		60-130	14-JAN-20
1,1-Dichloroethylene			87.7		%		60-130	14-JAN-20
1,2-Dibromoethane			89.4		%		70-130	14-JAN-20
1,2-Dichlorobenzene			91.0		%		70-130	14-JAN-20
1,2-Dichloroethane			97.8		%		60-130	14-JAN-20
1,2-Dichloropropane			95.3		%		70-130	14-JAN-20
1,3-Dichlorobenzene			88.9		%		70-130	14-JAN-20
1,4-Dichlorobenzene			88.6		%		70-130	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4967521								
WG3255867-2 LCS								
Acetone			116.1		%		60-140	14-JAN-20
Benzene			95.4		%		70-130	14-JAN-20
Bromodichloromethane			95.3		%		50-140	14-JAN-20
Bromoform			95.0		%		70-130	14-JAN-20
Bromomethane			76.1		%		50-140	14-JAN-20
Carbon tetrachloride			89.2		%		70-130	14-JAN-20
Chlorobenzene			91.0		%		70-130	14-JAN-20
Chloroform			94.3		%		70-130	14-JAN-20
cis-1,2-Dichloroethylene			89.5		%		70-130	14-JAN-20
cis-1,3-Dichloropropene			92.1		%		70-130	14-JAN-20
Dibromochloromethane			93.5		%		60-130	14-JAN-20
Dichlorodifluoromethane			64.9		%		50-140	14-JAN-20
Ethylbenzene			90.9		%		70-130	14-JAN-20
n-Hexane			84.0		%		70-130	14-JAN-20
Methylene Chloride			92.4		%		70-130	14-JAN-20
MTBE			92.9		%		70-130	14-JAN-20
m+p-Xylenes			90.3		%		70-130	14-JAN-20
Methyl Ethyl Ketone			102.3		%		60-140	14-JAN-20
Methyl Isobutyl Ketone			108.0		%		60-140	14-JAN-20
o-Xylene			90.9		%		70-130	14-JAN-20
Styrene			90.8		%		70-130	14-JAN-20
Tetrachloroethylene			87.0		%		60-130	14-JAN-20
Toluene			92.5		%		70-130	14-JAN-20
trans-1,2-Dichloroethylene			90.7		%		60-130	14-JAN-20
trans-1,3-Dichloropropene			91.2		%		70-130	14-JAN-20
Trichloroethylene			88.5		%		60-130	14-JAN-20
Trichlorofluoromethane			83.6		%		50-140	14-JAN-20
Vinyl chloride			92.7		%		60-140	14-JAN-20
WG3255867-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	14-JAN-20
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	14-JAN-20
1,1,1-Trichloroethane			<0.050		ug/g		0.05	14-JAN-20
1,1,2-Trichloroethane			<0.050		ug/g		0.05	14-JAN-20
1,1-Dichloroethane			<0.050		ug/g		0.05	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4967521								
WG3255867-1 MB								
1,1-Dichloroethylene			<0.050		ug/g		0.05	14-JAN-20
1,2-Dibromoethane			<0.050		ug/g		0.05	14-JAN-20
1,2-Dichlorobenzene			<0.050		ug/g		0.05	14-JAN-20
1,2-Dichloroethane			<0.050		ug/g		0.05	14-JAN-20
1,2-Dichloropropane			<0.050		ug/g		0.05	14-JAN-20
1,3-Dichlorobenzene			<0.050		ug/g		0.05	14-JAN-20
1,4-Dichlorobenzene			<0.050		ug/g		0.05	14-JAN-20
Acetone			<0.50		ug/g		0.5	14-JAN-20
Benzene			<0.0068		ug/g		0.0068	14-JAN-20
Bromodichloromethane			<0.050		ug/g		0.05	14-JAN-20
Bromoform			<0.050		ug/g		0.05	14-JAN-20
Bromomethane			<0.050		ug/g		0.05	14-JAN-20
Carbon tetrachloride			<0.050		ug/g		0.05	14-JAN-20
Chlorobenzene			<0.050		ug/g		0.05	14-JAN-20
Chloroform			<0.050		ug/g		0.05	14-JAN-20
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	14-JAN-20
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	14-JAN-20
Dibromochloromethane			<0.050		ug/g		0.05	14-JAN-20
Dichlorodifluoromethane			<0.050		ug/g		0.05	14-JAN-20
Ethylbenzene			<0.018		ug/g		0.018	14-JAN-20
n-Hexane			<0.050		ug/g		0.05	14-JAN-20
Methylene Chloride			<0.050		ug/g		0.05	14-JAN-20
MTBE			<0.050		ug/g		0.05	14-JAN-20
m+p-Xylenes			<0.030		ug/g		0.03	14-JAN-20
Methyl Ethyl Ketone			<0.50		ug/g		0.5	14-JAN-20
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	14-JAN-20
o-Xylene			<0.020		ug/g		0.02	14-JAN-20
Styrene			<0.050		ug/g		0.05	14-JAN-20
Tetrachloroethylene			<0.050		ug/g		0.05	14-JAN-20
Toluene			<0.080		ug/g		0.08	14-JAN-20
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	14-JAN-20
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	14-JAN-20
Trichloroethylene			<0.010		ug/g		0.01	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4967521								
WG3255867-1 MB								
Trichlorofluoromethane			<0.050		ug/g		0.05	14-JAN-20
Vinyl chloride			<0.020		ug/g		0.02	14-JAN-20
Surrogate: 1,4-Difluorobenzene			103.5		%		50-140	14-JAN-20
Surrogate: 4-Bromofluorobenzene			91.9		%		50-140	14-JAN-20
WG3255867-7 MS		**WG3255867-9**						
1,1,1,2-Tetrachloroethane			94.9		%		50-140	14-JAN-20
1,1,2,2-Tetrachloroethane			100.1		%		50-140	14-JAN-20
1,1,1-Trichloroethane			93.1		%		50-140	14-JAN-20
1,1,2-Trichloroethane			97.6		%		50-140	14-JAN-20
1,1-Dichloroethane			100.1		%		50-140	14-JAN-20
1,1-Dichloroethylene			91.3		%		50-140	14-JAN-20
1,2-Dibromoethane			90.9		%		50-140	14-JAN-20
1,2-Dichlorobenzene			92.7		%		50-140	14-JAN-20
1,2-Dichloroethane			99.5		%		50-140	14-JAN-20
1,2-Dichloropropane			97.7		%		50-140	14-JAN-20
1,3-Dichlorobenzene			90.2		%		50-140	14-JAN-20
1,4-Dichlorobenzene			89.8		%		50-140	14-JAN-20
Acetone			118.0		%		50-140	14-JAN-20
Benzene			97.9		%		50-140	14-JAN-20
Bromodichloromethane			96.8		%		50-140	14-JAN-20
Bromoform			95.5		%		50-140	14-JAN-20
Bromomethane			78.1		%		50-140	14-JAN-20
Carbon tetrachloride			92.4		%		50-140	14-JAN-20
Chlorobenzene			92.9		%		50-140	14-JAN-20
Chloroform			96.8		%		50-140	14-JAN-20
cis-1,2-Dichloroethylene			91.2		%		50-140	14-JAN-20
cis-1,3-Dichloropropene			88.9		%		50-140	14-JAN-20
Dibromochloromethane			95.2		%		50-140	14-JAN-20
Dichlorodifluoromethane			72.9		%		50-140	14-JAN-20
Ethylbenzene			94.0		%		50-140	14-JAN-20
n-Hexane			89.1		%		50-140	14-JAN-20
Methylene Chloride			94.5		%		50-140	14-JAN-20
MTBE			94.4		%		50-140	14-JAN-20
m+p-Xylenes			92.6		%		50-140	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4967521								
WG3255867-7 MS		**WG3255867-9**						
Methyl Ethyl Ketone			100.4		%		50-140	14-JAN-20
Methyl Isobutyl Ketone			105.7		%		50-140	14-JAN-20
o-Xylene			93.7		%		50-140	14-JAN-20
Styrene			91.8		%		50-140	14-JAN-20
Tetrachloroethylene			88.4		%		50-140	14-JAN-20
Toluene			95.7		%		50-140	14-JAN-20
trans-1,2-Dichloroethylene			91.8		%		50-140	14-JAN-20
trans-1,3-Dichloropropene			89.5		%		50-140	14-JAN-20
Trichloroethylene			89.3		%		50-140	14-JAN-20
Trichlorofluoromethane			88.0		%		50-140	14-JAN-20
Vinyl chloride			97.4		%		50-140	14-JAN-20
VOC-ROU-HS-WT	**Soil**							
Batch R4967521								
WG3255867-4 DUP		**WG3255867-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
2-Hexanone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	14-JAN-20
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	14-JAN-20
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	14-JAN-20
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Carbon Disulfide		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Soil**							
Batch R4967521								
WG3255867-4 DUP		**WG3255867-3**						
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Chloroethane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	14-JAN-20
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Chloromethane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	14-JAN-20
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	14-JAN-20
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Dibromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Dichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	14-JAN-20
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	14-JAN-20
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	14-JAN-20
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	14-JAN-20
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	14-JAN-20
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	14-JAN-20
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	14-JAN-20
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	14-JAN-20
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	14-JAN-20
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	14-JAN-20
WG3255867-2 LCS								
1,1,1,2-Tetrachloroethane			91.9		%		70-130	14-JAN-20
1,1,2,2-Tetrachloroethane			99.7		%		70-130	14-JAN-20
1,1,1-Trichloroethane			90.0		%		70-130	14-JAN-20
1,1,2-Trichloroethane			95.7		%		70-130	14-JAN-20
1,1-Dichloroethane			97.3		%		70-130	14-JAN-20
1,1-Dichloroethylene			87.7		%		70-130	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Soil**							
Batch R4967521								
WG3255867-2 LCS								
1,2-Dibromoethane			89.4		%		70-130	14-JAN-20
1,2-Dichlorobenzene			91.0		%		70-130	14-JAN-20
1,2-Dichloroethane			97.8		%		70-130	14-JAN-20
1,2-Dichloropropane			95.3		%		70-130	14-JAN-20
1,3-Dichlorobenzene			88.9		%		70-130	14-JAN-20
1,4-Dichlorobenzene			88.6		%		70-130	14-JAN-20
2-Hexanone			106.8		%		70-130	14-JAN-20
Acetone			116.1		%		60-140	14-JAN-20
Benzene			95.4		%		70-130	14-JAN-20
Bromodichloromethane			95.3		%		60-140	14-JAN-20
Bromoform			95.0		%		70-130	14-JAN-20
Bromomethane			76.1		%		60-140	14-JAN-20
Carbon Disulfide			90.6		%		70-130	14-JAN-20
Carbon tetrachloride			89.2		%		70-130	14-JAN-20
Chlorobenzene			91.0		%		70-130	14-JAN-20
Chloroethane			98.0		%		70-130	14-JAN-20
Chloroform			94.3		%		70-130	14-JAN-20
Chloromethane			86.6		%		60-140	14-JAN-20
cis-1,2-Dichloroethylene			89.5		%		70-130	14-JAN-20
cis-1,3-Dichloropropene			92.1		%		60-140	14-JAN-20
Dibromochloromethane			93.5		%		60-140	14-JAN-20
Dibromomethane			92.4		%		70-130	14-JAN-20
Dichlorodifluoromethane			64.9		%		50-140	14-JAN-20
Dichloromethane			92.4		%		70-130	14-JAN-20
Ethylbenzene			90.9		%		70-130	14-JAN-20
MTBE			92.9		%		70-130	14-JAN-20
m+p-Xylenes			90.3		%		70-130	14-JAN-20
Methyl Ethyl Ketone			102.3		%		60-140	14-JAN-20
Methyl Isobutyl Ketone			108.0		%		60-140	14-JAN-20
n-Hexane			84.0		%		70-130	14-JAN-20
o-Xylene			90.9		%		70-130	14-JAN-20
Styrene			90.8		%		70-130	14-JAN-20
Tetrachloroethylene			87.0		%		70-130	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Soil**							
Batch R4967521								
WG3255867-2 LCS								
Toluene			92.5		%		70-130	14-JAN-20
trans-1,2-Dichloroethylene			90.7		%		70-130	14-JAN-20
trans-1,3-Dichloropropene			91.2		%		60-140	14-JAN-20
Trichloroethylene			88.5		%		70-130	14-JAN-20
Trichlorofluoromethane			83.6		%		60-140	14-JAN-20
Vinyl chloride			92.7		%		60-140	14-JAN-20
WG3255867-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	14-JAN-20
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	14-JAN-20
1,1,1-Trichloroethane			<0.050		ug/g		0.05	14-JAN-20
1,1,2-Trichloroethane			<0.050		ug/g		0.05	14-JAN-20
1,1-Dichloroethane			<0.050		ug/g		0.05	14-JAN-20
1,1-Dichloroethylene			<0.050		ug/g		0.05	14-JAN-20
1,2-Dibromoethane			<0.050		ug/g		0.05	14-JAN-20
1,2-Dichlorobenzene			<0.050		ug/g		0.05	14-JAN-20
1,2-Dichloroethane			<0.050		ug/g		0.05	14-JAN-20
1,2-Dichloropropane			<0.050		ug/g		0.05	14-JAN-20
1,3-Dichlorobenzene			<0.050		ug/g		0.05	14-JAN-20
1,4-Dichlorobenzene			<0.050		ug/g		0.05	14-JAN-20
2-Hexanone			<0.50		ug/g		0.5	14-JAN-20
Acetone			<0.50		ug/g		0.5	14-JAN-20
Benzene			<0.0068		ug/g		0.0068	14-JAN-20
Bromodichloromethane			<0.050		ug/g		0.05	14-JAN-20
Bromoform			<0.050		ug/g		0.05	14-JAN-20
Bromomethane			<0.050		ug/g		0.05	14-JAN-20
Carbon Disulfide			<0.050		ug/g		0.05	14-JAN-20
Carbon tetrachloride			<0.050		ug/g		0.05	14-JAN-20
Chlorobenzene			<0.050		ug/g		0.05	14-JAN-20
Chloroethane			<0.020		ug/g		0.02	14-JAN-20
Chloroform			<0.050		ug/g		0.05	14-JAN-20
Chloromethane			<0.020		ug/g		0.02	14-JAN-20
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	14-JAN-20
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	14-JAN-20
Dibromochloromethane			<0.050		ug/g		0.05	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Soil**							
Batch R4967521								
WG3255867-1 MB								
Dibromomethane			<0.050		ug/g		0.05	14-JAN-20
Dichlorodifluoromethane			<0.050		ug/g		0.05	14-JAN-20
Dichloromethane			<0.050		ug/g		0.05	14-JAN-20
Ethylbenzene			<0.018		ug/g		0.018	14-JAN-20
MTBE			<0.050		ug/g		0.05	14-JAN-20
m+p-Xylenes			<0.030		ug/g		0.03	14-JAN-20
Methyl Ethyl Ketone			<0.50		ug/g		0.5	14-JAN-20
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	14-JAN-20
n-Hexane			<0.050		ug/g		0.05	14-JAN-20
o-Xylene			<0.020		ug/g		0.02	14-JAN-20
Styrene			<0.050		ug/g		0.05	14-JAN-20
Tetrachloroethylene			<0.050		ug/g		0.05	14-JAN-20
Toluene			<0.080		ug/g		0.08	14-JAN-20
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	14-JAN-20
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	14-JAN-20
Trichloroethylene			<0.010		ug/g		0.01	14-JAN-20
Trichlorofluoromethane			<0.050		ug/g		0.05	14-JAN-20
Vinyl chloride			<0.020		ug/g		0.02	14-JAN-20
Surrogate: 1,4-Difluorobenzene			103.5		%		70-130	14-JAN-20
Surrogate: 4-Bromofluorobenzene			91.9		%		70-130	14-JAN-20
WG3255867-7 MS		**WG3255867-9**						
1,1,1,2-Tetrachloroethane			94.9		%		50-150	14-JAN-20
1,1,2,2-Tetrachloroethane			100.1		%		50-150	14-JAN-20
1,1,1-Trichloroethane			93.1		%		50-150	14-JAN-20
1,1,2-Trichloroethane			97.6		%		50-150	14-JAN-20
1,1-Dichloroethane			100.1		%		50-150	14-JAN-20
1,1-Dichloroethylene			91.3		%		50-150	14-JAN-20
1,2-Dibromoethane			90.9		%		50-150	14-JAN-20
1,2-Dichlorobenzene			92.7		%		50-150	14-JAN-20
1,2-Dichloroethane			99.5		%		50-150	14-JAN-20
1,2-Dichloropropane			97.7		%		50-150	14-JAN-20
1,3-Dichlorobenzene			90.2		%		50-150	14-JAN-20
1,4-Dichlorobenzene			89.8		%		50-150	14-JAN-20
2-Hexanone			106.0		%		50-150	14-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Soil**							
Batch R4967521								
WG3255867-7 MS		**WG3255867-9**						
Acetone			118.0		%		50-150	14-JAN-20
Benzene			97.9		%		50-150	14-JAN-20
Bromodichloromethane			96.8		%		50-150	14-JAN-20
Bromoform			95.5		%		50-150	14-JAN-20
Bromomethane			78.1		%		50-150	14-JAN-20
Carbon Disulfide			91.1		%		50-150	14-JAN-20
Carbon tetrachloride			92.4		%		50-150	14-JAN-20
Chlorobenzene			92.9		%		50-150	14-JAN-20
Chloroethane			102.5		%		50-150	14-JAN-20
Chloroform			96.8		%		50-150	14-JAN-20
Chloromethane			91.0		%		50-150	14-JAN-20
cis-1,2-Dichloroethylene			91.2		%		50-150	14-JAN-20
cis-1,3-Dichloropropene			88.9		%		50-150	14-JAN-20
Dibromochloromethane			95.2		%		50-150	14-JAN-20
Dibromomethane			92.8		%		50-150	14-JAN-20
Dichlorodifluoromethane			72.9		%		50-150	14-JAN-20
Dichloromethane			94.5		%		50-150	14-JAN-20
Ethylbenzene			94.0		%		50-150	14-JAN-20
MTBE			94.4		%		50-150	14-JAN-20
m+p-Xylenes			92.6		%		50-150	14-JAN-20
Methyl Ethyl Ketone			100.4		%		50-150	14-JAN-20
Methyl Isobutyl Ketone			105.7		%		50-150	14-JAN-20
n-Hexane			89.1		%		50-150	14-JAN-20
o-Xylene			93.7		%		50-150	14-JAN-20
Styrene			91.8		%		50-150	14-JAN-20
Tetrachloroethylene			88.4		%		50-150	14-JAN-20
Toluene			95.7		%		50-150	14-JAN-20
trans-1,2-Dichloroethylene			91.8		%		50-150	14-JAN-20
trans-1,3-Dichloropropene			89.5		%		50-150	14-JAN-20
Trichloroethylene			89.3		%		50-150	14-JAN-20
Trichlorofluoromethane			88.0		%		50-150	14-JAN-20
Vinyl chloride			97.4		%		50-150	14-JAN-20

Quality Control Report

Workorder: L2404428 Report Date: 15-JAN-20

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

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
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.

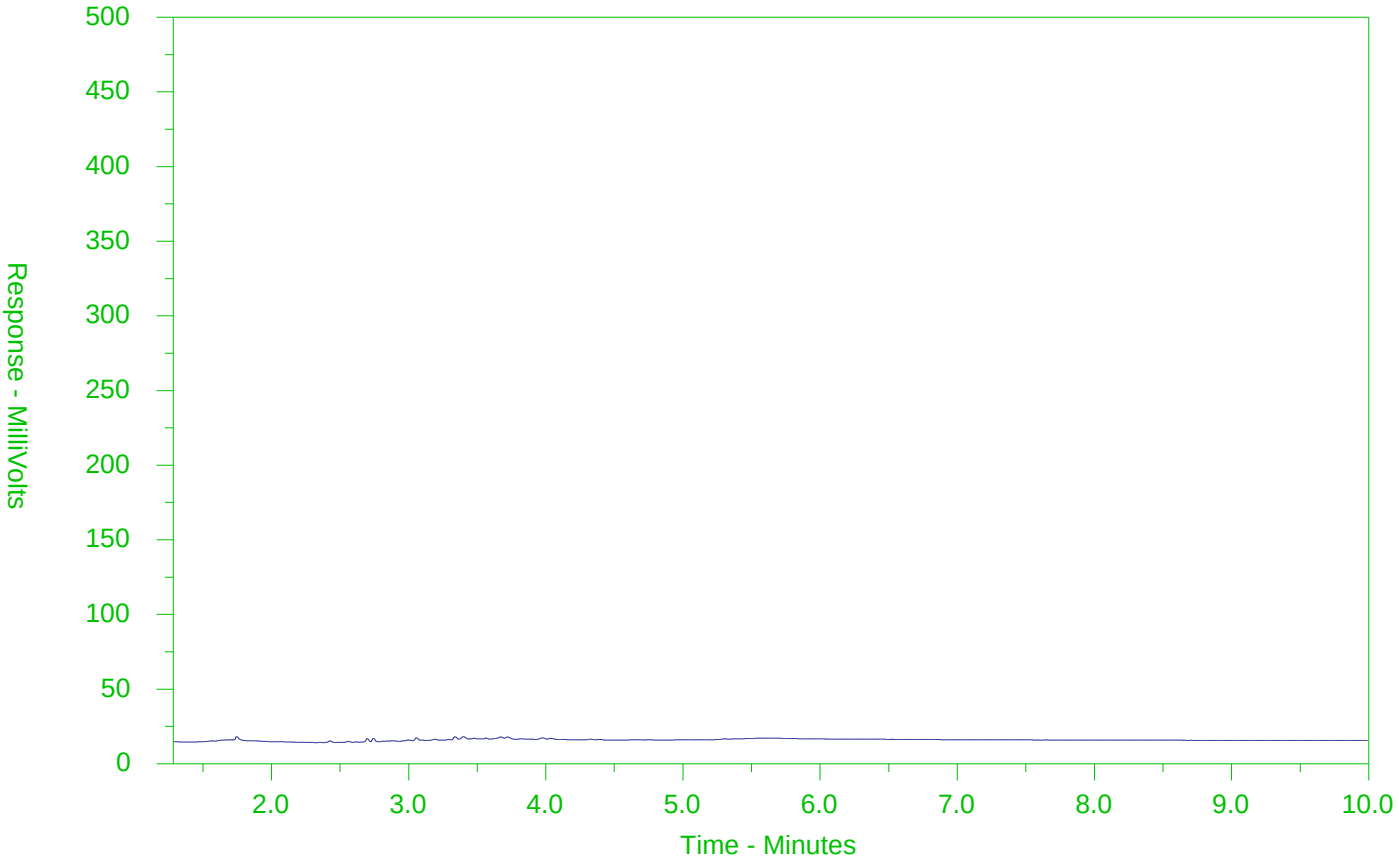
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2404428-1
Client Sample ID: MW112- 5.2-5.5



←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.

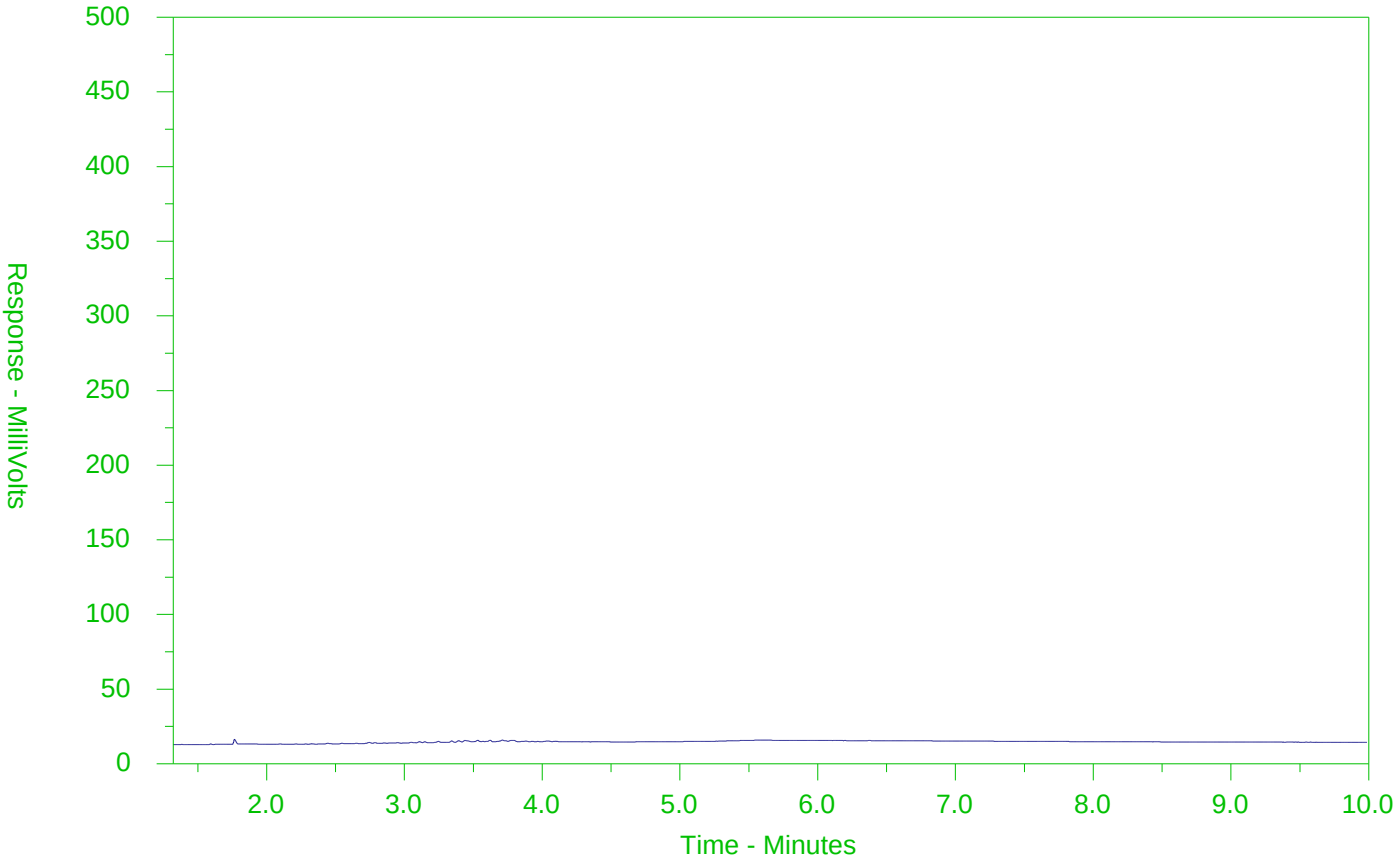
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2404428-2
Client Sample ID: MW112-7.25-7.5



←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.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2404428-COFC

COC Number 17 - 724135

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Jacobs (GH2M	Select Report Format: [X] PDF [X] EXCEL [X] EDD (DIGITAL)	Regular [R] [X] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Michael Shiry	Quality Control (QC) Report with Report [X] YES [ ] NO	4 day [P4-20%] [ ] 1 Business day [E-100%] [ ]
Phone:	519-579-3500	[ ] Compare Results to Criteria on Report - provide details below if box checked	3 day [P3-25%] [ ] Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [X] EMAIL [ ] MAIL [ ] FAX	2 day [P2-50%] [ ]
Street:	72 Victoria St. S. Suite 300	Email 1 or Fax michael.shiry@jacobs.com	Date and Time Required for all E&P TATs:
City/Province:	Kitchener, ON	Email 2 ed.taves@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	N2G 4Y9	Email 3 tania.mccarthy@jacobs.com	
Invoice To	Same as Report To [X] YES [ ] NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report [X] YES [ ] NO	Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:	Jacobs	Email 1 or Fax	
Contact:	Accounts Payable	Email 2	
Project Information		[redacted]	
ALS Account # / Quote #:	Q72980	AFE/Cost Center	PO#
Job #:	CE751900	Major/Minor Code	Routing Code:
PO / AFE:		Requisitioner	
LSD:		Location	
ALS Lab Work Order # (lab use only):	L2404428	ALS Contact:	Sampler: V. Peters

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PHC F1-F4+BTEX	PAHs	VOCs	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	MW112 - 5.2 - 5.5	01-Sep-2020	11:15	Soil	X	X	X			3
	MW112 - 7.25 - 7.5	01-Sep-2020	11:30	Soil	X	X	X			
	TB-001	—	—	QC			X			

Drinking Water (DW) Samples' (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [X] NO	O. Reg 153/04
Are samples for human consumption/ use? [ ] YES [X] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs	[X]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No [ ]
Cooling Initiated	[ ]				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				14.9			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Vinu Peters	2020/01/10						10/20	11:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System please submit using an Authorized DW COC form

CH2M HILL CANADA LIMITED
ATTN: MICHAEL SHIRY
CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 20-JAN-20
Report Date: 24-JAN-20 11:06 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2407279

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-826467
Legal Site Desc:

Emily Hansen
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2407279-1 MW112-15.4-16'							
Sampled By: V. PETERS on 18-JAN-20 @ 10:0(							
Matrix: SOIL							
Physical Tests							
% Moisture	10.1		0.25	%	21-JAN-20		
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	21-JAN-20	0.5	0.5
Benzene	<0.0068		0.0068	ug/g	21-JAN-20	0.02	0.02
Bromodichloromethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Bromoform	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Bromomethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Chlorobenzene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Dibromochloromethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Chloroform	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Methylene Chloride	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	21-JAN-20		
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	21-JAN-20		
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	21-JAN-20	0.05	0.05
Ethylbenzene	<0.018		0.018	ug/g	21-JAN-20	0.05	0.05
n-Hexane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	21-JAN-20	0.5	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	21-JAN-20	0.5	0.5
MTBE	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Styrene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Toluene	<0.080		0.080	ug/g	21-JAN-20	0.2	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	21-JAN-20	0.05	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.25
Vinyl chloride	<0.020		0.020	ug/g	21-JAN-20	0.02	0.02
o-Xylene	<0.020		0.020	ug/g	21-JAN-20		
m+p-Xylenes	<0.030		0.030	ug/g	21-JAN-20		
Xylenes (Total)	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Surrogate: 4-Bromofluorobenzene	101.8		50-140	%	21-JAN-20		
Surrogate: 1,4-Difluorobenzene	113.9		50-140	%	21-JAN-20		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2407279-1 MW112-15.4-16'							
Sampled By: V. PETERS on 18-JAN-20 @ 10:0(							
Matrix: SOIL							
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	21-JAN-20	17	25
F1-BTEX	<5.0		5.0	ug/g	22-JAN-20	17	25
F2 (C10-C16)	<10		10	ug/g	21-JAN-20	10	10
F2-Naphth	<10		10	ug/g	22-JAN-20		
F3 (C16-C34)	<50		50	ug/g	21-JAN-20	240	240
F3-PAH	<50		50	ug/g	22-JAN-20		
F4 (C34-C50)	<50		50	ug/g	21-JAN-20	120	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	22-JAN-20		
Chrom. to baseline at nC50	YES			No Unit	21-JAN-20		
Surrogate: 2-Bromobenzotrifluoride	93.5		60-140	%	21-JAN-20		
Surrogate: 3,4-Dichlorotoluene	82.0		60-140	%	21-JAN-20		
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.072
Acenaphthylene	<0.050		0.050	ug/g	21-JAN-20	0.093	0.093
Anthracene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.16
Benzo(a)anthracene	<0.050		0.050	ug/g	21-JAN-20	0.095	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	21-JAN-20	0.3	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	21-JAN-20	0.2	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.48
Chrysene	<0.050		0.050	ug/g	21-JAN-20	0.18	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	21-JAN-20	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	21-JAN-20	0.24	0.56
Fluorene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.12
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	21-JAN-20	0.11	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	21-JAN-20	0.05	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	21-JAN-20	0.05	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	21-JAN-20	0.05	0.59
Naphthalene	<0.013		0.013	ug/g	21-JAN-20	0.05	0.09
Phenanthrene	<0.046		0.046	ug/g	21-JAN-20	0.19	0.69
Pyrene	<0.050		0.050	ug/g	21-JAN-20	0.19	1
Surrogate: 2-Fluorobiphenyl	88.8		50-140	%	21-JAN-20		
Surrogate: p-Terphenyl d14	82.8		50-140	%	21-JAN-20		
L2407279-2 TB-002							
Sampled By: V. PETERS on 18-JAN-20 @ 10:0(							
Matrix: TRIP BLANK							
Physical Tests							
% Moisture	<0.25		0.25	%	21-JAN-20		
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	21-JAN-20	0.5	0.5
Benzene	<0.0068		0.0068	ug/g	21-JAN-20	0.02	0.02
Bromodichloromethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Bromoform	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Bromomethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use **#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use**

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2		
L2407279-2	TB-002									
Sampled By:	V. PETERS on 18-JAN-20 @ 10:0(									
Matrix:	TRIP BLANK									
Volatile Organic Compounds										
	Chlorobenzene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Dibromochloromethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Chloroform	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,2-Dibromoethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,2-Dichlorobenzene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,3-Dichlorobenzene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,4-Dichlorobenzene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Dichlorodifluoromethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,1-Dichloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,2-Dichloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,1-Dichloroethylene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Methylene Chloride	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,2-Dichloropropane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	cis-1,3-Dichloropropene	<0.030		0.030	ug/g	21-JAN-20				
	trans-1,3-Dichloropropene	<0.030		0.030	ug/g	21-JAN-20				
	1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	21-JAN-20	0.05	0.05		
	Ethylbenzene	<0.018		0.018	ug/g	21-JAN-20	0.05	0.05		
	n-Hexane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Methyl Ethyl Ketone	<0.50		0.50	ug/g	21-JAN-20	0.5	0.5		
	Methyl Isobutyl Ketone	<0.50		0.50	ug/g	21-JAN-20	0.5	0.5		
	MTBE	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Styrene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Tetrachloroethylene	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Toluene	<0.080		0.080	ug/g	21-JAN-20	0.2	0.2		
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Trichloroethylene	<0.010		0.010	ug/g	21-JAN-20	0.05	0.05		
	Trichlorofluoromethane	<0.050		0.050	ug/g	21-JAN-20	0.05	0.25		
	Vinyl chloride	<0.020		0.020	ug/g	21-JAN-20	0.02	0.02		
	o-Xylene	<0.020		0.020	ug/g	21-JAN-20				
	m+p-Xylenes	<0.030		0.030	ug/g	21-JAN-20				
	Xylenes (Total)	<0.050		0.050	ug/g	21-JAN-20	0.05	0.05		
	Surrogate: 4-Bromofluorobenzene	102.8		50-140	%	21-JAN-20				
	Surrogate: 1,4-Difluorobenzene	114.3		50-140	%	21-JAN-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
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.

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).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C

Reference Information

VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

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:

17-826467

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	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.

Quality Control Report

Workorder: L2407279 Report Date: 24-JAN-20

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4973637								
WG3260474-4 DUP		**WG3260474-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	21-JAN-20
WG3260474-2 LCS								
F1 (C6-C10)			94.8		%		80-120	21-JAN-20
WG3260474-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	21-JAN-20
Surrogate: 3,4-Dichlorotoluene			93.3		%		60-140	21-JAN-20
WG3260474-6 MS		**L2407095-4**						
F1 (C6-C10)			90.7		%		60-140	21-JAN-20
F2-F4-511-WT	**Soil**							
Batch R4974924								
WG3260680-3 DUP		**WG3260680-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	21-JAN-20
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	21-JAN-20
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	21-JAN-20
WG3260680-2 LCS								
F2 (C10-C16)			101.7		%		80-120	21-JAN-20
F3 (C16-C34)			99.7		%		80-120	21-JAN-20
F4 (C34-C50)			99.8		%		80-120	21-JAN-20
WG3260680-1 MB								
F2 (C10-C16)			<10		ug/g		10	21-JAN-20
F3 (C16-C34)			<50		ug/g		50	21-JAN-20
F4 (C34-C50)			<50		ug/g		50	21-JAN-20
Surrogate: 2-Bromobenzotrifluoride			89.2		%		60-140	21-JAN-20
WG3260680-4 MS		**WG3260680-5**						
F2 (C10-C16)			104.2		%		60-140	21-JAN-20
F3 (C16-C34)			104.5		%		60-140	21-JAN-20
F4 (C34-C50)			104.1		%		60-140	21-JAN-20
MOISTURE-WT	**Soil**							
Batch R4973439								
WG3260637-3 DUP		**L2407259-1**						
% Moisture		6.10	6.26		%	2.5	20	21-JAN-20
WG3260637-2 LCS								
% Moisture			100.2		%		90-110	21-JAN-20
WG3260637-1 MB								
% Moisture			<0.25		%		0.25	21-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4973441								
WG3260501-3 DUP		**WG3260501-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-JAN-20
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-JAN-20
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	21-JAN-20
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	21-JAN-20
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
WG3260501-2 LCS								
1-Methylnaphthalene			101.7		%		50-140	21-JAN-20
2-Methylnaphthalene			95.8		%		50-140	21-JAN-20
Acenaphthene			101.2		%		50-140	21-JAN-20
Acenaphthylene			98.6		%		50-140	21-JAN-20
Anthracene			99.4		%		50-140	21-JAN-20
Benzo(a)anthracene			99.4		%		50-140	21-JAN-20
Benzo(a)pyrene			101.5		%		50-140	21-JAN-20
Benzo(b)fluoranthene			100.1		%		50-140	21-JAN-20
Benzo(g,h,i)perylene			96.9		%		50-140	21-JAN-20
Benzo(k)fluoranthene			106.8		%		50-140	21-JAN-20
Chrysene			114.8		%		50-140	21-JAN-20
Dibenzo(ah)anthracene			98.9		%		50-140	21-JAN-20
Fluoranthene			101.0		%		50-140	21-JAN-20
Fluorene			95.9		%		50-140	21-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4973441								
WG3260501-2 LCS								
Indeno(1,2,3-cd)pyrene			96.0		%		50-140	21-JAN-20
Naphthalene			98.9		%		50-140	21-JAN-20
Phenanthrene			103.5		%		50-140	21-JAN-20
Pyrene			102.5		%		50-140	21-JAN-20
WG3260501-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	21-JAN-20
2-Methylnaphthalene			<0.030		ug/g		0.03	21-JAN-20
Acenaphthene			<0.050		ug/g		0.05	21-JAN-20
Acenaphthylene			<0.050		ug/g		0.05	21-JAN-20
Anthracene			<0.050		ug/g		0.05	21-JAN-20
Benzo(a)anthracene			<0.050		ug/g		0.05	21-JAN-20
Benzo(a)pyrene			<0.050		ug/g		0.05	21-JAN-20
Benzo(b)fluoranthene			<0.050		ug/g		0.05	21-JAN-20
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	21-JAN-20
Benzo(k)fluoranthene			<0.050		ug/g		0.05	21-JAN-20
Chrysene			<0.050		ug/g		0.05	21-JAN-20
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	21-JAN-20
Fluoranthene			<0.050		ug/g		0.05	21-JAN-20
Fluorene			<0.050		ug/g		0.05	21-JAN-20
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	21-JAN-20
Naphthalene			<0.013		ug/g		0.013	21-JAN-20
Phenanthrene			<0.046		ug/g		0.046	21-JAN-20
Pyrene			<0.050		ug/g		0.05	21-JAN-20
Surrogate: 2-Fluorobiphenyl			113.6		%		50-140	21-JAN-20
Surrogate: p-Terphenyl d14			107.5		%		50-140	21-JAN-20
WG3260501-4 MS		**WG3260501-5**						
1-Methylnaphthalene			80.0		%		50-140	21-JAN-20
2-Methylnaphthalene			75.6		%		50-140	21-JAN-20
Acenaphthene			80.3		%		50-140	21-JAN-20
Acenaphthylene			77.7		%		50-140	21-JAN-20
Anthracene			79.2		%		50-140	21-JAN-20
Benzo(a)anthracene			80.0		%		50-140	21-JAN-20
Benzo(a)pyrene			81.0		%		50-140	21-JAN-20
Benzo(b)fluoranthene			82.0		%		50-140	21-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4973441								
WG3260501-4 MS		**WG3260501-5**						
Benzo(g,h,i)perylene			76.2		%		50-140	21-JAN-20
Benzo(k)fluoranthene			83.9		%		50-140	21-JAN-20
Chrysene			92.1		%		50-140	21-JAN-20
Dibenzo(ah)anthracene			77.7		%		50-140	21-JAN-20
Fluoranthene			79.2		%		50-140	21-JAN-20
Fluorene			78.1		%		50-140	21-JAN-20
Indeno(1,2,3-cd)pyrene			77.4		%		50-140	21-JAN-20
Naphthalene			77.9		%		50-140	21-JAN-20
Phenanthrene			82.9		%		50-140	21-JAN-20
Pyrene			80.1		%		50-140	21-JAN-20
VOC-511-HS-WT	**Soil**							
Batch R4973637								
WG3260474-4 DUP		**WG3260474-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-JAN-20
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	21-JAN-20
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4973637								
WG3260474-4 DUP		**WG3260474-3**						
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-JAN-20
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	21-JAN-20
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-JAN-20
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-JAN-20
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-JAN-20
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-JAN-20
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	21-JAN-20
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-JAN-20
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-JAN-20
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-JAN-20
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-JAN-20
WG3260474-2 LCS								
1,1,1,2-Tetrachloroethane			96.7		%		60-130	21-JAN-20
1,1,2,2-Tetrachloroethane			85.8		%		60-130	21-JAN-20
1,1,1-Trichloroethane			98.5		%		60-130	21-JAN-20
1,1,2-Trichloroethane			85.7		%		60-130	21-JAN-20
1,1-Dichloroethane			92.8		%		60-130	21-JAN-20
1,1-Dichloroethylene			91.6		%		60-130	21-JAN-20
1,2-Dibromoethane			82.9		%		70-130	21-JAN-20
1,2-Dichlorobenzene			97.2		%		70-130	21-JAN-20
1,2-Dichloroethane			88.2		%		60-130	21-JAN-20
1,2-Dichloropropane			90.1		%		70-130	21-JAN-20
1,3-Dichlorobenzene			100.6		%		70-130	21-JAN-20
1,4-Dichlorobenzene			100.3		%		70-130	21-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4973637								
WG3260474-2 LCS								
Acetone			82.9		%		60-140	21-JAN-20
Benzene			95.1		%		70-130	21-JAN-20
Bromodichloromethane			93.6		%		50-140	21-JAN-20
Bromoform			89.8		%		70-130	21-JAN-20
Bromomethane			79.5		%		50-140	21-JAN-20
Carbon tetrachloride			99.5		%		70-130	21-JAN-20
Chlorobenzene			95.1		%		70-130	21-JAN-20
Chloroform			92.9		%		70-130	21-JAN-20
cis-1,2-Dichloroethylene			86.3		%		70-130	21-JAN-20
cis-1,3-Dichloropropene			90.6		%		70-130	21-JAN-20
Dibromochloromethane			90.9		%		60-130	21-JAN-20
Dichlorodifluoromethane			60.6		%		50-140	21-JAN-20
Ethylbenzene			98.5		%		70-130	21-JAN-20
n-Hexane			83.3		%		70-130	21-JAN-20
Methylene Chloride			87.5		%		70-130	21-JAN-20
MTBE			92.9		%		70-130	21-JAN-20
m+p-Xylenes			99.1		%		70-130	21-JAN-20
Methyl Ethyl Ketone			77.5		%		60-140	21-JAN-20
Methyl Isobutyl Ketone			78.0		%		60-140	21-JAN-20
o-Xylene			95.8		%		70-130	21-JAN-20
Styrene			96.9		%		70-130	21-JAN-20
Tetrachloroethylene			97.6		%		60-130	21-JAN-20
Toluene			98.0		%		70-130	21-JAN-20
trans-1,2-Dichloroethylene			95.2		%		60-130	21-JAN-20
trans-1,3-Dichloropropene			95.6		%		70-130	21-JAN-20
Trichloroethylene			96.2		%		60-130	21-JAN-20
Trichlorofluoromethane			86.8		%		50-140	21-JAN-20
Vinyl chloride			94.3		%		60-140	21-JAN-20
WG3260474-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	21-JAN-20
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	21-JAN-20
1,1,1-Trichloroethane			<0.050		ug/g		0.05	21-JAN-20
1,1,2-Trichloroethane			<0.050		ug/g		0.05	21-JAN-20
1,1-Dichloroethane			<0.050		ug/g		0.05	21-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4973637								
WG3260474-1 MB								
1,1-Dichloroethylene			<0.050		ug/g		0.05	21-JAN-20
1,2-Dibromoethane			<0.050		ug/g		0.05	21-JAN-20
1,2-Dichlorobenzene			<0.050		ug/g		0.05	21-JAN-20
1,2-Dichloroethane			<0.050		ug/g		0.05	21-JAN-20
1,2-Dichloropropane			<0.050		ug/g		0.05	21-JAN-20
1,3-Dichlorobenzene			<0.050		ug/g		0.05	21-JAN-20
1,4-Dichlorobenzene			<0.050		ug/g		0.05	21-JAN-20
Acetone			<0.50		ug/g		0.5	21-JAN-20
Benzene			<0.0068		ug/g		0.0068	21-JAN-20
Bromodichloromethane			<0.050		ug/g		0.05	21-JAN-20
Bromoform			<0.050		ug/g		0.05	21-JAN-20
Bromomethane			<0.050		ug/g		0.05	21-JAN-20
Carbon tetrachloride			<0.050		ug/g		0.05	21-JAN-20
Chlorobenzene			<0.050		ug/g		0.05	21-JAN-20
Chloroform			<0.050		ug/g		0.05	21-JAN-20
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-JAN-20
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	21-JAN-20
Dibromochloromethane			<0.050		ug/g		0.05	21-JAN-20
Dichlorodifluoromethane			<0.050		ug/g		0.05	21-JAN-20
Ethylbenzene			<0.018		ug/g		0.018	21-JAN-20
n-Hexane			<0.050		ug/g		0.05	21-JAN-20
Methylene Chloride			<0.050		ug/g		0.05	21-JAN-20
MTBE			<0.050		ug/g		0.05	21-JAN-20
m+p-Xylenes			<0.030		ug/g		0.03	21-JAN-20
Methyl Ethyl Ketone			<0.50		ug/g		0.5	21-JAN-20
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	21-JAN-20
o-Xylene			<0.020		ug/g		0.02	21-JAN-20
Styrene			<0.050		ug/g		0.05	21-JAN-20
Tetrachloroethylene			<0.050		ug/g		0.05	21-JAN-20
Toluene			<0.080		ug/g		0.08	21-JAN-20
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-JAN-20
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	21-JAN-20
Trichloroethylene			<0.010		ug/g		0.01	21-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4973637								
WG3260474-1 MB								
Trichlorofluoromethane			<0.050		ug/g		0.05	21-JAN-20
Vinyl chloride			<0.020		ug/g		0.02	21-JAN-20
Surrogate: 1,4-Difluorobenzene			120.6		%		50-140	21-JAN-20
Surrogate: 4-Bromofluorobenzene			109.1		%		50-140	21-JAN-20
WG3260474-5 MS		**WG3260474-3**						
1,1,1,2-Tetrachloroethane			101.1		%		50-140	21-JAN-20
1,1,2,2-Tetrachloroethane			89.9		%		50-140	21-JAN-20
1,1,1-Trichloroethane			103.5		%		50-140	21-JAN-20
1,1,2-Trichloroethane			90.3		%		50-140	21-JAN-20
1,1-Dichloroethane			98.5		%		50-140	21-JAN-20
1,1-Dichloroethylene			96.9		%		50-140	21-JAN-20
1,2-Dibromoethane			86.8		%		50-140	21-JAN-20
1,2-Dichlorobenzene			100.8		%		50-140	21-JAN-20
1,2-Dichloroethane			93.1		%		50-140	21-JAN-20
1,2-Dichloropropane			94.7		%		50-140	21-JAN-20
1,3-Dichlorobenzene			103.6		%		50-140	21-JAN-20
1,4-Dichlorobenzene			103.5		%		50-140	21-JAN-20
Acetone			89.9		%		50-140	21-JAN-20
Benzene			100.1		%		50-140	21-JAN-20
Bromodichloromethane			98.1		%		50-140	21-JAN-20
Bromoform			94.6		%		50-140	21-JAN-20
Bromomethane			84.0		%		50-140	21-JAN-20
Carbon tetrachloride			104.6		%		50-140	21-JAN-20
Chlorobenzene			99.2		%		50-140	21-JAN-20
Chloroform			97.7		%		50-140	21-JAN-20
cis-1,2-Dichloroethylene			91.1		%		50-140	21-JAN-20
cis-1,3-Dichloropropene			92.7		%		50-140	21-JAN-20
Dibromochloromethane			95.6		%		50-140	21-JAN-20
Dichlorodifluoromethane			68.6		%		50-140	21-JAN-20
Ethylbenzene			102.3		%		50-140	21-JAN-20
n-Hexane			89.6		%		50-140	21-JAN-20
Methylene Chloride			92.5		%		50-140	21-JAN-20
MTBE			97.3		%		50-140	21-JAN-20
m+p-Xylenes			102.9		%		50-140	21-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4973637								
WG3260474-5 MS		**WG3260474-3**						
Methyl Ethyl Ketone			82.1		%		50-140	21-JAN-20
Methyl Isobutyl Ketone			80.5		%		50-140	21-JAN-20
o-Xylene			99.5		%		50-140	21-JAN-20
Styrene			100.1		%		50-140	21-JAN-20
Tetrachloroethylene			100.7		%		50-140	21-JAN-20
Toluene			102.6		%		50-140	21-JAN-20
trans-1,2-Dichloroethylene			99.3		%		50-140	21-JAN-20
trans-1,3-Dichloropropene			97.7		%		50-140	21-JAN-20
Trichloroethylene			99.98		%		50-140	21-JAN-20
Trichlorofluoromethane			92.3		%		50-140	21-JAN-20
Vinyl chloride			100.8		%		50-140	21-JAN-20

Quality Control Report

Workorder: L2407279 Report Date: 24-JAN-20

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

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
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.

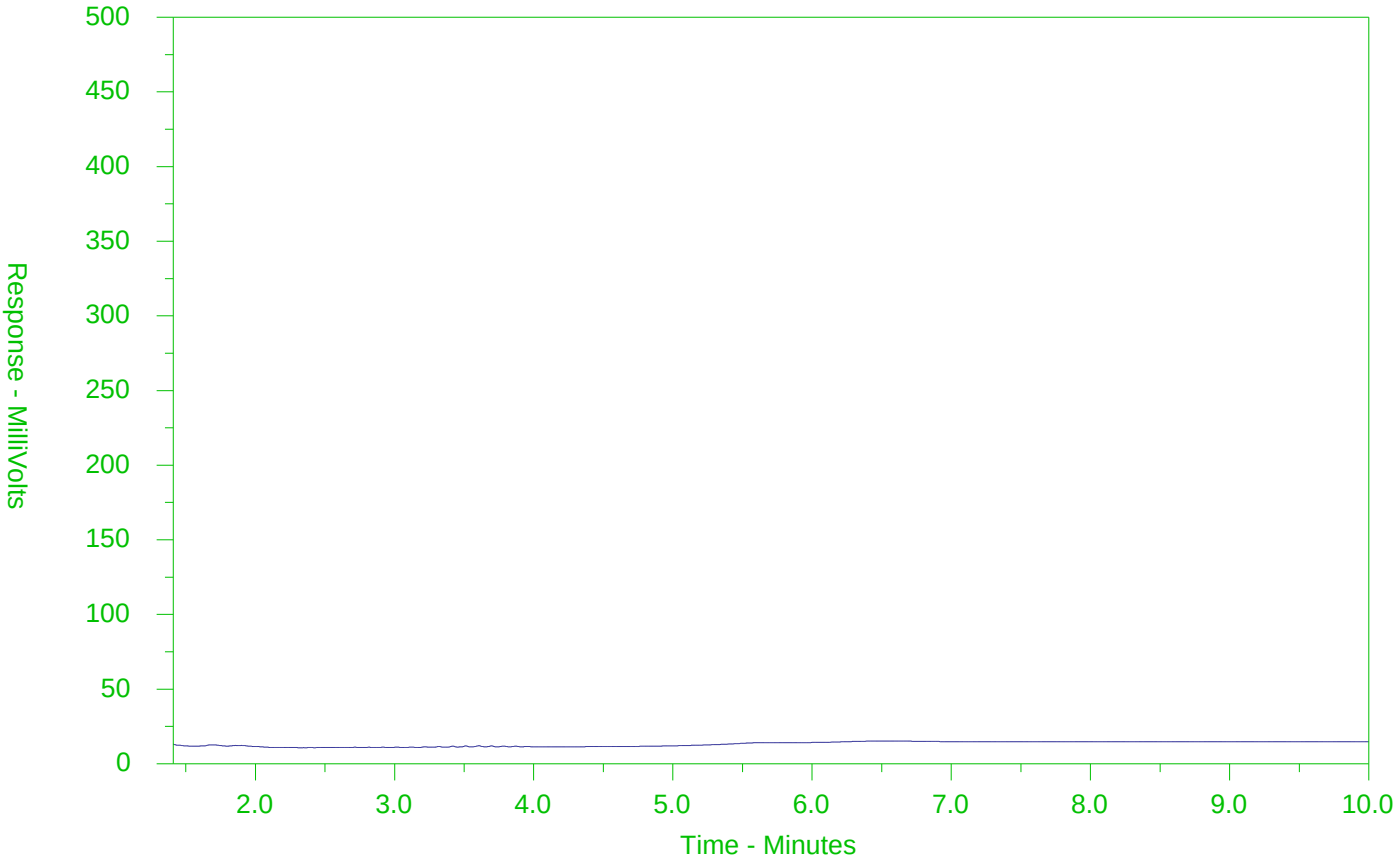
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2407279-1
Client Sample ID: MW112-15.4-16'



←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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2407279-COFC

COC Number: 17 - 826467

Page 1 of 1

Report To	Contact and company names below will appear on the final report	Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Jacobs	Select Report Format:	PDF X EXCEL X EDD (DIGITAL)	Regular [R] X Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Michael Shiry	Quality Control (QC) Report with Report	YES X NO	4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%] (Priority Business Days)
Phone:	519-574-3580	Compare Results to Criteria on Report - provide details below if box checked		1 Business day [E - 100%] / Same Day, Weekend or Statutory holiday [E2 -200%] (Laboratory opening fees may apply) (Emergency)
	Company address below will appear on the final report	Select Distribution	EMAIL X MAIL FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	72 Victoria St. S Suite 300	Email 1 or Fax	michael.shiry@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener, ON	Email 2	ed.taves@jacobs.com	
Postal Code	N2G 4Y9	Email 3	tania.mccarthy@jacobs.com	

Invoice To			Invoice Distribution	
	Same as Report To	X YES NO	Select Invoice Distribution	X EMAIL MAIL FAX
	Copy of Invoice with Report	X YES NO	Email 1 or Fax	
Company:	Jacobs		Email 2	
Contact:	Accounts Payable			

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #	Q72980	AFE/Cost Center:	PO#
Job #	CE75190O	Major/Minor Code:	Routing Code
PO / AFE:		Requisitioner	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2407279 Jan 20A

ALS Contact: E. H.

Sampler: V. Peters

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	PHC (F1-F4) incl BTEX	PAH	VOC	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW112-15.4-16'	18-01-2020	10:00	SOIL	3	X	X	X		
	TB-002			QC	1			X		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? X NO	O. Reg - 153/04
Are samples for human consumption/ use? X NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes		No
Ice Packs	X	Ice Cubes	Custody seal intact	Yes	No
Cooling Initiated					

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			11.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: 2020/01/20	Time:	Received by:	Date:	Time:	Received by:	Date: Jan 20 2020	Time: 16:05

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

CH2M HILL CANADA LIMITED
ATTN: MICHAEL SHIRY
CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 23-JAN-20
Report Date: 30-JAN-20 14:19 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2408835

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-724434
Legal Site Desc:

Emily Hansen
Account Manager

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2408835-1	MW112						
Sampled By:	V.PETERS on 23-JAN-20 @ 09:25						
Matrix:	WATER						#1
Volatile Organic Compounds							
	Acetone	<30		30	ug/L	24-JAN-20	2700
	Benzene	<0.50		0.50	ug/L	24-JAN-20	0.5
	Bromodichloromethane	<2.0		2.0	ug/L	24-JAN-20	2
	Bromoform	<5.0		5.0	ug/L	24-JAN-20	5
	Bromomethane	<0.50		0.50	ug/L	24-JAN-20	0.89
	Carbon tetrachloride	<0.20		0.20	ug/L	24-JAN-20	0.2
	Chlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
	Dibromochloromethane	<2.0		2.0	ug/L	24-JAN-20	2
	Chloroform	6.8		1.0	ug/L	24-JAN-20	*2
	1,2-Dibromoethane	<0.20		0.20	ug/L	24-JAN-20	0.2
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
	1,3-Dichlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
	Dichlorodifluoromethane	<2.0		2.0	ug/L	24-JAN-20	590
	1,1-Dichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
	1,2-Dichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
	1,1-Dichloroethylene	<0.50		0.50	ug/L	24-JAN-20	0.5
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	24-JAN-20	1.6
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	24-JAN-20	1.6
	Methylene Chloride	<5.0		5.0	ug/L	24-JAN-20	5
	1,2-Dichloropropane	<0.50		0.50	ug/L	24-JAN-20	0.5
	cis-1,3-Dichloropropene	<0.30		0.30	ug/L	24-JAN-20	
	trans-1,3-Dichloropropene	<0.30		0.30	ug/L	24-JAN-20	
	1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	24-JAN-20	0.5
	Ethylbenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
	n-Hexane	<0.50		0.50	ug/L	24-JAN-20	5
	Methyl Ethyl Ketone	<20		20	ug/L	24-JAN-20	400
	Methyl Isobutyl Ketone	<20		20	ug/L	24-JAN-20	640
	MTBE	<2.0		2.0	ug/L	24-JAN-20	15
	Styrene	<0.50		0.50	ug/L	24-JAN-20	0.5
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	24-JAN-20	1.1
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
	Tetrachloroethylene	<0.50		0.50	ug/L	24-JAN-20	0.5
	Toluene	<0.50		0.50	ug/L	24-JAN-20	0.8
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
	Trichloroethylene	<0.50		0.50	ug/L	24-JAN-20	0.5
	Trichlorofluoromethane	<5.0		5.0	ug/L	24-JAN-20	150
	Vinyl chloride	<0.50		0.50	ug/L	24-JAN-20	0.5
	o-Xylene	<0.30		0.30	ug/L	24-JAN-20	
	m+p-Xylenes	<0.40		0.40	ug/L	24-JAN-20	
	Xylenes (Total)	<0.50		0.50	ug/L	24-JAN-20	72
	Surrogate: 4-Bromofluorobenzene	99.0		70-130	%	24-JAN-20	
	Surrogate: 1,4-Difluorobenzene	102.0		70-130	%	24-JAN-20	
Hydrocarbons							
	F1 (C6-C10)	<25		25	ug/L	24-JAN-20	420

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2408835-1 MW112						
Sampled By: V.PETERS on 23-JAN-20 @ 09:25						
Matrix: WATER						#1
Hydrocarbons						
F1-BTEX	<25		25	ug/L	24-JAN-20	420
F2 (C10-C16)	<100		100	ug/L	24-JAN-20	150
F2-Naphth	<100		100	ug/L	24-JAN-20	
F3 (C16-C34)	<250		250	ug/L	24-JAN-20	500
F3-PAH	<250		250	ug/L	24-JAN-20	
F4 (C34-C50)	<250		250	ug/L	24-JAN-20	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	24-JAN-20	
Chrom. to baseline at nC50	YES			No Unit	24-JAN-20	
Surrogate: 2-Bromobenzotrifluoride	96.0		60-140	%	24-JAN-20	
Surrogate: 3,4-Dichlorotoluene	94.6		60-140	%	24-JAN-20	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	24-JAN-20	4.1
Acenaphthylene	<0.020		0.020	ug/L	24-JAN-20	1
Anthracene	<0.020		0.020	ug/L	24-JAN-20	0.1
Benzo(a)anthracene	<0.020		0.020	ug/L	24-JAN-20	0.2
Benzo(a)pyrene	<0.010		0.010	ug/L	24-JAN-20	0.01
Benzo(b)fluoranthene	<0.020		0.020	ug/L	24-JAN-20	0.1
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	24-JAN-20	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	24-JAN-20	0.1
Chrysene	<0.020		0.020	ug/L	24-JAN-20	0.1
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	24-JAN-20	0.2
Fluoranthene	<0.020		0.020	ug/L	24-JAN-20	0.4
Fluorene	<0.020		0.020	ug/L	24-JAN-20	120
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	24-JAN-20	0.2
1-Methylnaphthalene	<0.020		0.020	ug/L	24-JAN-20	2
2-Methylnaphthalene	<0.020		0.020	ug/L	24-JAN-20	2
Naphthalene	<0.050		0.050	ug/L	24-JAN-20	7
Phenanthrene	<0.020		0.020	ug/L	24-JAN-20	0.1
Pyrene	<0.020		0.020	ug/L	24-JAN-20	0.2
Surrogate: d10-Acenaphthene	104.0		60-140	%	24-JAN-20	
Surrogate: d12-Chrysene	128.8		60-140	%	24-JAN-20	
Surrogate: d8-Naphthalene	100.3		60-140	%	24-JAN-20	
Surrogate: d10-Phenanthrene	114.5		60-140	%	24-JAN-20	
L2408835-2 DUP1						
Sampled By: V.PETERS on 23-JAN-20 @ 09:25						
Matrix: WATER						#1
Volatile Organic Compounds						
Acetone	<30		30	ug/L	24-JAN-20	2700
Benzene	<0.50		0.50	ug/L	24-JAN-20	0.5
Bromodichloromethane	<2.0		2.0	ug/L	24-JAN-20	2
Bromoform	<5.0		5.0	ug/L	24-JAN-20	5
Bromomethane	<0.50		0.50	ug/L	24-JAN-20	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	24-JAN-20	0.2
Chlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
Dibromochloromethane	<2.0		2.0	ug/L	24-JAN-20	2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2408835-2 DUP1						
Sampled By: V.PETERS on 23-JAN-20 @ 09:25						
Matrix: WATER						
Volatile Organic Compounds						
Chloroform	6.2		1.0	ug/L	24-JAN-20	*2
1,2-Dibromoethane	<0.20		0.20	ug/L	24-JAN-20	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
1,3-Dichlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
1,4-Dichlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
Dichlorodifluoromethane	<2.0		2.0	ug/L	24-JAN-20	590
1,1-Dichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
1,2-Dichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
1,1-Dichloroethylene	<0.50		0.50	ug/L	24-JAN-20	0.5
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	24-JAN-20	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	24-JAN-20	1.6
Methylene Chloride	<5.0		5.0	ug/L	24-JAN-20	5
1,2-Dichloropropane	<0.50		0.50	ug/L	24-JAN-20	0.5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	24-JAN-20	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	24-JAN-20	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	24-JAN-20	0.5
Ethylbenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
n-Hexane	<0.50		0.50	ug/L	24-JAN-20	5
Methyl Ethyl Ketone	<20		20	ug/L	24-JAN-20	400
Methyl Isobutyl Ketone	<20		20	ug/L	24-JAN-20	640
MTBE	<2.0		2.0	ug/L	24-JAN-20	15
Styrene	<0.50		0.50	ug/L	24-JAN-20	0.5
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	24-JAN-20	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
Tetrachloroethylene	<0.50		0.50	ug/L	24-JAN-20	0.5
Toluene	<0.50		0.50	ug/L	24-JAN-20	0.8
1,1,1-Trichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
1,1,2-Trichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
Trichloroethylene	<0.50		0.50	ug/L	24-JAN-20	0.5
Trichlorofluoromethane	<5.0		5.0	ug/L	24-JAN-20	150
Vinyl chloride	<0.50		0.50	ug/L	24-JAN-20	0.5
o-Xylene	<0.30		0.30	ug/L	24-JAN-20	
m+p-Xylenes	<0.40		0.40	ug/L	24-JAN-20	
Xylenes (Total)	<0.50		0.50	ug/L	24-JAN-20	72
Surrogate: 4-Bromofluorobenzene	99.4		70-130	%	24-JAN-20	
Surrogate: 1,4-Difluorobenzene	102.1		70-130	%	24-JAN-20	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	24-JAN-20	420
F1-BTEX	<25		25	ug/L	24-JAN-20	420
F2 (C10-C16)	<100		100	ug/L	24-JAN-20	150
F2-Naphth	<100		100	ug/L	24-JAN-20	
F3 (C16-C34)	<250		250	ug/L	24-JAN-20	500
F3-PAH	<250		250	ug/L	24-JAN-20	
F4 (C34-C50)	<250		250	ug/L	24-JAN-20	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	24-JAN-20	
Chrom. to baseline at nC50	YES			No Unit	24-JAN-20	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2408835-2 DUP1						
Sampled By: V.PETERS on 23-JAN-20 @ 09:25						
Matrix: WATER						#1
Hydrocarbons						
Surrogate: 2-Bromobenzotrifluoride	97.8		60-140	%	24-JAN-20	
Surrogate: 3,4-Dichlorotoluene	95.6		60-140	%	24-JAN-20	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	24-JAN-20	4.1
Acenaphthylene	<0.020		0.020	ug/L	24-JAN-20	1
Anthracene	<0.020		0.020	ug/L	24-JAN-20	0.1
Benzo(a)anthracene	<0.020		0.020	ug/L	24-JAN-20	0.2
Benzo(a)pyrene	<0.010		0.010	ug/L	24-JAN-20	0.01
Benzo(b)fluoranthene	<0.020		0.020	ug/L	24-JAN-20	0.1
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	24-JAN-20	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	24-JAN-20	0.1
Chrysene	<0.020		0.020	ug/L	24-JAN-20	0.1
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	24-JAN-20	0.2
Fluoranthene	<0.020		0.020	ug/L	24-JAN-20	0.4
Fluorene	<0.020		0.020	ug/L	24-JAN-20	120
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	24-JAN-20	0.2
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	24-JAN-20	2
1-Methylnaphthalene	<0.020		0.020	ug/L	24-JAN-20	2
2-Methylnaphthalene	<0.020		0.020	ug/L	24-JAN-20	2
Naphthalene	<0.050		0.050	ug/L	24-JAN-20	7
Phenanthrene	<0.020		0.020	ug/L	24-JAN-20	0.1
Pyrene	<0.020		0.020	ug/L	24-JAN-20	0.2
Surrogate: d10-Acenaphthene	103.3		60-140	%	24-JAN-20	
Surrogate: d12-Chrysene	131.9		60-140	%	24-JAN-20	
Surrogate: d8-Naphthalene	99.8		60-140	%	24-JAN-20	
Surrogate: d10-Phenanthrene	113.9		60-140	%	24-JAN-20	
L2408835-3 TB001						
Sampled By: V.PETERS on 23-JAN-20 @ 09:25						
Matrix: WATER						#1
Volatile Organic Compounds						
Acetone	<30		30	ug/L	24-JAN-20	2700
Benzene	<0.50		0.50	ug/L	24-JAN-20	0.5
Bromodichloromethane	<2.0		2.0	ug/L	24-JAN-20	2
Bromoform	<5.0		5.0	ug/L	24-JAN-20	5
Bromomethane	<0.50		0.50	ug/L	24-JAN-20	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	24-JAN-20	0.2
Chlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
Dibromochloromethane	<2.0		2.0	ug/L	24-JAN-20	2
Chloroform	<1.0		1.0	ug/L	24-JAN-20	2
1,2-Dibromoethane	<0.20		0.20	ug/L	24-JAN-20	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
1,3-Dichlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
1,4-Dichlorobenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
Dichlorodifluoromethane	<2.0		2.0	ug/L	24-JAN-20	590
1,1-Dichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2408835-3 TB001						
Sampled By: V.PETERS on 23-JAN-20 @ 09:25						
Matrix: WATER						
Volatile Organic Compounds						
1,2-Dichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
1,1-Dichloroethylene	<0.50		0.50	ug/L	24-JAN-20	0.5
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	24-JAN-20	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	24-JAN-20	1.6
Methylene Chloride	<5.0		5.0	ug/L	24-JAN-20	5
1,2-Dichloropropane	<0.50		0.50	ug/L	24-JAN-20	0.5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	24-JAN-20	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	24-JAN-20	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	23-JAN-20	0.5
Ethylbenzene	<0.50		0.50	ug/L	24-JAN-20	0.5
n-Hexane	<0.50		0.50	ug/L	24-JAN-20	5
Methyl Ethyl Ketone	<20		20	ug/L	24-JAN-20	400
Methyl Isobutyl Ketone	<20		20	ug/L	24-JAN-20	640
MTBE	<2.0		2.0	ug/L	24-JAN-20	15
Styrene	<0.50		0.50	ug/L	24-JAN-20	0.5
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	24-JAN-20	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
Tetrachloroethylene	<0.50		0.50	ug/L	24-JAN-20	0.5
Toluene	<0.50		0.50	ug/L	24-JAN-20	0.8
1,1,1-Trichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
1,1,2-Trichloroethane	<0.50		0.50	ug/L	24-JAN-20	0.5
Trichloroethylene	<0.50		0.50	ug/L	24-JAN-20	0.5
Trichlorofluoromethane	<5.0		5.0	ug/L	24-JAN-20	150
Vinyl chloride	<0.50		0.50	ug/L	24-JAN-20	0.5
o-Xylene	<0.30		0.30	ug/L	24-JAN-20	
m+p-Xylenes	<0.40		0.40	ug/L	24-JAN-20	
Xylenes (Total)	<0.50		0.50	ug/L	24-JAN-20	72
Surrogate: 4-Bromofluorobenzene	97.7		70-130	%	24-JAN-20	
Surrogate: 1,4-Difluorobenzene	102.8		70-130	%	24-JAN-20	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
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.
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	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).

F2-F4-511-WT	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).

METHYLNAPS-CALC-WT	Water	PAH-Calculated Parameters	SW846 8270
PAH-511-WT	Water	PAH-O. Reg 153/04 (July 2011)	SW846 3510/8270

Aqueous samples, fortified with surrogates, are extracted using liquid/liquid extraction technique. The sample extracts are concentrated and then analyzed using GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

VOC-1,3-DCP-CALC-WT	Water	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	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).

XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION

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:

17-724434

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:

Reference Information

Laboratory Definition Code	Laboratory Location	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: L2408835 Report Date: 30-JAN-20

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Water**							
Batch R4977978								
WG3262145-4 DUP		**WG3262145-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	24-JAN-20
WG3262145-1 LCS								
F1 (C6-C10)			86.9		%		80-120	23-JAN-20
WG3262145-2 MB								
F1 (C6-C10)			<25		ug/L		25	24-JAN-20
Surrogate: 3,4-Dichlorotoluene			95.0		%		60-140	24-JAN-20
WG3262145-5 MS		**WG3262145-3**						
F1 (C6-C10)			80.8		%		60-140	24-JAN-20
F2-F4-511-WT	**Water**							
Batch R4978499								
WG3262507-2 LCS								
F2 (C10-C16)			98.7		%		70-130	24-JAN-20
F3 (C16-C34)			103.8		%		70-130	24-JAN-20
F4 (C34-C50)			104.2		%		70-130	24-JAN-20
WG3262507-1 MB								
F2 (C10-C16)			<100		ug/L		100	24-JAN-20
F3 (C16-C34)			<250		ug/L		250	24-JAN-20
F4 (C34-C50)			<250		ug/L		250	24-JAN-20
Surrogate: 2-Bromobenzotrifluoride			98.6		%		60-140	24-JAN-20
PAH-511-WT	**Water**							
Batch R4978694								
WG3262507-2 LCS								
1-Methylnaphthalene			87.7		%		50-140	24-JAN-20
2-Methylnaphthalene			85.3		%		50-140	24-JAN-20
Acenaphthene			97.6		%		50-140	24-JAN-20
Acenaphthylene			100.5		%		50-140	24-JAN-20
Anthracene			115.3		%		50-140	24-JAN-20
Benzo(a)anthracene			132.2		%		50-140	24-JAN-20
Benzo(a)pyrene			110.5		%		50-140	24-JAN-20
Benzo(b)fluoranthene			101.4		%		50-140	24-JAN-20
Benzo(g,h,i)perylene			97.9		%		50-140	24-JAN-20
Benzo(k)fluoranthene			99.4		%		50-140	24-JAN-20
Chrysene			115.2		%		50-140	24-JAN-20
Dibenzo(ah)anthracene			102.1		%		50-140	24-JAN-20
Fluoranthene			104.2		%		50-140	24-JAN-20

Quality Control Report

Workorder: L2408835 Report Date: 30-JAN-20

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4978694								
WG3262507-2 LCS								
Fluorene			103.7		%		50-140	24-JAN-20
Indeno(1,2,3-cd)pyrene			117.8		%		50-140	24-JAN-20
Naphthalene			87.4		%		50-140	24-JAN-20
Phenanthrene			107.3		%		50-140	24-JAN-20
Pyrene			107.4		%		50-140	24-JAN-20
WG3262507-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	24-JAN-20
2-Methylnaphthalene			<0.020		ug/L		0.02	24-JAN-20
Acenaphthene			<0.020		ug/L		0.02	24-JAN-20
Acenaphthylene			<0.020		ug/L		0.02	24-JAN-20
Anthracene			<0.020		ug/L		0.02	24-JAN-20
Benzo(a)anthracene			<0.020		ug/L		0.02	24-JAN-20
Benzo(a)pyrene			<0.010		ug/L		0.01	24-JAN-20
Benzo(b)fluoranthene			<0.020		ug/L		0.02	24-JAN-20
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	24-JAN-20
Benzo(k)fluoranthene			<0.020		ug/L		0.02	24-JAN-20
Chrysene			<0.020		ug/L		0.02	24-JAN-20
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	24-JAN-20
Fluoranthene			<0.020		ug/L		0.02	24-JAN-20
Fluorene			<0.020		ug/L		0.02	24-JAN-20
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	24-JAN-20
Naphthalene			<0.050		ug/L		0.05	24-JAN-20
Phenanthrene			<0.020		ug/L		0.02	24-JAN-20
Pyrene			<0.020		ug/L		0.02	24-JAN-20
Surrogate: d8-Naphthalene			97.1		%		60-140	24-JAN-20
Surrogate: d10-Phenanthrene			117.4		%		60-140	24-JAN-20
Surrogate: d12-Chrysene			129.6		%		60-140	24-JAN-20
Surrogate: d10-Acenaphthene			103.1		%		60-140	24-JAN-20
VOC-511-HS-WT	**Water**							
Batch R4977978								
WG3262145-4 DUP		**WG3262145-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4977978								
WG3262145-4 DUP		**WG3262145-3**						
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	24-JAN-20
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	24-JAN-20
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	24-JAN-20
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	24-JAN-20
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	24-JAN-20
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	24-JAN-20
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	24-JAN-20
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	24-JAN-20
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	24-JAN-20
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
n-Hexane		0.64	0.64		ug/L	0.0	30	27-JAN-20
m+p-Xylenes		0.49	0.45		ug/L	8.5	30	24-JAN-20
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	24-JAN-20
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	24-JAN-20
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	24-JAN-20
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	24-JAN-20
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	24-JAN-20
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
trans-1,2-Dichloroethylene		<0.50	<0.50		ug/L			24-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4977978								
WG3262145-4 DUP		**WG3262145-3**						
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	24-JAN-20
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	24-JAN-20
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-20
WG3262145-1 LCS								
1,1,1,2-Tetrachloroethane			98.6		%		70-130	23-JAN-20
1,1,2,2-Tetrachloroethane			104.9		%		70-130	23-JAN-20
1,1,1-Trichloroethane			98.9		%		70-130	23-JAN-20
1,1,2-Trichloroethane			101.2		%		70-130	23-JAN-20
1,1-Dichloroethane			99.5		%		70-130	23-JAN-20
1,1-Dichloroethylene			95.3		%		70-130	23-JAN-20
1,2-Dibromoethane			104.1		%		70-130	23-JAN-20
1,2-Dichlorobenzene			97.4		%		70-130	23-JAN-20
1,2-Dichloroethane			102.1		%		70-130	23-JAN-20
1,2-Dichloropropane			102.0		%		70-130	23-JAN-20
1,3-Dichlorobenzene			95.5		%		70-130	23-JAN-20
1,4-Dichlorobenzene			95.4		%		70-130	23-JAN-20
Acetone			110.6		%		60-140	23-JAN-20
Benzene			103.0		%		70-130	23-JAN-20
Bromodichloromethane			101.0		%		70-130	23-JAN-20
Bromoform			101.0		%		70-130	23-JAN-20
Bromomethane			92.5		%		60-140	23-JAN-20
Carbon tetrachloride			96.2		%		70-130	23-JAN-20
Chlorobenzene			98.5		%		70-130	23-JAN-20
Chloroform			100.6		%		70-130	23-JAN-20
cis-1,2-Dichloroethylene			93.3		%		70-130	23-JAN-20
cis-1,3-Dichloropropene			97.3		%		70-130	23-JAN-20
Dibromochloromethane			98.9		%		70-130	23-JAN-20
Dichlorodifluoromethane			110.4		%		50-140	23-JAN-20
Ethylbenzene			95.8		%		70-130	23-JAN-20
n-Hexane			92.8		%		70-130	23-JAN-20
m+p-Xylenes			97.4		%		70-130	23-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4977978								
WG3262145-1 LCS								
Methyl Ethyl Ketone			106.2		%		60-140	23-JAN-20
Methyl Isobutyl Ketone			101.2		%		60-140	23-JAN-20
Methylene Chloride			98.3		%		70-130	23-JAN-20
MTBE			98.9		%		70-130	23-JAN-20
o-Xylene			97.2		%		70-130	23-JAN-20
Styrene			99.0		%		70-130	23-JAN-20
Tetrachloroethylene			97.6		%		70-130	23-JAN-20
Toluene			99.4		%		70-130	23-JAN-20
trans-1,2-Dichloroethylene			95.5		%		70-130	23-JAN-20
trans-1,3-Dichloropropene			99.6		%		70-130	23-JAN-20
Trichloroethylene			96.7		%		70-130	23-JAN-20
Trichlorofluoromethane			97.8		%		60-140	23-JAN-20
Vinyl chloride			113.7		%		60-140	23-JAN-20
WG3262145-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	24-JAN-20
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	24-JAN-20
1,1,1-Trichloroethane			<0.50		ug/L		0.5	24-JAN-20
1,1,2-Trichloroethane			<0.50		ug/L		0.5	24-JAN-20
1,1-Dichloroethane			<0.50		ug/L		0.5	24-JAN-20
1,1-Dichloroethylene			<0.50		ug/L		0.5	24-JAN-20
1,2-Dibromoethane			<0.20		ug/L		0.2	24-JAN-20
1,2-Dichlorobenzene			<0.50		ug/L		0.5	24-JAN-20
1,2-Dichloroethane			<0.50		ug/L		0.5	24-JAN-20
1,2-Dichloropropane			<0.50		ug/L		0.5	24-JAN-20
1,3-Dichlorobenzene			<0.50		ug/L		0.5	24-JAN-20
1,4-Dichlorobenzene			<0.50		ug/L		0.5	24-JAN-20
Acetone			<30		ug/L		30	24-JAN-20
Benzene			<0.50		ug/L		0.5	24-JAN-20
Bromodichloromethane			<2.0		ug/L		2	24-JAN-20
Bromoform			<5.0		ug/L		5	24-JAN-20
Bromomethane			<0.50		ug/L		0.5	24-JAN-20
Carbon tetrachloride			<0.20		ug/L		0.2	24-JAN-20
Chlorobenzene			<0.50		ug/L		0.5	24-JAN-20
Chloroform			<1.0		ug/L		1	24-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4977978								
WG3262145-2 MB								
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	24-JAN-20
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	24-JAN-20
Dibromochloromethane			<2.0		ug/L		2	24-JAN-20
Dichlorodifluoromethane			<2.0		ug/L		2	24-JAN-20
Ethylbenzene			<0.50		ug/L		0.5	24-JAN-20
n-Hexane			<0.50		ug/L		0.5	24-JAN-20
m+p-Xylenes			<0.40		ug/L		0.4	24-JAN-20
Methyl Ethyl Ketone			<20		ug/L		20	24-JAN-20
Methyl Isobutyl Ketone			<20		ug/L		20	24-JAN-20
Methylene Chloride			<5.0		ug/L		5	24-JAN-20
MTBE			<2.0		ug/L		2	24-JAN-20
o-Xylene			<0.30		ug/L		0.3	24-JAN-20
Styrene			<0.50		ug/L		0.5	24-JAN-20
Tetrachloroethylene			<0.50		ug/L		0.5	24-JAN-20
Toluene			<0.50		ug/L		0.5	24-JAN-20
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	24-JAN-20
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	24-JAN-20
Trichloroethylene			<0.50		ug/L		0.5	24-JAN-20
Trichlorofluoromethane			<5.0		ug/L		5	24-JAN-20
Vinyl chloride			<0.50		ug/L		0.5	24-JAN-20
Surrogate: 1,4-Difluorobenzene			102.4		%		70-130	24-JAN-20
Surrogate: 4-Bromofluorobenzene			96.7		%		70-130	24-JAN-20
WG3262145-5 MS		**WG3262145-3**						
1,1,1,2-Tetrachloroethane			97.3		%		50-140	24-JAN-20
1,1,2,2-Tetrachloroethane			99.3		%		50-140	24-JAN-20
1,1,1-Trichloroethane			100.2		%		50-140	24-JAN-20
1,1,2-Trichloroethane			92.6		%		50-140	24-JAN-20
1,1-Dichloroethane			98.1		%		50-140	24-JAN-20
1,1-Dichloroethylene			95.9		%		50-140	24-JAN-20
1,2-Dibromoethane			93.1		%		50-140	24-JAN-20
1,2-Dichlorobenzene			97.0		%		50-140	24-JAN-20
1,2-Dichloroethane			92.0		%		50-140	24-JAN-20
1,2-Dichloropropane			98.0		%		50-140	24-JAN-20
1,3-Dichlorobenzene			99.0		%		50-140	24-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4977978								
WG3262145-5 MS		**WG3262145-3**						
1,4-Dichlorobenzene			98.5		%		50-140	24-JAN-20
Acetone			79.6		%		50-140	24-JAN-20
Benzene			101.5		%		50-140	24-JAN-20
Bromodichloromethane			95.6		%		50-140	24-JAN-20
Bromoform			89.9		%		50-140	24-JAN-20
Bromomethane			87.0		%		50-140	24-JAN-20
Carbon tetrachloride			98.5		%		50-140	24-JAN-20
Chlorobenzene			98.8		%		50-140	24-JAN-20
Chloroform			97.9		%		50-140	24-JAN-20
cis-1,2-Dichloroethylene			90.0		%		50-140	24-JAN-20
cis-1,3-Dichloropropene			94.4		%		50-140	24-JAN-20
Dibromochloromethane			91.3		%		50-140	24-JAN-20
Dichlorodifluoromethane			103.4		%		50-140	24-JAN-20
Ethylbenzene			99.7		%		50-140	24-JAN-20
n-Hexane			94.1		%		50-140	24-JAN-20
m+p-Xylenes			100.9		%		50-140	24-JAN-20
Methyl Ethyl Ketone			84.9		%		50-140	24-JAN-20
Methyl Isobutyl Ketone			85.2		%		50-140	24-JAN-20
Methylene Chloride			91.6		%		50-140	24-JAN-20
MTBE			99.9		%		50-140	24-JAN-20
o-Xylene			99.3		%		50-140	24-JAN-20
Styrene			98.7		%		50-140	24-JAN-20
Tetrachloroethylene			102.9		%		50-140	24-JAN-20
Toluene			101.6		%		50-140	24-JAN-20
trans-1,2-Dichloroethylene			96.6		%		50-140	24-JAN-20
trans-1,3-Dichloropropene			95.9		%		50-140	24-JAN-20
Trichloroethylene			99.0		%		50-140	24-JAN-20
Trichlorofluoromethane			98.3		%		50-140	24-JAN-20
Vinyl chloride			110.6		%		50-140	24-JAN-20

Quality Control Report

Workorder: L2408835 Report Date: 30-JAN-20

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

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
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.

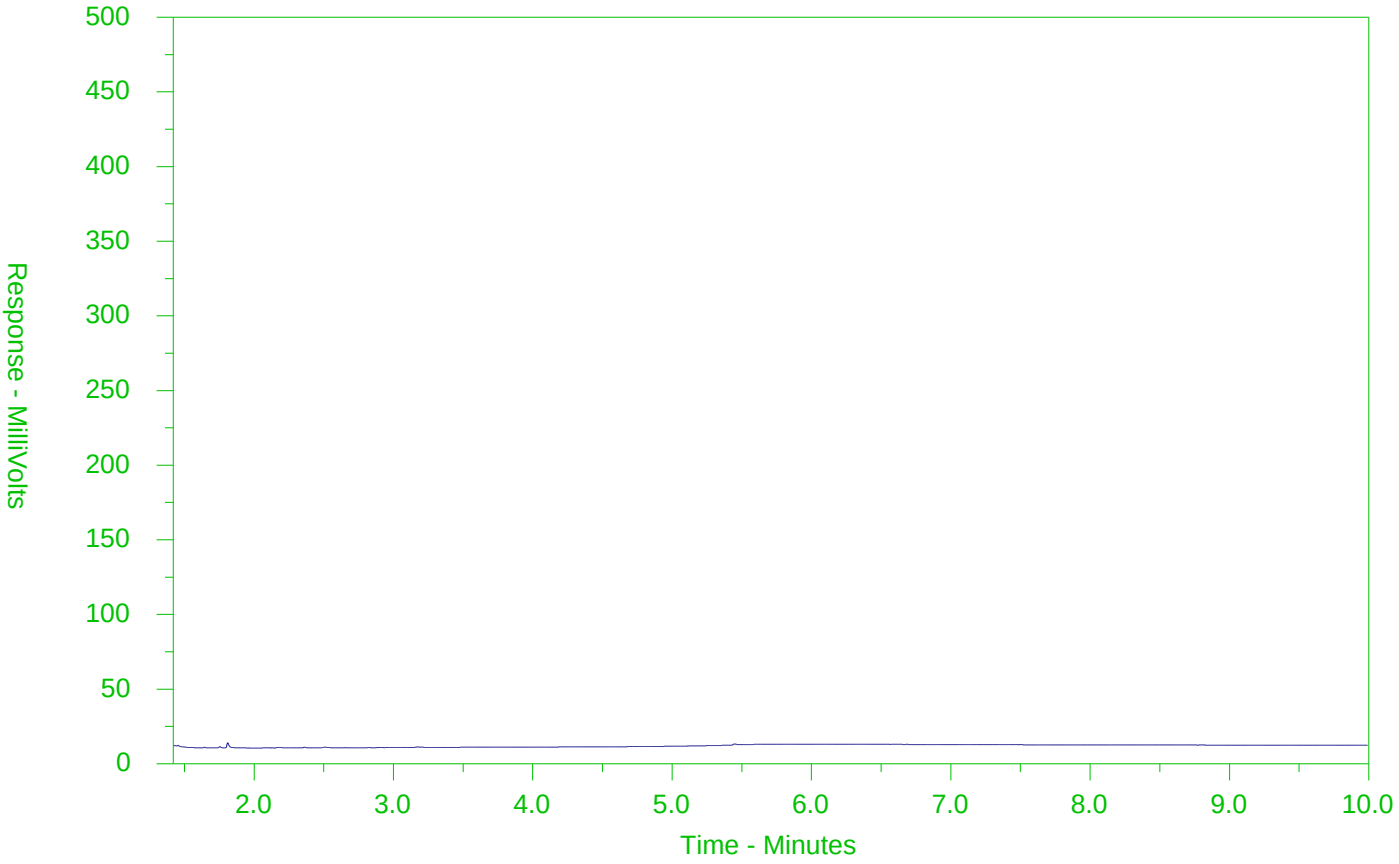
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2408835-1
Client Sample ID: MW112



←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.

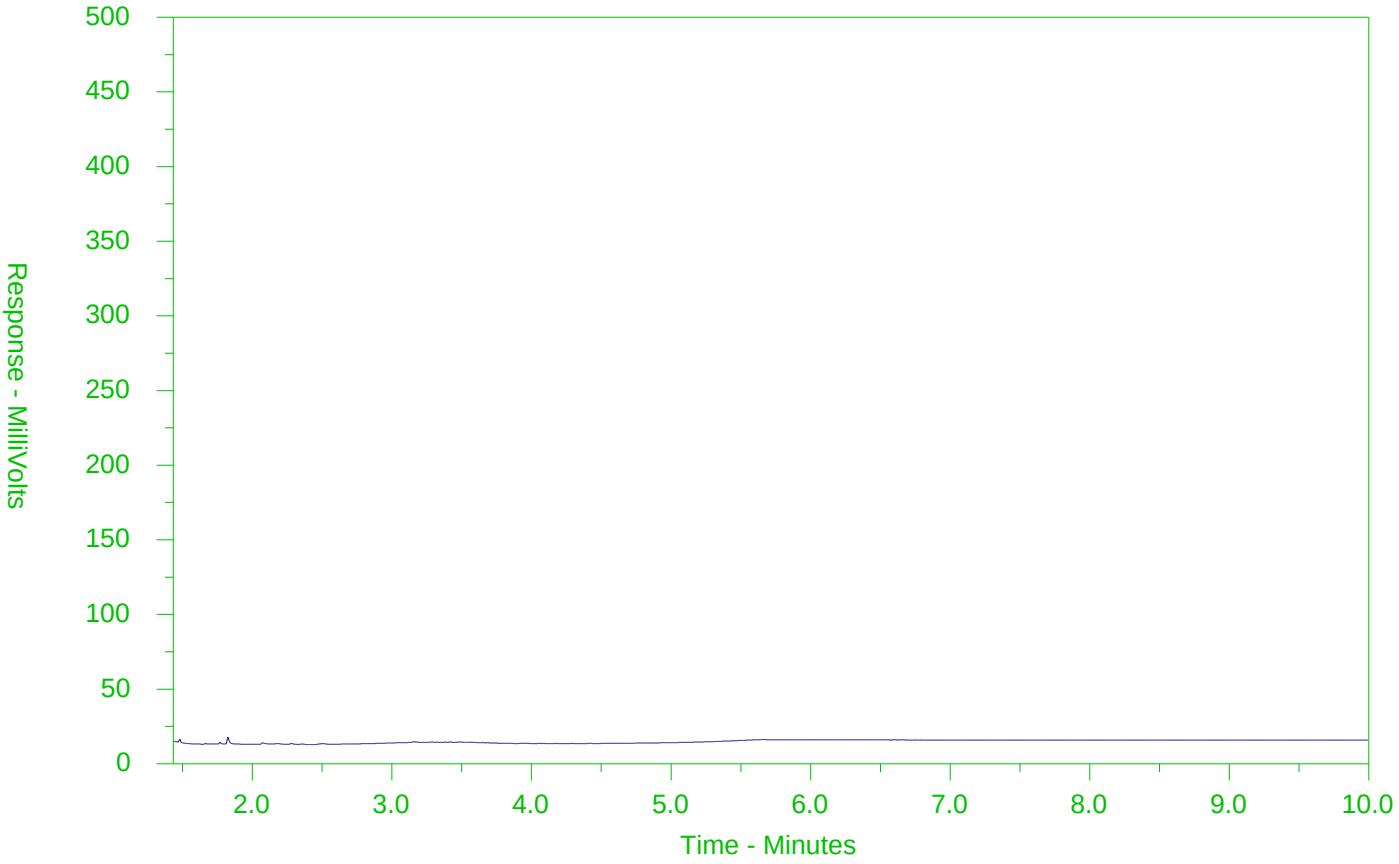
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2408835-2
Client Sample ID: DUP1



←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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com
Canada Toll Free: 1 800 668 9878

L2408835-COFC

COC Number 17 - 724434
Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	Jacobs
Contact:	Michael Shiry
Phone:	519-579-3500
Company address below will appear on the final report	
Street:	12 Victoria St. S, Suite 300
City/Province:	Kitchener, ON
Postal Code:	N2G 4Y9
Invoice To	Same as Report To: YES [X] NO [ ]
	Copy of Invoice with Report: YES [X] NO [ ]
Company:	Jacobs
Contact:	Accounts Payable

Report Format / Distribution

Select Report Format: [X] PDF [X] EXCEL [X] EDD (DIGITAL)
Quality Control (QC) Report with Report: [X] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: [X] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax: michael.shiry@jacobs.com
Email 2: ed.taves@jacobs.com
Email 3: tania.mccarthy@jacobs.com

Invoice Distribution

Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2

Project Information

ALS Account # / Quote #:	Q72950
Job #:	CE751900
PO / AFE	
LSD:	
AFE/Cost Center	PO#
Major/Minor Code	Routing Code
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2408835 KH
ALS Contact:
Sampler: V. Peters

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [X] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days):
- 4 day [P4-20%] [ ]
- 3 day [P3-25%] [ ]
- 2 day [P2-50%] [ ]

EMERGENCY:
- 1 Business day [E-100%] [ ]
- Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply) [ ]

Date and Time Required for all E&P TATs:
For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PHC (F1-F4)+BTEX	PAHs	VOCs	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
					P	P	P			
	MW112	23-01-2020	9:25	Water	X	X	X			4
	DUP1	23-01-2020	—	Water	X	X	X			4
	TB001	—	—	QC			X			2

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [X] NO
Are samples for human consumption/use? [ ] YES [X] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

O. Reg. 153/04 Table 1

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]
Ice Packs [X] Ice Cubes [X] Custody seal intact Yes [ ] No [ ]
Cooling Initiated [X]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				10.4			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
VPeters	2020/01/23	12:15

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
KH	7-23-2020	12:15

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of this white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: Michael Shiry
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 28-JAN-20
Report Date: 03-FEB-20 14:18 (MT)
Version: FINAL REV. 2

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2410311

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-798251
Legal Site Desc:

Comments: ADDITIONAL 03-FEB-20 08:58

Emily Hansen
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2410311-1 MW112						
Sampled By: V.PETER on 28-JAN-20 @ 09:00						
Matrix: WATER						
Volatile Organic Compounds						
Acetone	<30		30	ug/L	29-JAN-20	2700
Benzene	<0.50		0.50	ug/L	29-JAN-20	0.5
Bromodichloromethane	<2.0		2.0	ug/L	29-JAN-20	2
Bromoform	<5.0		5.0	ug/L	29-JAN-20	5
Bromomethane	<0.50		0.50	ug/L	29-JAN-20	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	29-JAN-20	0.2
Chlorobenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
Dibromochloromethane	<2.0		2.0	ug/L	29-JAN-20	2
Chloroform	6.5		1.0	ug/L	29-JAN-20	*2
1,2-Dibromoethane	<0.20		0.20	ug/L	29-JAN-20	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
1,3-Dichlorobenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
1,4-Dichlorobenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
Dichlorodifluoromethane	<2.0		2.0	ug/L	29-JAN-20	590
1,1-Dichloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
1,2-Dichloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
1,1-Dichloroethylene	<0.50		0.50	ug/L	29-JAN-20	0.5
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	29-JAN-20	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	29-JAN-20	1.6
Methylene Chloride	<5.0		5.0	ug/L	29-JAN-20	5
1,2-Dichloropropane	<0.50		0.50	ug/L	29-JAN-20	0.5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	29-JAN-20	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	29-JAN-20	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	29-JAN-20	0.5
Ethylbenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
n-Hexane	<0.50		0.50	ug/L	29-JAN-20	5
Methyl Ethyl Ketone	<20		20	ug/L	29-JAN-20	400
Methyl Isobutyl Ketone	<20		20	ug/L	29-JAN-20	640
MTBE	<2.0		2.0	ug/L	29-JAN-20	15
Styrene	<0.50		0.50	ug/L	29-JAN-20	0.5
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	29-JAN-20	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
Tetrachloroethylene	<0.50		0.50	ug/L	29-JAN-20	0.5
Toluene	<0.50		0.50	ug/L	29-JAN-20	0.8
1,1,1-Trichloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
1,1,2-Trichloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
Trichloroethylene	<0.50		0.50	ug/L	29-JAN-20	0.5
Trichlorofluoromethane	<5.0		5.0	ug/L	29-JAN-20	150
Vinyl chloride	<0.50		0.50	ug/L	29-JAN-20	0.5
o-Xylene	<0.30		0.30	ug/L	29-JAN-20	
m+p-Xylenes	<0.40		0.40	ug/L	29-JAN-20	
Xylenes (Total)	<0.50		0.50	ug/L	29-JAN-20	72
Surrogate: 4-Bromofluorobenzene	101.4		70-130	%	29-JAN-20	
Surrogate: 1,4-Difluorobenzene	99.5		70-130	%	29-JAN-20	
Hydrocarbons						
F1 (C6-C10)	<25		25	ug/L	29-JAN-20	420

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits
L2410311-1 MW112						
Sampled By: V.PETER on 28-JAN-20 @ 09:00						
Matrix: WATER						#1
Hydrocarbons						
F1-BTEX	<25		25	ug/L	29-JAN-20	420
F2 (C10-C16)	<100		100	ug/L	29-JAN-20	150
F3 (C16-C34)	<250		250	ug/L	29-JAN-20	500
F4 (C34-C50)	<250		250	ug/L	29-JAN-20	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	29-JAN-20	
Chrom. to baseline at nC50	YES			No Unit	29-JAN-20	
Surrogate: 2-Bromobenzotrifluoride	86.8		60-140	%	29-JAN-20	
Surrogate: 3,4-Dichlorotoluene	87.7		60-140	%	29-JAN-20	
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	<0.020		0.020	ug/L	03-FEB-20	4.1
Acenaphthylene	<0.020		0.020	ug/L	03-FEB-20	1
Anthracene	<0.020		0.020	ug/L	03-FEB-20	0.1
Benzo(a)anthracene	<0.020		0.020	ug/L	03-FEB-20	0.2
Benzo(a)pyrene	<0.010		0.010	ug/L	03-FEB-20	0.01
Benzo(b)fluoranthene	<0.020		0.020	ug/L	03-FEB-20	0.1
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	03-FEB-20	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	03-FEB-20	0.1
Chrysene	<0.020		0.020	ug/L	03-FEB-20	0.1
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	03-FEB-20	0.2
Fluoranthene	<0.020		0.020	ug/L	03-FEB-20	0.4
Fluorene	<0.020		0.020	ug/L	03-FEB-20	120
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	03-FEB-20	0.2
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	03-FEB-20	2
1-Methylnaphthalene	<0.020		0.020	ug/L	03-FEB-20	2
2-Methylnaphthalene	<0.020		0.020	ug/L	03-FEB-20	2
Naphthalene	<0.050		0.050	ug/L	03-FEB-20	7
Phenanthrene	<0.020		0.020	ug/L	03-FEB-20	0.1
Pyrene	<0.020		0.020	ug/L	03-FEB-20	0.2
Surrogate: d10-Acenaphthene	89.8		60-140	%	03-FEB-20	
Surrogate: d12-Chrysene	103.8		60-140	%	03-FEB-20	
Surrogate: d8-Naphthalene	87.3		60-140	%	03-FEB-20	
Surrogate: d10-Phenanthrene	103.5		60-140	%	03-FEB-20	
L2410311-2 TB002						
Sampled By: V.PETER on 28-JAN-20						
Matrix: WATER						#1
Volatile Organic Compounds						
Acetone	<30		30	ug/L	29-JAN-20	2700
Benzene	<0.50		0.50	ug/L	29-JAN-20	0.5
Bromodichloromethane	<2.0		2.0	ug/L	29-JAN-20	2
Bromoform	<5.0		5.0	ug/L	29-JAN-20	5
Bromomethane	<0.50		0.50	ug/L	29-JAN-20	0.89
Carbon tetrachloride	<0.20		0.20	ug/L	29-JAN-20	0.2
Chlorobenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
Dibromochloromethane	<2.0		2.0	ug/L	29-JAN-20	2
Chloroform	<1.0		1.0	ug/L	29-JAN-20	2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1
L2410311-2 TB002						
Sampled By: V.PETER on 28-JAN-20						
Matrix: WATER						
Volatile Organic Compounds						
1,2-Dibromoethane	<0.20		0.20	ug/L	29-JAN-20	0.2
1,2-Dichlorobenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
1,3-Dichlorobenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
1,4-Dichlorobenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
Dichlorodifluoromethane	<2.0		2.0	ug/L	29-JAN-20	590
1,1-Dichloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
1,2-Dichloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
1,1-Dichloroethylene	<0.50		0.50	ug/L	29-JAN-20	0.5
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	29-JAN-20	1.6
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	29-JAN-20	1.6
Methylene Chloride	<5.0		5.0	ug/L	29-JAN-20	5
1,2-Dichloropropane	<0.50		0.50	ug/L	29-JAN-20	0.5
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	29-JAN-20	
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	29-JAN-20	
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	29-JAN-20	0.5
Ethylbenzene	<0.50		0.50	ug/L	29-JAN-20	0.5
n-Hexane	<0.50		0.50	ug/L	29-JAN-20	5
Methyl Ethyl Ketone	<20		20	ug/L	29-JAN-20	400
Methyl Isobutyl Ketone	<20		20	ug/L	29-JAN-20	640
MTBE	<2.0		2.0	ug/L	29-JAN-20	15
Styrene	<0.50		0.50	ug/L	29-JAN-20	0.5
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	29-JAN-20	1.1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
Tetrachloroethylene	<0.50		0.50	ug/L	29-JAN-20	0.5
Toluene	<0.50		0.50	ug/L	29-JAN-20	0.8
1,1,1-Trichloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
1,1,2-Trichloroethane	<0.50		0.50	ug/L	29-JAN-20	0.5
Trichloroethylene	<0.50		0.50	ug/L	29-JAN-20	0.5
Trichlorofluoromethane	<5.0		5.0	ug/L	29-JAN-20	150
Vinyl chloride	<0.50		0.50	ug/L	29-JAN-20	0.5
o-Xylene	<0.30		0.30	ug/L	29-JAN-20	
m+p-Xylenes	<0.40		0.40	ug/L	29-JAN-20	
Xylenes (Total)	<0.50		0.50	ug/L	29-JAN-20	72
Surrogate: 4-Bromofluorobenzene	99.3		70-130	%	29-JAN-20	
Surrogate: 1,4-Difluorobenzene	99.3		70-130	%	29-JAN-20	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Ground Water-All Types of Property Uses

#1: T1-Ground Water-All Types of Property Uses

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
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.
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	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).

F2-F4-511-WT	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).

METHYLNAPS-CALC-WT	Water	PAH-Calculated Parameters	SW846 8270
PAH-511-WT	Water	PAH-O. Reg 153/04 (July 2011)	SW846 3510/8270

Aqueous samples, fortified with surrogates, are extracted using liquid/liquid extraction technique. The sample extracts are concentrated and then analyzed using GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

VOC-1,3-DCP-CALC-WT	Water	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	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).

XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION

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:

17-798251

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:

Reference Information

Laboratory Definition Code	Laboratory Location	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

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Water**							
Batch R4982948								
WG3265402-4 DUP		**WG3265402-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	29-JAN-20
WG3265402-1 LCS								
F1 (C6-C10)			85.9		%		80-120	29-JAN-20
WG3265402-2 MB								
F1 (C6-C10)			<25		ug/L		25	29-JAN-20
Surrogate: 3,4-Dichlorotoluene			83.0		%		60-140	29-JAN-20
WG3265402-5 MS		**WG3265402-3**						
F1 (C6-C10)			74.8		%		60-140	29-JAN-20
F2-F4-511-WT	**Water**							
Batch R4983409								
WG3265118-2 LCS								
F2 (C10-C16)			101.0		%		70-130	29-JAN-20
F3 (C16-C34)			102.7		%		70-130	29-JAN-20
F4 (C34-C50)			102.8		%		70-130	29-JAN-20
WG3265118-1 MB								
F2 (C10-C16)			<100		ug/L		100	29-JAN-20
F3 (C16-C34)			<250		ug/L		250	29-JAN-20
F4 (C34-C50)			<250		ug/L		250	29-JAN-20
Surrogate: 2-Bromobenzotrifluoride			90.6		%		60-140	29-JAN-20
PAH-511-WT	**Water**							
Batch R4986878								
WG3265118-2 LCS								
1-Methylnaphthalene			82.3		%		50-140	03-FEB-20
2-Methylnaphthalene			80.6		%		50-140	03-FEB-20
Acenaphthene			94.8		%		50-140	03-FEB-20
Acenaphthylene			98.6		%		50-140	03-FEB-20
Anthracene			121.1		%		50-140	03-FEB-20
Benzo(a)anthracene			140.9	LCS-ND	%		50-140	03-FEB-20
Benzo(a)pyrene			104.0		%		50-140	03-FEB-20
Benzo(b)fluoranthene			93.6		%		50-140	03-FEB-20
Benzo(g,h,i)perylene			86.8		%		50-140	03-FEB-20
Benzo(k)fluoranthene			95.1		%		50-140	03-FEB-20
Chrysene			108.8		%		50-140	03-FEB-20
Dibenzo(ah)anthracene			99.8		%		50-140	03-FEB-20
Fluoranthene			104.3		%		50-140	03-FEB-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4986878								
WG3265118-2 LCS								
Fluorene			103.0		%		50-140	03-FEB-20
Indeno(1,2,3-cd)pyrene			113.9		%		50-140	03-FEB-20
Naphthalene			83.4		%		50-140	03-FEB-20
Phenanthrene			109.2		%		50-140	03-FEB-20
Pyrene			108.6		%		50-140	03-FEB-20
WG3265118-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	03-FEB-20
2-Methylnaphthalene			<0.020		ug/L		0.02	03-FEB-20
Acenaphthene			<0.020		ug/L		0.02	03-FEB-20
Acenaphthylene			<0.020		ug/L		0.02	03-FEB-20
Anthracene			<0.020		ug/L		0.02	03-FEB-20
Benzo(a)anthracene			<0.020		ug/L		0.02	03-FEB-20
Benzo(a)pyrene			<0.010		ug/L		0.01	03-FEB-20
Benzo(b)fluoranthene			<0.020		ug/L		0.02	03-FEB-20
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	03-FEB-20
Benzo(k)fluoranthene			<0.020		ug/L		0.02	03-FEB-20
Chrysene			<0.020		ug/L		0.02	03-FEB-20
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	03-FEB-20
Fluoranthene			<0.020		ug/L		0.02	03-FEB-20
Fluorene			<0.020		ug/L		0.02	03-FEB-20
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	03-FEB-20
Naphthalene			<0.050		ug/L		0.05	03-FEB-20
Phenanthrene			<0.020		ug/L		0.02	03-FEB-20
Pyrene			<0.020		ug/L		0.02	03-FEB-20
Surrogate: d8-Naphthalene			95.6		%		60-140	03-FEB-20
Surrogate: d10-Phenanthrene			113.4		%		60-140	03-FEB-20
Surrogate: d12-Chrysene			118.3		%		60-140	03-FEB-20
Surrogate: d10-Acenaphthene			98.6		%		60-140	03-FEB-20
VOC-511-HS-WT	**Water**							
Batch R4982948								
WG3265402-4 DUP		**WG3265402-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4982948								
WG3265402-4 DUP		**WG3265402-3**						
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	29-JAN-20
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	29-JAN-20
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	29-JAN-20
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	29-JAN-20
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	29-JAN-20
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
Chloroform		6.5	6.7		ug/L	2.9	30	29-JAN-20
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	29-JAN-20
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	29-JAN-20
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	29-JAN-20
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	29-JAN-20
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	29-JAN-20
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	29-JAN-20
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	29-JAN-20
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	29-JAN-20
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	29-JAN-20
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
trans-1,2-Dichloroethylene		<0.50	<0.50		ug/L			29-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4982948								
WG3265402-4 DUP		**WG3265402-3**						
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	29-JAN-20
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	29-JAN-20
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-JAN-20
WG3265402-1 LCS								
1,1,1,2-Tetrachloroethane			98.8		%		70-130	29-JAN-20
1,1,2,2-Tetrachloroethane			106.0		%		70-130	29-JAN-20
1,1,1-Trichloroethane			101.2		%		70-130	29-JAN-20
1,1,2-Trichloroethane			103.2		%		70-130	29-JAN-20
1,1-Dichloroethane			105.1		%		70-130	29-JAN-20
1,1-Dichloroethylene			103.8		%		70-130	29-JAN-20
1,2-Dibromoethane			103.3		%		70-130	29-JAN-20
1,2-Dichlorobenzene			103.3		%		70-130	29-JAN-20
1,2-Dichloroethane			102.7		%		70-130	29-JAN-20
1,2-Dichloropropane			115.1		%		70-130	29-JAN-20
1,3-Dichlorobenzene			99.2		%		70-130	29-JAN-20
1,4-Dichlorobenzene			99.4		%		70-130	29-JAN-20
Acetone			106.7		%		60-140	29-JAN-20
Benzene			108.0		%		70-130	29-JAN-20
Bromodichloromethane			103.8		%		70-130	29-JAN-20
Bromoform			104.1		%		70-130	29-JAN-20
Bromomethane			97.5		%		60-140	29-JAN-20
Carbon tetrachloride			101.3		%		70-130	29-JAN-20
Chlorobenzene			102.9		%		70-130	29-JAN-20
Chloroform			105.2		%		70-130	29-JAN-20
cis-1,2-Dichloroethylene			103.3		%		70-130	29-JAN-20
cis-1,3-Dichloropropene			106.4		%		70-130	29-JAN-20
Dibromochloromethane			95.8		%		70-130	29-JAN-20
Dichlorodifluoromethane			98.6		%		50-140	29-JAN-20
Ethylbenzene			101.1		%		70-130	29-JAN-20
n-Hexane			95.2		%		70-130	29-JAN-20
m+p-Xylenes			99.7		%		70-130	29-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4982948								
WG3265402-1 LCS								
Methyl Ethyl Ketone			101.8		%		60-140	29-JAN-20
Methyl Isobutyl Ketone			92.3		%		60-140	29-JAN-20
Methylene Chloride			106.7		%		70-130	29-JAN-20
MTBE			105.8		%		70-130	29-JAN-20
o-Xylene			100.8		%		70-130	29-JAN-20
Styrene			102.8		%		70-130	29-JAN-20
Tetrachloroethylene			99.8		%		70-130	29-JAN-20
Toluene			101.9		%		70-130	29-JAN-20
trans-1,2-Dichloroethylene			98.6		%		70-130	29-JAN-20
trans-1,3-Dichloropropene			105.6		%		70-130	29-JAN-20
Trichloroethylene			102.4		%		70-130	29-JAN-20
Trichlorofluoromethane			98.0		%		60-140	29-JAN-20
Vinyl chloride			109.8		%		60-140	29-JAN-20
WG3265402-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	29-JAN-20
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	29-JAN-20
1,1,1-Trichloroethane			<0.50		ug/L		0.5	29-JAN-20
1,1,2-Trichloroethane			<0.50		ug/L		0.5	29-JAN-20
1,1-Dichloroethane			<0.50		ug/L		0.5	29-JAN-20
1,1-Dichloroethylene			<0.50		ug/L		0.5	29-JAN-20
1,2-Dibromoethane			<0.20		ug/L		0.2	29-JAN-20
1,2-Dichlorobenzene			<0.50		ug/L		0.5	29-JAN-20
1,2-Dichloroethane			<0.50		ug/L		0.5	29-JAN-20
1,2-Dichloropropane			<0.50		ug/L		0.5	29-JAN-20
1,3-Dichlorobenzene			<0.50		ug/L		0.5	29-JAN-20
1,4-Dichlorobenzene			<0.50		ug/L		0.5	29-JAN-20
Acetone			<30		ug/L		30	29-JAN-20
Benzene			<0.50		ug/L		0.5	29-JAN-20
Bromodichloromethane			<2.0		ug/L		2	29-JAN-20
Bromoform			<5.0		ug/L		5	29-JAN-20
Bromomethane			<0.50		ug/L		0.5	29-JAN-20
Carbon tetrachloride			<0.20		ug/L		0.2	29-JAN-20
Chlorobenzene			<0.50		ug/L		0.5	29-JAN-20
Chloroform			<1.0		ug/L		1	29-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4982948								
WG3265402-2 MB								
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	29-JAN-20
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	29-JAN-20
Dibromochloromethane			<2.0		ug/L		2	29-JAN-20
Dichlorodifluoromethane			<2.0		ug/L		2	29-JAN-20
Ethylbenzene			<0.50		ug/L		0.5	29-JAN-20
n-Hexane			<0.50		ug/L		0.5	29-JAN-20
m+p-Xylenes			<0.40		ug/L		0.4	29-JAN-20
Methyl Ethyl Ketone			<20		ug/L		20	29-JAN-20
Methyl Isobutyl Ketone			<20		ug/L		20	29-JAN-20
Methylene Chloride			<5.0		ug/L		5	29-JAN-20
MTBE			<2.0		ug/L		2	29-JAN-20
o-Xylene			<0.30		ug/L		0.3	29-JAN-20
Styrene			<0.50		ug/L		0.5	29-JAN-20
Tetrachloroethylene			<0.50		ug/L		0.5	29-JAN-20
Toluene			<0.50		ug/L		0.5	29-JAN-20
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	29-JAN-20
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	29-JAN-20
Trichloroethylene			<0.50		ug/L		0.5	29-JAN-20
Trichlorofluoromethane			<5.0		ug/L		5	29-JAN-20
Vinyl chloride			<0.50		ug/L		0.5	29-JAN-20
Surrogate: 1,4-Difluorobenzene			100.6		%		70-130	29-JAN-20
Surrogate: 4-Bromofluorobenzene			100.7		%		70-130	29-JAN-20
WG3265402-5 MS		**WG3265402-3**						
1,1,1,2-Tetrachloroethane			99.6		%		50-140	29-JAN-20
1,1,2,2-Tetrachloroethane			104.3		%		50-140	29-JAN-20
1,1,1-Trichloroethane			101.2		%		50-140	29-JAN-20
1,1,2-Trichloroethane			103.0		%		50-140	29-JAN-20
1,1-Dichloroethane			103.7		%		50-140	29-JAN-20
1,1-Dichloroethylene			100.3		%		50-140	29-JAN-20
1,2-Dibromoethane			102.0		%		50-140	29-JAN-20
1,2-Dichlorobenzene			102.8		%		50-140	29-JAN-20
1,2-Dichloroethane			102.0		%		50-140	29-JAN-20
1,2-Dichloropropane			115.2		%		50-140	29-JAN-20
1,3-Dichlorobenzene			99.1		%		50-140	29-JAN-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4982948								
WG3265402-5 MS		**WG3265402-3**						
1,4-Dichlorobenzene			98.8		%		50-140	29-JAN-20
Acetone			110.3		%		50-140	29-JAN-20
Benzene			107.3		%		50-140	29-JAN-20
Bromodichloromethane			103.9		%		50-140	29-JAN-20
Bromoform			101.5		%		50-140	29-JAN-20
Bromomethane			88.7		%		50-140	29-JAN-20
Carbon tetrachloride			101.4		%		50-140	29-JAN-20
Chlorobenzene			102.6		%		50-140	29-JAN-20
Chloroform			106.0		%		50-140	29-JAN-20
cis-1,2-Dichloroethylene			102.4		%		50-140	29-JAN-20
cis-1,3-Dichloropropene			108.7		%		50-140	29-JAN-20
Dibromochloromethane			94.4		%		50-140	29-JAN-20
Dichlorodifluoromethane			85.7		%		50-140	29-JAN-20
Ethylbenzene			101.2		%		50-140	29-JAN-20
n-Hexane			91.1		%		50-140	29-JAN-20
m+p-Xylenes			99.3		%		50-140	29-JAN-20
Methyl Ethyl Ketone			103.2		%		50-140	29-JAN-20
Methyl Isobutyl Ketone			92.1		%		50-140	29-JAN-20
Methylene Chloride			104.9		%		50-140	29-JAN-20
MTBE			105.0		%		50-140	29-JAN-20
o-Xylene			100.9		%		50-140	29-JAN-20
Styrene			102.1		%		50-140	29-JAN-20
Tetrachloroethylene			99.6		%		50-140	29-JAN-20
Toluene			102.2		%		50-140	29-JAN-20
trans-1,2-Dichloroethylene			95.8		%		50-140	29-JAN-20
trans-1,3-Dichloropropene			102.7		%		50-140	29-JAN-20
Trichloroethylene			102.2		%		50-140	29-JAN-20
Trichlorofluoromethane			93.7		%		50-140	29-JAN-20
Vinyl chloride			100.1		%		50-140	29-JAN-20

Quality Control Report

Workorder: L2410311 Report Date: 03-FEB-20

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: Michael Shiry

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
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.
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.

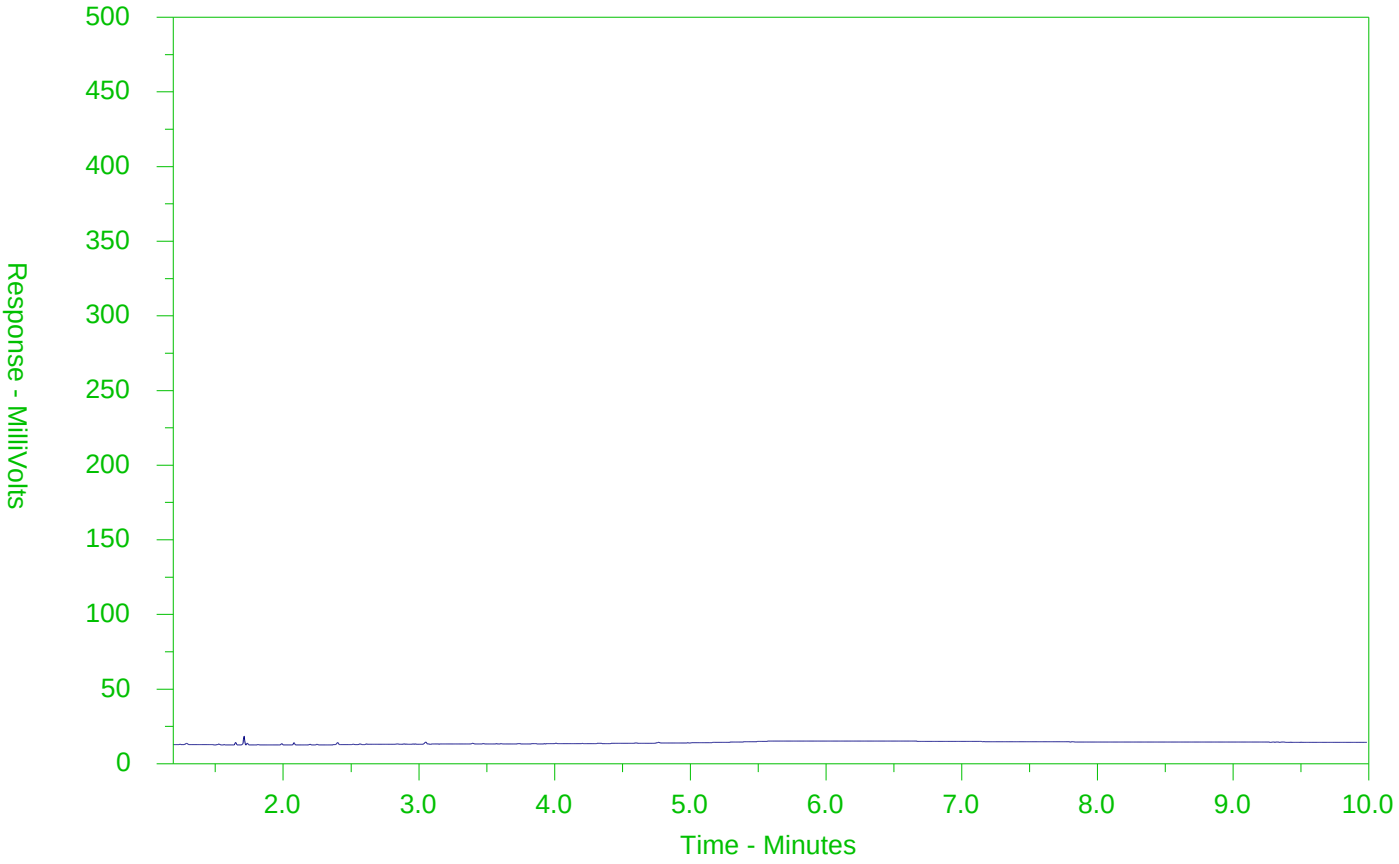
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2410311-1
Client Sample ID: MW112



←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.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2410311-COFC

COC Number 17 - 798251

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Jacobs	Select Report Format: [X] PDF [X] EXCEL [X] EDD (DIGITAL)	Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Michael Shiry	Quality Control (QC) Report with Report [X] YES [ ] NO	PRIORITY (Business days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [X]
Phone:	519-579-3500	[ ] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] [ ]; Same Day, Weekend or Statutory holiday [E2 -200%] (Laboratory opening fees may apply) [ ]
	Company address below will appear on the final report	Select Distribution: [X] EMAIL [ ] MAIL [ ] FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh mm
Street:	72 Victoria St. S Suite 300	Email 1 or Fax michael.shiry@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener, ON	Email 2 ed.taves@jacobs.com	
Postal Code:	N2G 4G9	Email 3 tania.mccarthy@jacobs.com	
Invoice To	Same as Report To [X] YES [ ] NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report [X] YES [ ] NO	Select Invoice Distribution: [X] EMAIL [ ] MAIL [ ] FAX	
Company:	Jacobs	Email 1 or Fax	
Contact	Accounts Payable	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q72980	AFE/Cost Center:	PO#:
Job #:	CE257900	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2410311	ALS Contact:	Sampler: V. Peters

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	PHC (F1-F4)	DAH	VOC	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW12	28-01-2020	9:00	water	4	X	X	X		
	TB002			QC	2			X		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [X] NO	O. Reg 153/04 Table 1
Are samples for human consumption/ use? [ ] YES [X] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs	[X]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No [ ]
Cooling Initiated	[ ]				

INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C	
		18.9	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
V. Peters	2020/01/28	10:35					Jan 28/20	1035

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

1. If any water samples are taken from a Regulated Drinking Water (DW) System please submit using an Authorized DW COC form

CH2M HILL CANADA LIMITED
ATTN: MICHAEL SHIRY
CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 09-APR-20
Report Date: 20-APR-20 12:40 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2436005

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-795995
Legal Site Desc:

Emily Hansen
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2436005-1 MW113-2.5-4.5 Sampled By: J. GOWING on 09-APR-20 @ 10:50 Matrix: SOIL							
Physical Tests							
Conductivity	1.66		0.0040	mS/cm		17-APR-20	R5057777
% Moisture	8.79		0.25	%	13-APR-20	14-APR-20	R5056197
pH	7.93		0.10	pH units		14-APR-20	R5056536
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	13-APR-20	14-APR-20	R5056331
Saturated Paste Extractables							
SAR	45.6		0.10	SAR		15-APR-20	R5057105
Calcium (Ca)	2.84		0.50	mg/L		15-APR-20	R5057105
Magnesium (Mg)	0.50		0.50	mg/L		15-APR-20	R5057105
Sodium (Na)	317		0.50	mg/L		15-APR-20	R5057105
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Arsenic (As)	3.4		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Barium (Ba)	34.7		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Beryllium (Be)	<0.50		0.50	ug/g	14-APR-20	15-APR-20	R5056938
Boron (B)	<5.0		5.0	ug/g	14-APR-20	15-APR-20	R5056938
Boron (B), Hot Water Ext.	0.19		0.10	ug/g	15-APR-20	15-APR-20	R5057095
Cadmium (Cd)	<0.50		0.50	ug/g	14-APR-20	15-APR-20	R5056938
Chromium (Cr)	16.2		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Cobalt (Co)	4.0		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Copper (Cu)	16.1		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Lead (Pb)	41.6		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Mercury (Hg)	0.0623		0.0050	ug/g	14-APR-20	15-APR-20	R5057093
Molybdenum (Mo)	<1.0		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Nickel (Ni)	8.3		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Selenium (Se)	<1.0		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Silver (Ag)	<0.20		0.20	ug/g	14-APR-20	15-APR-20	R5056938
Thallium (Tl)	<0.50		0.50	ug/g	14-APR-20	15-APR-20	R5056938
Uranium (U)	<1.0		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Vanadium (V)	24.7		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Zinc (Zn)	108		5.0	ug/g	14-APR-20	15-APR-20	R5056938
Speciated Metals							
Chromium, Hexavalent	0.31		0.20	ug/g	16-APR-20	17-APR-20	R5058591
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	10-APR-20	15-APR-20	R5056750
Benzene	<0.0068		0.0068	ug/g	10-APR-20	15-APR-20	R5056750
Bromodichloromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Bromoform	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Bromomethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Carbon tetrachloride	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Chlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Dibromochloromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2436005-1 MW113-2.5-4.5 Sampled By: J. GOWING on 09-APR-20 @ 10:50 Matrix: SOIL							
Volatile Organic Compounds							
Chloroform	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dibromoethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dichlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,3-Dichlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,4-Dichlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Dichlorodifluoromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1-Dichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1-Dichloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Methylene Chloride	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dichloropropane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	10-APR-20	15-APR-20	R5056750
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	10-APR-20	15-APR-20	R5056750
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		15-APR-20	
Ethylbenzene	<0.018		0.018	ug/g	10-APR-20	15-APR-20	R5056750
n-Hexane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Methyl Ethyl Ketone	<0.50		0.50	ug/g	10-APR-20	15-APR-20	R5056750
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	10-APR-20	15-APR-20	R5056750
MTBE	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Styrene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Tetrachloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Toluene	<0.080		0.080	ug/g	10-APR-20	15-APR-20	R5056750
1,1,1-Trichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1,2-Trichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Trichloroethylene	<0.010		0.010	ug/g	10-APR-20	15-APR-20	R5056750
Trichlorofluoromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Vinyl chloride	<0.020		0.020	ug/g	10-APR-20	15-APR-20	R5056750
o-Xylene	<0.020		0.020	ug/g	10-APR-20	15-APR-20	R5056750
m+p-Xylenes	<0.030		0.030	ug/g	10-APR-20	15-APR-20	R5056750
Xylenes (Total)	<0.050		0.050	ug/g		15-APR-20	
Surrogate: 4-Bromofluorobenzene	99.5		50-140	%	10-APR-20	15-APR-20	R5056750
Surrogate: 1,4-Difluorobenzene	112.5		50-140	%	10-APR-20	15-APR-20	R5056750
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	10-APR-20	15-APR-20	R5056750
F1-BTEX	<5.0		5.0	ug/g		15-APR-20	
F2 (C10-C16)	<10		10	ug/g	14-APR-20	14-APR-20	R5056757
F2-Naphth	<10		10	ug/g		15-APR-20	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2436005-1 MW113-2.5-4.5 Sampled By: J. GOWING on 09-APR-20 @ 10:50 Matrix: SOIL							
Hydrocarbons							
F3 (C16-C34)	54		50	ug/g	14-APR-20	14-APR-20	R5056757
F3-PAH	54		50	ug/g		15-APR-20	
F4 (C34-C50)	181		50	ug/g	14-APR-20	14-APR-20	R5056757
F4G-SG (GHH-Silica)	550		250	ug/g	14-APR-20	14-APR-20	R5056831
Total Hydrocarbons (C6-C50)	235		72	ug/g		15-APR-20	
Chrom. to baseline at nC50	NO				14-APR-20	14-APR-20	R5056757
Surrogate: 2-Bromobenzotrifluoride	104.2		60-140	%	14-APR-20	14-APR-20	R5056757
Surrogate: 3,4-Dichlorotoluene	82.1		60-140	%	10-APR-20	15-APR-20	R5056750
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Acenaphthylene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Anthracene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(a)anthracene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(a)pyrene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(b)fluoranthene	0.055		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(k)fluoranthene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Chrysene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Fluoranthene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Fluorene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		15-APR-20	
1-Methylnaphthalene	<0.030		0.030	ug/g	14-APR-20	15-APR-20	R5056710
2-Methylnaphthalene	<0.030		0.030	ug/g	14-APR-20	15-APR-20	R5056710
Naphthalene	<0.013		0.013	ug/g	14-APR-20	15-APR-20	R5056710
Phenanthrene	<0.046		0.046	ug/g	14-APR-20	15-APR-20	R5056710
Pyrene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Surrogate: 2-Fluorobiphenyl	98.1		50-140	%	14-APR-20	15-APR-20	R5056710
Surrogate: p-Terphenyl d14	110.6		50-140	%	14-APR-20	15-APR-20	R5056710
L2436005-2 MW113-6.5-8.5 Sampled By: J. GOWING on 09-APR-20 @ 11:00 Matrix: SOIL							
Physical Tests							
Conductivity	1.87		0.0040	mS/cm		17-APR-20	R5057777
% Moisture	5.03		0.25	%	13-APR-20	14-APR-20	R5056197
pH	8.13		0.10	pH units		14-APR-20	R5056536
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	13-APR-20	14-APR-20	R5056331
Saturated Paste Extractables							
SAR	108	SAR:M	0.10	SAR		15-APR-20	R5057105
Calcium (Ca)	0.79		0.50	mg/L		15-APR-20	R5057105

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2436005-2 MW113-6.5-8.5 Sampled By: J. GOWING on 09-APR-20 @ 11:00 Matrix: SOIL							
Saturated Paste Extractables							
Magnesium (Mg)	<0.50		0.50	mg/L		15-APR-20	R5057105
Sodium (Na)	349		0.50	mg/L		15-APR-20	R5057105
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Arsenic (As)	2.8		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Barium (Ba)	21.1		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Beryllium (Be)	<0.50		0.50	ug/g	14-APR-20	15-APR-20	R5056938
Boron (B)	6.2		5.0	ug/g	14-APR-20	15-APR-20	R5056938
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	15-APR-20	15-APR-20	R5057095
Cadmium (Cd)	<0.50		0.50	ug/g	14-APR-20	15-APR-20	R5056938
Chromium (Cr)	11.5		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Cobalt (Co)	3.8		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Copper (Cu)	10.4		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Lead (Pb)	16.6		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Mercury (Hg)	<0.0050		0.0050	ug/g	14-APR-20	15-APR-20	R5057093
Molybdenum (Mo)	<1.0		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Nickel (Ni)	8.2		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Selenium (Se)	<1.0		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Silver (Ag)	<0.20		0.20	ug/g	14-APR-20	15-APR-20	R5056938
Thallium (Tl)	<0.50		0.50	ug/g	14-APR-20	15-APR-20	R5056938
Uranium (U)	<1.0		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Vanadium (V)	17.7		1.0	ug/g	14-APR-20	15-APR-20	R5056938
Zinc (Zn)	94.9		5.0	ug/g	14-APR-20	15-APR-20	R5056938
Speciated Metals							
Chromium, Hexavalent	0.44		0.20	ug/g	16-APR-20	17-APR-20	R5058591
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	10-APR-20	15-APR-20	R5056750
Benzene	<0.0068		0.0068	ug/g	10-APR-20	15-APR-20	R5056750
Bromodichloromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Bromoform	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Bromomethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Carbon tetrachloride	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Chlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Dibromochloromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Chloroform	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dibromoethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dichlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,3-Dichlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,4-Dichlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Dichlorodifluoromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1-Dichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2436005-2 MW113-6.5-8.5 Sampled By: J. GOWING on 09-APR-20 @ 11:00 Matrix: SOIL							
Volatile Organic Compounds							
1,1-Dichloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Methylene Chloride	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dichloropropane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	10-APR-20	15-APR-20	R5056750
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	10-APR-20	15-APR-20	R5056750
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		15-APR-20	
Ethylbenzene	<0.018		0.018	ug/g	10-APR-20	15-APR-20	R5056750
n-Hexane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Methyl Ethyl Ketone	<0.50		0.50	ug/g	10-APR-20	15-APR-20	R5056750
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	10-APR-20	15-APR-20	R5056750
MTBE	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Styrene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Tetrachloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Toluene	<0.080		0.080	ug/g	10-APR-20	15-APR-20	R5056750
1,1,1-Trichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1,2-Trichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Trichloroethylene	<0.010		0.010	ug/g	10-APR-20	15-APR-20	R5056750
Trichlorofluoromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Vinyl chloride	<0.020		0.020	ug/g	10-APR-20	15-APR-20	R5056750
o-Xylene	<0.020		0.020	ug/g	10-APR-20	15-APR-20	R5056750
m+p-Xylenes	<0.030		0.030	ug/g	10-APR-20	15-APR-20	R5056750
Xylenes (Total)	<0.050		0.050	ug/g		15-APR-20	
Surrogate: 4-Bromofluorobenzene	99.6		50-140	%	10-APR-20	15-APR-20	R5056750
Surrogate: 1,4-Difluorobenzene	113.6		50-140	%	10-APR-20	15-APR-20	R5056750
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	10-APR-20	15-APR-20	R5056750
F1-BTEX	<5.0		5.0	ug/g		15-APR-20	
F2 (C10-C16)	<10		10	ug/g	14-APR-20	14-APR-20	R5056757
F2-Naphth	<10		10	ug/g		15-APR-20	
F3 (C16-C34)	<50		50	ug/g	14-APR-20	14-APR-20	R5056757
F3-PAH	<50		50	ug/g		15-APR-20	
F4 (C34-C50)	<50		50	ug/g	14-APR-20	14-APR-20	R5056757
Total Hydrocarbons (C6-C50)	<72		72	ug/g		15-APR-20	
Chrom. to baseline at nC50	YES				14-APR-20	14-APR-20	R5056757
Surrogate: 2-Bromobenzotrifluoride	82.5		60-140	%	14-APR-20	14-APR-20	R5056757
Surrogate: 3,4-Dichlorotoluene	72.5		60-140	%	10-APR-20	15-APR-20	R5056750
Polycyclic Aromatic Hydrocarbons							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2436005-2 MW113-6.5-8.5 Sampled By: J. GOWING on 09-APR-20 @ 11:00 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Acenaphthylene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Anthracene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(a)anthracene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(a)pyrene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(b)fluoranthene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Benzo(k)fluoranthene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Chrysene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Fluoranthene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Fluorene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		15-APR-20	
1-Methylnaphthalene	<0.030		0.030	ug/g	14-APR-20	15-APR-20	R5056710
2-Methylnaphthalene	<0.030		0.030	ug/g	14-APR-20	15-APR-20	R5056710
Naphthalene	<0.013		0.013	ug/g	14-APR-20	15-APR-20	R5056710
Phenanthrene	<0.046		0.046	ug/g	14-APR-20	15-APR-20	R5056710
Pyrene	<0.050		0.050	ug/g	14-APR-20	15-APR-20	R5056710
Surrogate: 2-Fluorobiphenyl	97.3		50-140	%	14-APR-20	15-APR-20	R5056710
Surrogate: p-Terphenyl d14	110.8		50-140	%	14-APR-20	15-APR-20	R5056710
L2436005-5 BH207L-1-2 Sampled By: J. GOWING on 09-APR-20 @ 14:10 Matrix: SOIL							
Physical Tests							
% Moisture	5.33		0.25	%	13-APR-20	14-APR-20	R5056197
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	10-APR-20	15-APR-20	R5056750
F2 (C10-C16)	<10		10	ug/g	14-APR-20	14-APR-20	R5056757
F3 (C16-C34)	<50		50	ug/g	14-APR-20	14-APR-20	R5056757
F4 (C34-C50)	<50		50	ug/g	14-APR-20	14-APR-20	R5056757
Total Hydrocarbons (C6-C50)	<72		72	ug/g		15-APR-20	
Chrom. to baseline at nC50	YES				14-APR-20	14-APR-20	R5056757
Surrogate: 2-Bromobenzotrifluoride	97.5		60-140	%	14-APR-20	14-APR-20	R5056757
Surrogate: 3,4-Dichlorotoluene	80.9		60-140	%	10-APR-20	15-APR-20	R5056750
L2436005-6 BH207L-7.5-9.5 Sampled By: J. GOWING on 09-APR-20 @ 14:30 Matrix: SOIL							
Physical Tests							
% Moisture	10.9		0.25	%	13-APR-20	14-APR-20	R5056197
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	10-APR-20	15-APR-20	R5056750

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2436005-6 BH207L-7.5-9.5 Sampled By: J. GOWING on 09-APR-20 @ 14:30 Matrix: SOIL							
Hydrocarbons							
F2 (C10-C16)	<10		10	ug/g	14-APR-20	14-APR-20	R5056757
F3 (C16-C34)	<50		50	ug/g	14-APR-20	14-APR-20	R5056757
F4 (C34-C50)	<50		50	ug/g	14-APR-20	14-APR-20	R5056757
Total Hydrocarbons (C6-C50)	<72		72	ug/g		15-APR-20	
Chrom. to baseline at nC50	YES				14-APR-20	14-APR-20	R5056757
Surrogate: 2-Bromobenzotrifluoride	100.2		60-140	%	14-APR-20	14-APR-20	R5056757
Surrogate: 3,4-Dichlorotoluene	75.9		60-140	%	10-APR-20	15-APR-20	R5056750
L2436005-7 TRIP BLANK Sampled By: J. GOWING on 09-APR-20 Matrix: SOIL							
Physical Tests							
% Moisture	<0.25		0.25	%	13-APR-20	14-APR-20	R5056197
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	10-APR-20	15-APR-20	R5056750
Benzene	<0.0068		0.0068	ug/g	10-APR-20	15-APR-20	R5056750
Bromodichloromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Bromoform	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Bromomethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Carbon tetrachloride	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Chlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Dibromochloromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Chloroform	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dibromoethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dichlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,3-Dichlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,4-Dichlorobenzene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Dichlorodifluoromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1-Dichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1-Dichloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Methylene Chloride	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,2-Dichloropropane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	10-APR-20	15-APR-20	R5056750
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	10-APR-20	15-APR-20	R5056750
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		15-APR-20	
Ethylbenzene	<0.018		0.018	ug/g	10-APR-20	15-APR-20	R5056750
n-Hexane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Methyl Ethyl Ketone	<0.50		0.50	ug/g	10-APR-20	15-APR-20	R5056750
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	10-APR-20	15-APR-20	R5056750
MTBE	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2436005-7 TRIP BLANK Sampled By: J. GOWING on 09-APR-20 Matrix: SOIL							
Volatile Organic Compounds							
Styrene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Tetrachloroethylene	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Toluene	<0.080		0.080	ug/g	10-APR-20	15-APR-20	R5056750
1,1,1-Trichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
1,1,2-Trichloroethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Trichloroethylene	<0.010		0.010	ug/g	10-APR-20	15-APR-20	R5056750
Trichlorofluoromethane	<0.050		0.050	ug/g	10-APR-20	15-APR-20	R5056750
Vinyl chloride	<0.020		0.020	ug/g	10-APR-20	15-APR-20	R5056750
o-Xylene	<0.020		0.020	ug/g	10-APR-20	15-APR-20	R5056750
m+p-Xylenes	<0.030		0.030	ug/g	10-APR-20	15-APR-20	R5056750
Xylenes (Total)	<0.050		0.050	ug/g		15-APR-20	
Surrogate: 4-Bromofluorobenzene	94.7		50-140	%	10-APR-20	15-APR-20	R5056750
Surrogate: 1,4-Difluorobenzene	108.8		50-140	%	10-APR-20	15-APR-20	R5056750
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	10-APR-20	15-APR-20	R5056750
Surrogate: 3,4-Dichlorotoluene	81.3		60-140	%	10-APR-20	15-APR-20	R5056750

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Laboratory Control Sample	Dichlorodifluoromethane	MES	L2436005-1, -2, -7

Sample Parameter Qualifier key listed:

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).
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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.

Reference Information

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)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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).

METHYLNAPS-CALC-WT Soil ABN-Calculated Parameters SW846 8270

MOISTURE-WT Soil % Moisture CCME PHC in Soil - Tier 1 (mod)

PAH-511-WT Soil PAH-O.Reg 153/04 (July 2011) SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG

Reference Information

must be reported).

PH-WT	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.

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).

SAR-R511-WT	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 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).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

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).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

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.

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

Chain of Custody Numbers:

17-795995

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 weight of sample
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.

Quality Control Report

Workorder: L2436005 Report Date: 20-APR-20

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R5057095								
WG3307821-4 DUP		**L2436017-12**						
Boron (B), Hot Water Ext.		0.11	0.11		ug/g	4.6	30	15-APR-20
WG3307821-2 IRM		**WT SAR4**						
Boron (B), Hot Water Ext.			96.9		%		70-130	15-APR-20
WG3307821-3 LCS								
Boron (B), Hot Water Ext.			99.9		%		70-130	15-APR-20
WG3307821-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	15-APR-20
CN-WAD-R511-WT	**Soil**							
Batch R5056331								
WG3306955-3 DUP		**L2435780-3**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	14-APR-20
WG3306955-2 LCS								
Cyanide, Weak Acid Diss			98.0		%		80-120	14-APR-20
WG3306955-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	14-APR-20
WG3306955-4 MS		**L2435780-3**						
Cyanide, Weak Acid Diss			99.3		%		70-130	14-APR-20
CR-CR6-IC-WT	**Soil**							
Batch R5058591								
WG3308769-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			90.1		%		70-130	17-APR-20
WG3308769-3 DUP		**L2436005-1**						
Chromium, Hexavalent		0.31	0.32		ug/g	5.2	35	17-APR-20
WG3308769-2 LCS								
Chromium, Hexavalent			101.0		%		80-120	17-APR-20
WG3308769-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	17-APR-20
EC-WT	**Soil**							
Batch R5057777								
WG3307822-4 DUP		**WG3307822-3**						
Conductivity		1.41	1.28		mS/cm	9.6	20	17-APR-20
WG3307822-2 IRM		**WT SAR4**						
Conductivity			108.1		%		70-130	17-APR-20
WG3308087-1 LCS								
Conductivity			100.0		%		90-110	17-APR-20
WG3307822-1 MB								

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R5057777								
WG3307822-1 MB								
Conductivity			<0.0040		mS/cm		0.004	17-APR-20
F1-HS-511-WT	**Soil**							
Batch R5056750								
WG3306504-4 DUP		**WG3306504-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	15-APR-20
WG3306504-2 LCS								
F1 (C6-C10)			107.5		%		80-120	15-APR-20
WG3306504-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	15-APR-20
Surrogate: 3,4-Dichlorotoluene			84.1		%		60-140	15-APR-20
WG3306504-6 MS		**L2435780-6**						
F1 (C6-C10)			114.1		%		60-140	15-APR-20
F2-F4-511-WT	**Soil**							
Batch R5056757								
WG3307349-3 DUP		**WG3307349-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	14-APR-20
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	14-APR-20
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	14-APR-20
WG3307349-2 LCS								
F2 (C10-C16)			111.9		%		80-120	15-APR-20
F3 (C16-C34)			112.9		%		80-120	15-APR-20
F4 (C34-C50)			111.3		%		80-120	15-APR-20
WG3307349-1 MB								
F2 (C10-C16)			<10		ug/g		10	14-APR-20
F3 (C16-C34)			<50		ug/g		50	14-APR-20
F4 (C34-C50)			<50		ug/g		50	14-APR-20
Surrogate: 2-Bromobenzotrifluoride			92.3		%		60-140	14-APR-20
WG3307349-4 MS		**WG3307349-5**						
F2 (C10-C16)			109.1		%		60-140	15-APR-20
F3 (C16-C34)			110.0		%		60-140	15-APR-20
F4 (C34-C50)			107.7		%		60-140	15-APR-20
F4G-ADD-511-WT	**Soil**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F4G-ADD-511-WT	**Soil**							
Batch R5056831								
WG3308093-2 LCS								
F4G-SG (GHH-Silica)			83.6		%		60-140	14-APR-20
WG3308093-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	14-APR-20
HG-200.2-CVAA-WT	**Soil**							
Batch R5057093								
WG3307816-2 CRM		**WT-CANMET-TILL2**						
Mercury (Hg)			129.4		%		70-130	15-APR-20
WG3307816-6 DUP		**WG3307816-5**						
Mercury (Hg)		0.0100	0.0100		ug/g	0.5	40	15-APR-20
WG3307816-3 LCS								
Mercury (Hg)			112.0		%		80-120	15-APR-20
WG3307816-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	15-APR-20
MET-200.2-CCMS-WT	**Soil**							
Batch R5056938								
WG3307816-2 CRM		**WT-CANMET-TILL2**						
Antimony (Sb)			86.0		%		70-130	15-APR-20
Arsenic (As)			109.5		%		70-130	15-APR-20
Barium (Ba)			108.5		%		70-130	15-APR-20
Beryllium (Be)			100.9		%		70-130	15-APR-20
Boron (B)			2.9		mg/kg		0-8.6	15-APR-20
Cadmium (Cd)			102.3		%		70-130	15-APR-20
Chromium (Cr)			108.1		%		70-130	15-APR-20
Cobalt (Co)			109.5		%		70-130	15-APR-20
Copper (Cu)			109.9		%		70-130	15-APR-20
Lead (Pb)			105.1		%		70-130	15-APR-20
Molybdenum (Mo)			105.9		%		70-130	15-APR-20
Nickel (Ni)			110.6		%		70-130	15-APR-20
Selenium (Se)			0.37		mg/kg		0.15-0.55	15-APR-20
Silver (Ag)			0.27		mg/kg		0.16-0.36	15-APR-20
Thallium (Tl)			100.4		%		70-130	15-APR-20
Uranium (U)			96.1		%		70-130	15-APR-20
Vanadium (V)			108.5		%		70-130	15-APR-20
Zinc (Zn)			106.4		%		70-130	15-APR-20
WG3307816-6 DUP		**WG3307816-5**						

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5056938								
WG3307816-6 DUP		**WG3307816-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	15-APR-20
Arsenic (As)		3.06	3.03		ug/g	1.1	30	15-APR-20
Barium (Ba)		24.9	23.5		ug/g	5.9	40	15-APR-20
Beryllium (Be)		0.24	0.25		ug/g	1.4	30	15-APR-20
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	15-APR-20
Cadmium (Cd)		0.064	0.057		ug/g	10	30	15-APR-20
Chromium (Cr)		10.1	9.48		ug/g	6.1	30	15-APR-20
Cobalt (Co)		4.81	4.59		ug/g	4.8	30	15-APR-20
Copper (Cu)		17.1	16.1		ug/g	6.0	30	15-APR-20
Lead (Pb)		5.40	5.04		ug/g	6.9	40	15-APR-20
Molybdenum (Mo)		0.26	0.27		ug/g	0.5	40	15-APR-20
Nickel (Ni)		9.41	9.03		ug/g	4.1	30	15-APR-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	15-APR-20
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	15-APR-20
Thallium (Tl)		0.061	0.057		ug/g	5.8	30	15-APR-20
Uranium (U)		0.431	0.353		ug/g	20	30	15-APR-20
Vanadium (V)		18.7	18.6		ug/g	0.1	30	15-APR-20
Zinc (Zn)		29.8	28.1		ug/g	5.9	30	15-APR-20
WG3307816-4 LCS								
Antimony (Sb)			101.3		%		80-120	15-APR-20
Arsenic (As)			103.7		%		80-120	15-APR-20
Barium (Ba)			102.3		%		80-120	15-APR-20
Beryllium (Be)			94.5		%		80-120	15-APR-20
Boron (B)			88.9		%		80-120	15-APR-20
Cadmium (Cd)			95.9		%		80-120	15-APR-20
Chromium (Cr)			101.3		%		80-120	15-APR-20
Cobalt (Co)			100.3		%		80-120	15-APR-20
Copper (Cu)			100.2		%		80-120	15-APR-20
Lead (Pb)			96.7		%		80-120	15-APR-20
Molybdenum (Mo)			99.6		%		80-120	15-APR-20
Nickel (Ni)			100.9		%		80-120	15-APR-20
Selenium (Se)			97.4		%		80-120	15-APR-20
Silver (Ag)			98.0		%		80-120	15-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5056938								
WG3307816-4 LCS								
Thallium (Tl)			98.3		%		80-120	15-APR-20
Uranium (U)			91.8		%		80-120	15-APR-20
Vanadium (V)			106.5		%		80-120	15-APR-20
Zinc (Zn)			100.7		%		80-120	15-APR-20
WG3307816-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	15-APR-20
Arsenic (As)			<0.10		mg/kg		0.1	15-APR-20
Barium (Ba)			<0.50		mg/kg		0.5	15-APR-20
Beryllium (Be)			<0.10		mg/kg		0.1	15-APR-20
Boron (B)			<5.0		mg/kg		5	15-APR-20
Cadmium (Cd)			<0.020		mg/kg		0.02	15-APR-20
Chromium (Cr)			<0.50		mg/kg		0.5	15-APR-20
Cobalt (Co)			<0.10		mg/kg		0.1	15-APR-20
Copper (Cu)			<0.50		mg/kg		0.5	15-APR-20
Lead (Pb)			<0.50		mg/kg		0.5	15-APR-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	15-APR-20
Nickel (Ni)			<0.50		mg/kg		0.5	15-APR-20
Selenium (Se)			<0.20		mg/kg		0.2	15-APR-20
Silver (Ag)			<0.10		mg/kg		0.1	15-APR-20
Thallium (Tl)			<0.050		mg/kg		0.05	15-APR-20
Uranium (U)			<0.050		mg/kg		0.05	15-APR-20
Vanadium (V)			<0.20		mg/kg		0.2	15-APR-20
Zinc (Zn)			<2.0		mg/kg		2	15-APR-20
MOISTURE-WT	**Soil**							
Batch R5056197								
WG3306961-3 DUP		**L2435780-3**						
% Moisture		9.04	8.84		%	2.2	20	14-APR-20
WG3306961-2 LCS								
% Moisture			100.5		%		90-110	14-APR-20
WG3306961-1 MB								
% Moisture			<0.25		%		0.25	14-APR-20
PAH-511-WT	**Soil**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R5056710								
WG3307339-3 DUP		**WG3307339-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	15-APR-20
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	15-APR-20
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Benzo(a)anthracene		0.074	0.054		ug/g	31	40	15-APR-20
Benzo(a)pyrene		0.058	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Benzo(b)fluoranthene		0.070	0.051		ug/g	31	40	15-APR-20
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Chrysene		0.079	0.059		ug/g	29	40	15-APR-20
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Fluoranthene		0.145	0.107		ug/g	31	40	15-APR-20
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	15-APR-20
Phenanthrene		0.123	0.081	J	ug/g	0.041	0.092	15-APR-20
Pyrene		0.122	0.089		ug/g	31	40	15-APR-20
WG3307339-2 LCS								
1-Methylnaphthalene			99.7		%		50-140	15-APR-20
2-Methylnaphthalene			94.2		%		50-140	15-APR-20
Acenaphthene			101.4		%		50-140	15-APR-20
Acenaphthylene			102.6		%		50-140	15-APR-20
Anthracene			104.6		%		50-140	15-APR-20
Benzo(a)anthracene			104.3		%		50-140	15-APR-20
Benzo(a)pyrene			101.6		%		50-140	15-APR-20
Benzo(b)fluoranthene			98.8		%		50-140	15-APR-20
Benzo(g,h,i)perylene			94.4		%		50-140	15-APR-20
Benzo(k)fluoranthene			111.6		%		50-140	15-APR-20
Chrysene			112.9		%		50-140	15-APR-20
Dibenzo(ah)anthracene			88.4		%		50-140	15-APR-20
Fluoranthene			101.1		%		50-140	15-APR-20
Fluorene			100.3		%		50-140	15-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R5056710								
WG3307339-2 LCS								
Indeno(1,2,3-cd)pyrene			91.5		%		50-140	15-APR-20
Naphthalene			96.2		%		50-140	15-APR-20
Phenanthrene			103.2		%		50-140	15-APR-20
Pyrene			101.5		%		50-140	15-APR-20
WG3307339-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	15-APR-20
2-Methylnaphthalene			<0.030		ug/g		0.03	15-APR-20
Acenaphthene			<0.050		ug/g		0.05	15-APR-20
Acenaphthylene			<0.050		ug/g		0.05	15-APR-20
Anthracene			<0.050		ug/g		0.05	15-APR-20
Benzo(a)anthracene			<0.050		ug/g		0.05	15-APR-20
Benzo(a)pyrene			<0.050		ug/g		0.05	15-APR-20
Benzo(b)fluoranthene			<0.050		ug/g		0.05	15-APR-20
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	15-APR-20
Benzo(k)fluoranthene			<0.050		ug/g		0.05	15-APR-20
Chrysene			<0.050		ug/g		0.05	15-APR-20
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	15-APR-20
Fluoranthene			<0.050		ug/g		0.05	15-APR-20
Fluorene			<0.050		ug/g		0.05	15-APR-20
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	15-APR-20
Naphthalene			<0.013		ug/g		0.013	15-APR-20
Phenanthrene			<0.046		ug/g		0.046	15-APR-20
Pyrene			<0.050		ug/g		0.05	15-APR-20
Surrogate: 2-Fluorobiphenyl			111.6		%		50-140	15-APR-20
Surrogate: p-Terphenyl d14			120.8		%		50-140	15-APR-20
WG3307339-4 MS		**WG3307339-5**						
1-Methylnaphthalene			94.7		%		50-140	15-APR-20
2-Methylnaphthalene			89.1		%		50-140	15-APR-20
Acenaphthene			95.3		%		50-140	15-APR-20
Acenaphthylene			97.2		%		50-140	15-APR-20
Anthracene			93.7		%		50-140	15-APR-20
Benzo(a)anthracene			94.2		%		50-140	15-APR-20
Benzo(a)pyrene			93.1		%		50-140	15-APR-20
Benzo(b)fluoranthene			87.3		%		50-140	15-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R5056710								
WG3307339-4 MS		**WG3307339-5**						
Benzo(g,h,i)perylene			90.9		%		50-140	15-APR-20
Benzo(k)fluoranthene			100.4		%		50-140	15-APR-20
Chrysene			100.8		%		50-140	15-APR-20
Dibenzo(ah)anthracene			91.6		%		50-140	15-APR-20
Fluoranthene			84.9		%		50-140	15-APR-20
Fluorene			93.8		%		50-140	15-APR-20
Indeno(1,2,3-cd)pyrene			96.0		%		50-140	15-APR-20
Naphthalene			91.8		%		50-140	15-APR-20
Phenanthrene			88.9		%		50-140	15-APR-20
Pyrene			87.3		%		50-140	15-APR-20
PH-WT	**Soil**							
Batch R5056536								
WG3306950-1 DUP		**L2435780-3**						
pH		7.86	7.84	J	pH units	0.02	0.3	14-APR-20
WG3307490-1 LCS								
pH			7.02		pH units		6.9-7.1	14-APR-20
SAR-R511-WT	**Soil**							
Batch R5057105								
WG3307822-4 DUP		**WG3307822-3**						
Calcium (Ca)		<0.50	<0.50	RPD-NA	mg/L	N/A	30	15-APR-20
Sodium (Na)		243	263		mg/L	7.9	30	15-APR-20
Magnesium (Mg)		<0.50	<0.50	RPD-NA	mg/L	N/A	30	15-APR-20
WG3307822-2 IRM		**WT SAR4**						
Calcium (Ca)			106.1		%		70-130	15-APR-20
Sodium (Na)			92.3		%		70-130	15-APR-20
Magnesium (Mg)			102.6		%		70-130	15-APR-20
WG3307822-5 LCS								
Calcium (Ca)			112.0		%		80-120	15-APR-20
Sodium (Na)			111.6		%		80-120	15-APR-20
Magnesium (Mg)			109.0		%		80-120	15-APR-20
WG3307822-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	15-APR-20
Sodium (Na)			<0.50		mg/L		0.5	15-APR-20
Magnesium (Mg)			<0.50		mg/L		0.5	15-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5056750								
WG3306504-4 DUP		**WG3306504-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	15-APR-20
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	15-APR-20
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	15-APR-20
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	15-APR-20
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	15-APR-20
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	15-APR-20
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	15-APR-20
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-APR-20
Styrene		<0.050	<0.050		ug/g			15-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5056750								
WG3306504-4 DUP		**WG3306504-3**						
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	15-APR-20
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	15-APR-20
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	15-APR-20
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	15-APR-20
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-APR-20
WG3306504-2 LCS								
1,1,1,2-Tetrachloroethane			100.4		%		60-130	15-APR-20
1,1,2,2-Tetrachloroethane			104.3		%		60-130	15-APR-20
1,1,1-Trichloroethane			91.7		%		60-130	15-APR-20
1,1,2-Trichloroethane			111.7		%		60-130	15-APR-20
1,1-Dichloroethane			96.8		%		60-130	15-APR-20
1,1-Dichloroethylene			85.0		%		60-130	15-APR-20
1,2-Dibromoethane			109.7		%		70-130	15-APR-20
1,2-Dichlorobenzene			99.0		%		70-130	15-APR-20
1,2-Dichloroethane			102.6		%		60-130	15-APR-20
1,2-Dichloropropane			99.1		%		70-130	15-APR-20
1,3-Dichlorobenzene			101.9		%		70-130	15-APR-20
1,4-Dichlorobenzene			103.3		%		70-130	15-APR-20
Acetone			125.9		%		60-140	15-APR-20
Benzene			96.0		%		70-130	15-APR-20
Bromodichloromethane			107.1		%		50-140	15-APR-20
Bromoform			114.6		%		70-130	15-APR-20
Bromomethane			108.6		%		50-140	15-APR-20
Carbon tetrachloride			90.2		%		70-130	15-APR-20
Chlorobenzene			103.8		%		70-130	15-APR-20
Chloroform			99.9		%		70-130	15-APR-20
cis-1,2-Dichloroethylene			93.4		%		70-130	15-APR-20
cis-1,3-Dichloropropene			102.0		%		70-130	15-APR-20
Dibromochloromethane			100.3		%		60-130	15-APR-20
Dichlorodifluoromethane			48.2	MES	%		50-140	15-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5056750								
WG3306504-2 LCS								
Ethylbenzene			100.1		%		70-130	15-APR-20
n-Hexane			81.4		%		70-130	15-APR-20
Methylene Chloride			97.3		%		70-130	15-APR-20
MTBE			99.1		%		70-130	15-APR-20
m+p-Xylenes			100.5		%		70-130	15-APR-20
Methyl Ethyl Ketone			121.5		%		60-140	15-APR-20
Methyl Isobutyl Ketone			87.0		%		60-140	15-APR-20
o-Xylene			110.2		%		70-130	15-APR-20
Styrene			102.1		%		70-130	15-APR-20
Tetrachloroethylene			96.8		%		60-130	15-APR-20
Toluene			97.5		%		70-130	15-APR-20
trans-1,2-Dichloroethylene			89.2		%		60-130	15-APR-20
trans-1,3-Dichloropropene			111.8		%		70-130	15-APR-20
Trichloroethylene			97.2		%		60-130	15-APR-20
Trichlorofluoromethane			77.6		%		50-140	15-APR-20
Vinyl chloride			84.2		%		60-140	15-APR-20
WG3306504-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	15-APR-20
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	15-APR-20
1,1,1-Trichloroethane			<0.050		ug/g		0.05	15-APR-20
1,1,2-Trichloroethane			<0.050		ug/g		0.05	15-APR-20
1,1-Dichloroethane			<0.050		ug/g		0.05	15-APR-20
1,1-Dichloroethylene			<0.050		ug/g		0.05	15-APR-20
1,2-Dibromoethane			<0.050		ug/g		0.05	15-APR-20
1,2-Dichlorobenzene			<0.050		ug/g		0.05	15-APR-20
1,2-Dichloroethane			<0.050		ug/g		0.05	15-APR-20
1,2-Dichloropropane			<0.050		ug/g		0.05	15-APR-20
1,3-Dichlorobenzene			<0.050		ug/g		0.05	15-APR-20
1,4-Dichlorobenzene			<0.050		ug/g		0.05	15-APR-20
Acetone			<0.50		ug/g		0.5	15-APR-20
Benzene			<0.0068		ug/g		0.0068	15-APR-20
Bromodichloromethane			<0.050		ug/g		0.05	15-APR-20
Bromoform			<0.050		ug/g		0.05	15-APR-20
Bromomethane			<0.050		ug/g		0.05	15-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5056750								
WG3306504-1 MB								
Carbon tetrachloride			<0.050		ug/g		0.05	15-APR-20
Chlorobenzene			<0.050		ug/g		0.05	15-APR-20
Chloroform			<0.050		ug/g		0.05	15-APR-20
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	15-APR-20
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	15-APR-20
Dibromochloromethane			<0.050		ug/g		0.05	15-APR-20
Dichlorodifluoromethane			<0.050		ug/g		0.05	15-APR-20
Ethylbenzene			<0.018		ug/g		0.018	15-APR-20
n-Hexane			<0.050		ug/g		0.05	15-APR-20
Methylene Chloride			<0.050		ug/g		0.05	15-APR-20
MTBE			<0.050		ug/g		0.05	15-APR-20
m+p-Xylenes			<0.030		ug/g		0.03	15-APR-20
Methyl Ethyl Ketone			<0.50		ug/g		0.5	15-APR-20
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	15-APR-20
o-Xylene			<0.020		ug/g		0.02	15-APR-20
Styrene			<0.050		ug/g		0.05	15-APR-20
Tetrachloroethylene			<0.050		ug/g		0.05	15-APR-20
Toluene			<0.080		ug/g		0.08	15-APR-20
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	15-APR-20
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	15-APR-20
Trichloroethylene			<0.010		ug/g		0.01	15-APR-20
Trichlorofluoromethane			<0.050		ug/g		0.05	15-APR-20
Vinyl chloride			<0.020		ug/g		0.02	15-APR-20
Surrogate: 1,4-Difluorobenzene			108.8		%		50-140	15-APR-20
Surrogate: 4-Bromofluorobenzene			106.3		%		50-140	15-APR-20
WG3306504-5 MS		**WG3306504-3**						
1,1,1,2-Tetrachloroethane			97.5		%		50-140	15-APR-20
1,1,2,2-Tetrachloroethane			98.8		%		50-140	15-APR-20
1,1,1-Trichloroethane			108.2		%		50-140	15-APR-20
1,1,2-Trichloroethane			106.1		%		50-140	15-APR-20
1,1-Dichloroethane			87.6		%		50-140	15-APR-20
1,1-Dichloroethylene			102.4		%		50-140	15-APR-20
1,2-Dibromoethane			99.7		%		50-140	15-APR-20
1,2-Dichlorobenzene			100.8		%		50-140	15-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5056750								
WG3306504-5 MS		**WG3306504-3**						
1,2-Dichloroethane			114.3		%		50-140	15-APR-20
1,2-Dichloropropane			106.9		%		50-140	15-APR-20
1,3-Dichlorobenzene			103.2		%		50-140	15-APR-20
1,4-Dichlorobenzene			107.4		%		50-140	15-APR-20
Acetone			131.3		%		50-140	15-APR-20
Benzene			109.6		%		50-140	15-APR-20
Bromodichloromethane			119.0		%		50-140	15-APR-20
Bromoform			104.6		%		50-140	15-APR-20
Bromomethane			127.2		%		50-140	15-APR-20
Carbon tetrachloride			108.8		%		50-140	15-APR-20
Chlorobenzene			103.0		%		50-140	15-APR-20
Chloroform			117.6		%		50-140	15-APR-20
cis-1,2-Dichloroethylene			102.5		%		50-140	15-APR-20
cis-1,3-Dichloropropene			97.2		%		50-140	15-APR-20
Dibromochloromethane			94.8		%		50-140	15-APR-20
Dichlorodifluoromethane			62.8		%		50-140	15-APR-20
Ethylbenzene			88.9		%		50-140	15-APR-20
n-Hexane			96.4		%		50-140	15-APR-20
Methylene Chloride			116.1		%		50-140	15-APR-20
MTBE			100.6		%		50-140	15-APR-20
m+p-Xylenes			94.9		%		50-140	15-APR-20
Methyl Ethyl Ketone			98.4		%		50-140	15-APR-20
Methyl Isobutyl Ketone			68.6		%		50-140	15-APR-20
o-Xylene			94.7		%		50-140	15-APR-20
Styrene			81.4		%		50-140	15-APR-20
Tetrachloroethylene			94.7		%		50-140	15-APR-20
Toluene			88.8		%		50-140	15-APR-20
trans-1,2-Dichloroethylene			104.4		%		50-140	15-APR-20
trans-1,3-Dichloropropene			85.5		%		50-140	15-APR-20
Trichloroethylene			105.8		%		50-140	15-APR-20
Trichlorofluoromethane			96.7		%		50-140	15-APR-20
Vinyl chloride			98.8		%		50-140	15-APR-20

Quality Control Report

Workorder: L2436005 Report Date: 20-APR-20

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

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.

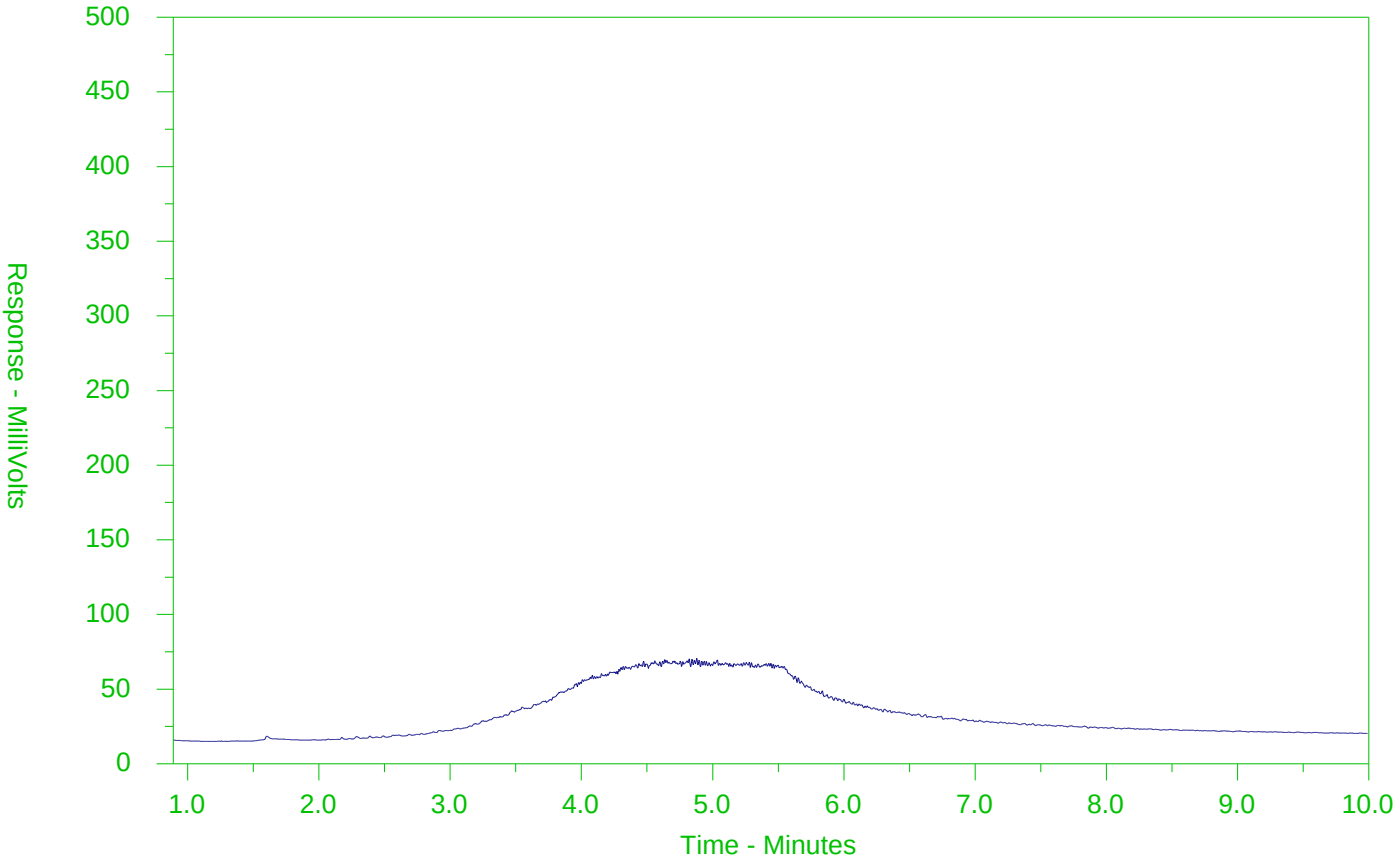
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2436005-1
Client Sample ID: MW113-2.5-4.5



←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.

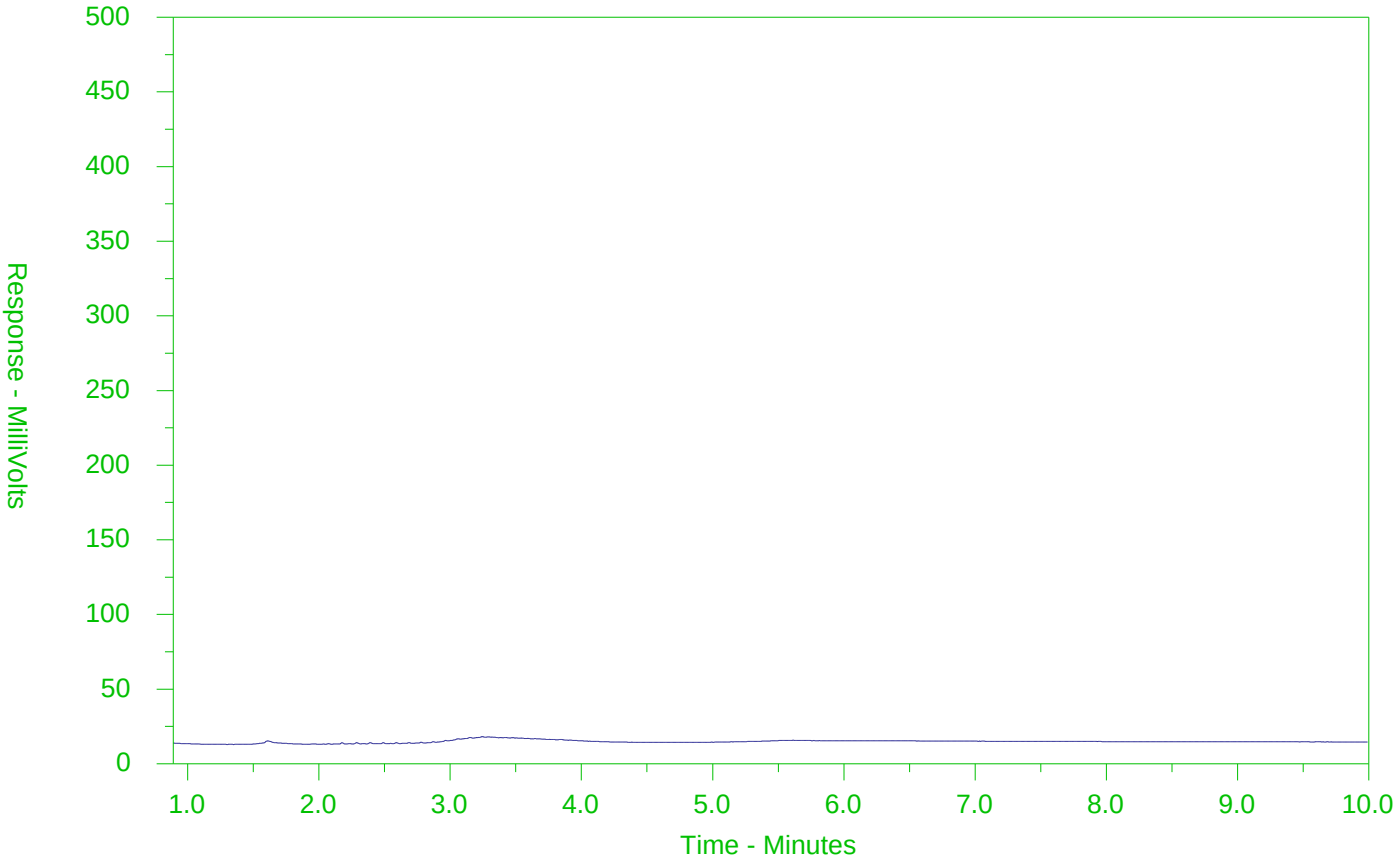
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2436005-2
Client Sample ID: MW113-6.5-8.5



←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.

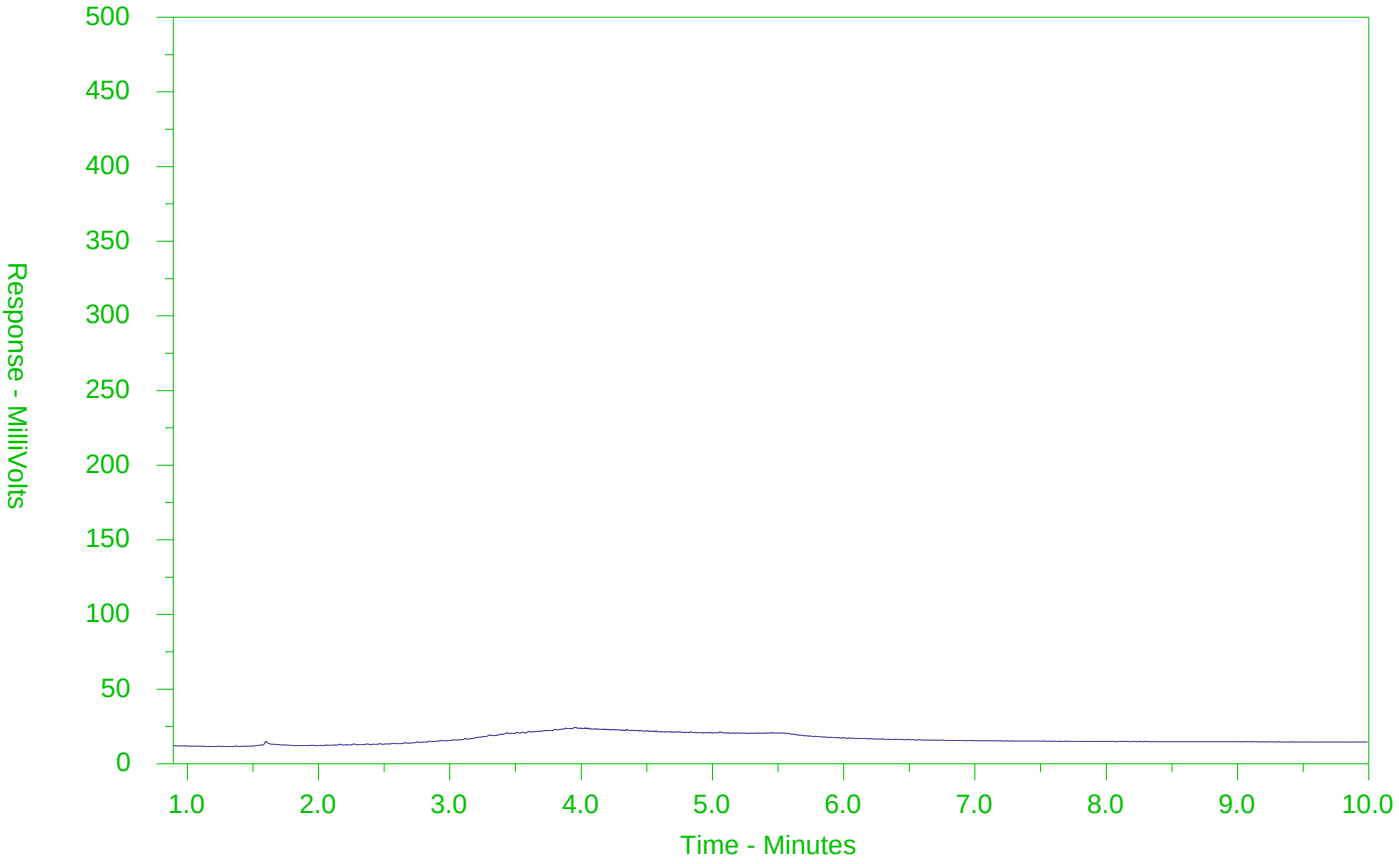
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2436005-5
Client Sample ID: BH207L-1-2



←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.

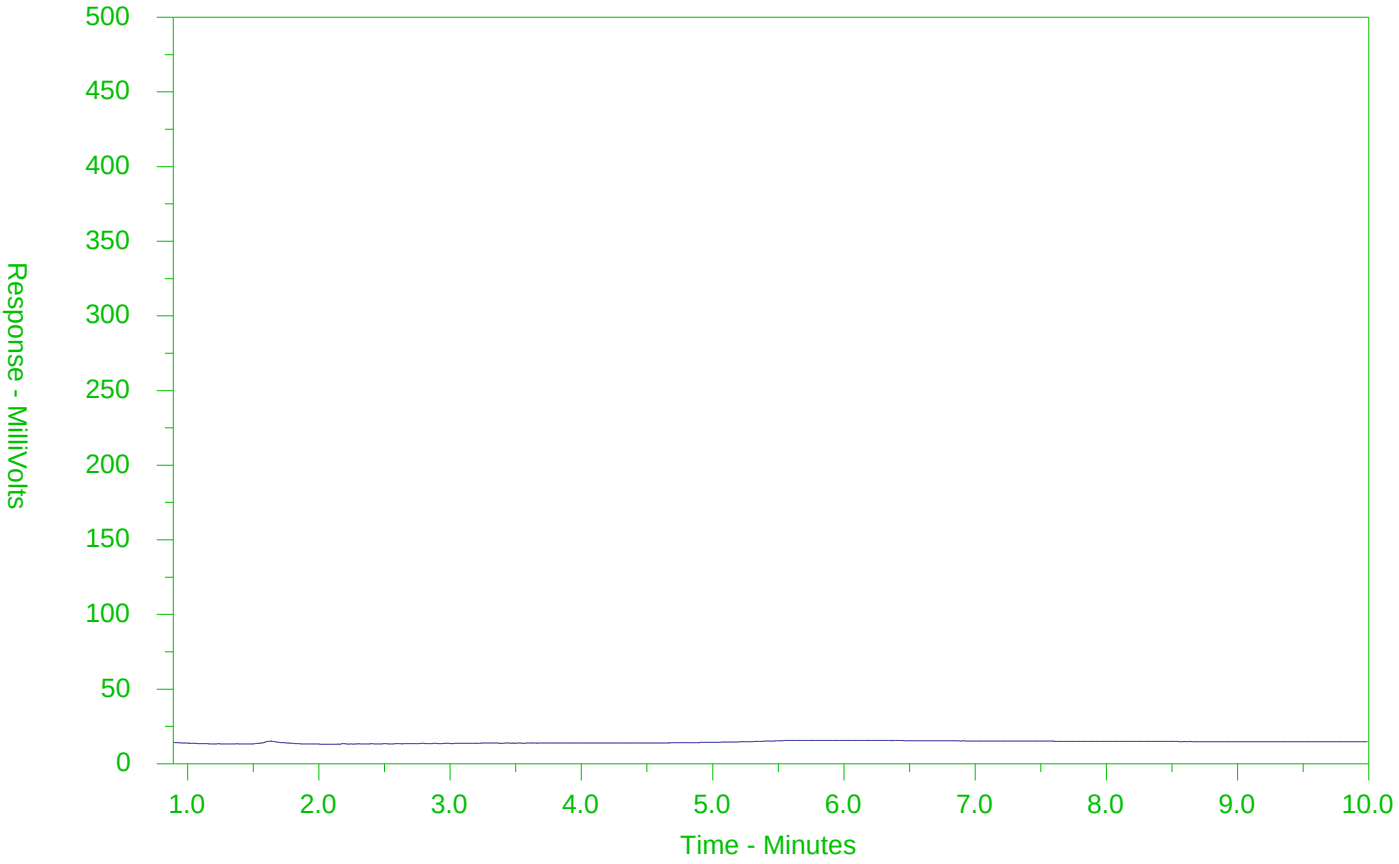
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2436005-6
Client Sample ID: BH207L-7.5-9.5



←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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2436005-COFC

COC Number: 17 - 795995

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	JACOBS	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular (R) Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Jon Gowing / Mike Shirey	Quality Control (QC) Report with Report YES NO	Priority (Business Days): 4 day [P4-20%]; 3 day [P3-25%]; 2 day [P2-50%]
Phone:	519 497-2611	Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E - 100%]; Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	72 Victoria St South Suite 300	Email 1 or Fax: Ed.Jones@Jacobs	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener ON	Email 2: Tara.McGarthy@Jacobs	
Postal Code:		Email 3: Michael.Shirey@Jacobs	
Invoice To	Same as Report To YES NO	Invoice Distribution	
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q76980	AFE/Cost Center:	PO#:
Job #:	C6251900	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2436005 AP

ALS Contact: Emily Hanson

Sampler: J. Gowing.

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	VOC	F1	F2-F4 PHC	metals 3 inorganics	PAH	VOC	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW113-2.5-4.5	09-04-20	1050	Soil	4	X	X	X	X	X	X		
	MW113-6.5-8.5		1100		4	X	X	X	X	X	X		
	MW113-10-12		1110		4	X	X	X	X	X	X		
	MW113-15-17		1170		4	X	X	X	X	X	X	X	
	BH207L-1-2		1410		2		X	X				X	
	BH207L-7.5-9.5		1430		2		X	X					
	TRIP BLANK	—	—	—	1	X	X						

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? NO	
Are samples for human consumption/use? NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	5.9

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: 4/9/20	Time: 1600	Received by:	Date:	Time:	Received by:	Date: 4/9/20	Time: 1605

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: MICHAEL SHIRY
CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 15-APR-20
Report Date: 20-APR-20 11:41 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2437013

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-796250
Legal Site Desc:

Emily Hansen
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2437013-1 MW113 Sampled By: CLIENT on 15-APR-20 @ 12:15 Matrix: WATER							
Physical Tests							
Conductivity	14.2		0.0030	mS/cm		16-APR-20	R5057741
pH	7.70		0.10	pH units		16-APR-20	R5057741
Anions and Nutrients							
Chloride (Cl)	4470	DLHC	10	mg/L		16-APR-20	R5058039
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L		16-APR-20	R5057428
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD					15-APR-20	R5057037
Dissolved Metals Filtration Location	FIELD					16-APR-20	R5057153
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Barium (Ba)-Dissolved	278	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Boron (B)-Dissolved	<100	DLHC	100	ug/L	16-APR-20	16-APR-20	R5057638
Cadmium (Cd)-Dissolved	3.92	DLHC	0.050	ug/L	16-APR-20	16-APR-20	R5057638
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	16-APR-20	16-APR-20	R5057638
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Copper (Cu)-Dissolved	2.7	DLHC	2.0	ug/L	16-APR-20	16-APR-20	R5057638
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	16-APR-20	16-APR-20	R5057638
Mercury (Hg)-Dissolved	0.0052		0.0050	ug/L	15-APR-20	15-APR-20	R5057100
Molybdenum (Mo)-Dissolved	1.52	DLHC	0.50	ug/L	16-APR-20	16-APR-20	R5057638
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	16-APR-20	16-APR-20	R5057638
Selenium (Se)-Dissolved	1.20	DLHC	0.50	ug/L	16-APR-20	16-APR-20	R5057638
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	16-APR-20	16-APR-20	R5057638
Sodium (Na)-Dissolved	2440000	DLHC	5000	ug/L	16-APR-20	16-APR-20	R5057638
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	16-APR-20	16-APR-20	R5057638
Uranium (U)-Dissolved	0.91	DLHC	0.10	ug/L	16-APR-20	16-APR-20	R5057638
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	16-APR-20	16-APR-20	R5057638
Zinc (Zn)-Dissolved	11	DLHC	10	ug/L	16-APR-20	16-APR-20	R5057638
Speciated Metals							
Chromium, Hexavalent	4.95		0.50	ug/L		16-APR-20	R5057701
Volatile Organic Compounds							
Acetone	<30		30	ug/L		16-APR-20	R5057198
Benzene	<0.50		0.50	ug/L		16-APR-20	R5057198
Bromodichloromethane	<2.0		2.0	ug/L		16-APR-20	R5057198
Bromoform	<5.0		5.0	ug/L		16-APR-20	R5057198
Bromomethane	<0.50		0.50	ug/L		16-APR-20	R5057198
Carbon tetrachloride	<0.20		0.20	ug/L		16-APR-20	R5057198
Chlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
Dibromochloromethane	<2.0		2.0	ug/L		16-APR-20	R5057198
Chloroform	3.2		1.0	ug/L		16-APR-20	R5057198
1,2-Dibromoethane	<0.20		0.20	ug/L		16-APR-20	R5057198

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2437013-1 MW113 Sampled By: CLIENT on 15-APR-20 @ 12:15 Matrix: WATER							
Volatile Organic Compounds							
1,2-Dichlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,3-Dichlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,4-Dichlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
Dichlorodifluoromethane	<2.0		2.0	ug/L		16-APR-20	R5057198
1,1-Dichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,2-Dichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1-Dichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
Methylene Chloride	<5.0		5.0	ug/L		16-APR-20	R5057198
1,2-Dichloropropane	<0.50		0.50	ug/L		16-APR-20	R5057198
cis-1,3-Dichloropropene	<0.30		0.30	ug/L		16-APR-20	R5057198
trans-1,3-Dichloropropene	<0.30		0.30	ug/L		16-APR-20	R5057198
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		16-APR-20	
Ethylbenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
n-Hexane	<0.50		0.50	ug/L		16-APR-20	R5057198
Methyl Ethyl Ketone	<20		20	ug/L		16-APR-20	R5057198
Methyl Isobutyl Ketone	<20		20	ug/L		16-APR-20	R5057198
MTBE	<2.0		2.0	ug/L		16-APR-20	R5057198
Styrene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
Tetrachloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
Toluene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,1-Trichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,2-Trichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
Trichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
Trichlorofluoromethane	<5.0		5.0	ug/L		16-APR-20	R5057198
Vinyl chloride	<0.50		0.50	ug/L		16-APR-20	R5057198
o-Xylene	<0.30		0.30	ug/L		16-APR-20	R5057198
m+p-Xylenes	<0.40		0.40	ug/L		16-APR-20	R5057198
Xylenes (Total)	<0.50		0.50	ug/L		16-APR-20	
Surrogate: 4-Bromofluorobenzene	94.0		70-130	%		16-APR-20	R5057198
Surrogate: 1,4-Difluorobenzene	100.9		70-130	%		16-APR-20	R5057198
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L		16-APR-20	R5057198
F1-BTEX	<25		25	ug/L		16-APR-20	
F2 (C10-C16)	<100		100	ug/L	15-APR-20	16-APR-20	R5057219
F2-Naphth	<100		100	ug/L		16-APR-20	
F3 (C16-C34)	<250		250	ug/L	15-APR-20	16-APR-20	R5057219
F3-PAH	<250		250	ug/L		16-APR-20	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2437013-1 MW113 Sampled By: CLIENT on 15-APR-20 @ 12:15 Matrix: WATER							
Hydrocarbons							
F4 (C34-C50)	<250		250	ug/L	15-APR-20	16-APR-20	R5057219
Total Hydrocarbons (C6-C50)	<370		370	ug/L		16-APR-20	
Chrom. to baseline at nC50	YES				15-APR-20	16-APR-20	R5057219
Surrogate: 2-Bromobenzotrifluoride	97.0		60-140	%	15-APR-20	16-APR-20	R5057219
Surrogate: 3,4-Dichlorotoluene	78.7		60-140	%		16-APR-20	R5057198
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Acenaphthylene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Anthracene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(a)anthracene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(a)pyrene	<0.010		0.010	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(b)fluoranthene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(k)fluoranthene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Chrysene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Fluoranthene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Fluorene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
1+2-Methylnaphthalenes	<0.028		0.028	ug/L		16-APR-20	
1-Methylnaphthalene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
2-Methylnaphthalene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Naphthalene	<0.050		0.050	ug/L	15-APR-20	16-APR-20	R5057280
Phenanthrene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Pyrene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Surrogate: d10-Acenaphthene	103.9		60-140	%	15-APR-20	16-APR-20	R5057280
Surrogate: d12-Chrysene	101.8		60-140	%	15-APR-20	16-APR-20	R5057280
Surrogate: d8-Naphthalene	104.1		60-140	%	15-APR-20	16-APR-20	R5057280
Surrogate: d10-Phenanthrene	109.2		60-140	%	15-APR-20	16-APR-20	R5057280
L2437013-2 DUP1 Sampled By: CLIENT on 15-APR-20 @ 12:15 Matrix: WATER							
Physical Tests							
Conductivity	13.9		0.0030	mS/cm		16-APR-20	R5057741
pH	7.69		0.10	pH units		16-APR-20	R5057741
Anions and Nutrients							
Chloride (Cl)	8330	DLHC	10	mg/L		16-APR-20	R5058039
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L		16-APR-20	R5057428
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD					15-APR-20	R5057037
Dissolved Metals Filtration Location	FIELD					16-APR-20	R5057153

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2437013-2 DUP1 Sampled By: CLIENT on 15-APR-20 @ 12:15 Matrix: WATER							
Dissolved Metals							
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Barium (Ba)-Dissolved	274	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Boron (B)-Dissolved	<100	DLHC	100	ug/L	16-APR-20	16-APR-20	R5057638
Cadmium (Cd)-Dissolved	3.93	DLHC	0.050	ug/L	16-APR-20	16-APR-20	R5057638
Chromium (Cr)-Dissolved	<5.0	DLHC	5.0	ug/L	16-APR-20	16-APR-20	R5057638
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	16-APR-20	16-APR-20	R5057638
Copper (Cu)-Dissolved	2.6	DLHC	2.0	ug/L	16-APR-20	16-APR-20	R5057638
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	16-APR-20	16-APR-20	R5057638
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	15-APR-20	15-APR-20	R5057100
Molybdenum (Mo)-Dissolved	1.50	DLHC	0.50	ug/L	16-APR-20	16-APR-20	R5057638
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	16-APR-20	16-APR-20	R5057638
Selenium (Se)-Dissolved	1.24	DLHC	0.50	ug/L	16-APR-20	16-APR-20	R5057638
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	16-APR-20	16-APR-20	R5057638
Sodium (Na)-Dissolved	2390000	DLHC	5000	ug/L	16-APR-20	16-APR-20	R5057638
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	16-APR-20	16-APR-20	R5057638
Uranium (U)-Dissolved	0.90	DLHC	0.10	ug/L	16-APR-20	16-APR-20	R5057638
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	16-APR-20	16-APR-20	R5057638
Zinc (Zn)-Dissolved	11	DLHC	10	ug/L	16-APR-20	16-APR-20	R5057638
Speciated Metals							
Chromium, Hexavalent	4.89		0.50	ug/L		16-APR-20	R5057701
Volatile Organic Compounds							
Acetone	<30		30	ug/L		16-APR-20	R5057198
Benzene	<0.50		0.50	ug/L		16-APR-20	R5057198
Bromodichloromethane	<2.0		2.0	ug/L		16-APR-20	R5057198
Bromoform	<5.0		5.0	ug/L		16-APR-20	R5057198
Bromomethane	<0.50		0.50	ug/L		16-APR-20	R5057198
Carbon tetrachloride	<0.20		0.20	ug/L		16-APR-20	R5057198
Chlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
Dibromochloromethane	<2.0		2.0	ug/L		16-APR-20	R5057198
Chloroform	3.2		1.0	ug/L		16-APR-20	R5057198
1,2-Dibromoethane	<0.20		0.20	ug/L		16-APR-20	R5057198
1,2-Dichlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,3-Dichlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,4-Dichlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
Dichlorodifluoromethane	<2.0		2.0	ug/L		16-APR-20	R5057198
1,1-Dichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,2-Dichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1-Dichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2437013-2 DUP1 Sampled By: CLIENT on 15-APR-20 @ 12:15 Matrix: WATER							
Volatile Organic Compounds							
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
Methylene Chloride	<5.0		5.0	ug/L		16-APR-20	R5057198
1,2-Dichloropropane	<0.50		0.50	ug/L		16-APR-20	R5057198
cis-1,3-Dichloropropene	<0.30		0.30	ug/L		16-APR-20	R5057198
trans-1,3-Dichloropropene	<0.30		0.30	ug/L		16-APR-20	R5057198
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		16-APR-20	
Ethylbenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
n-Hexane	<0.50		0.50	ug/L		16-APR-20	R5057198
Methyl Ethyl Ketone	<20		20	ug/L		16-APR-20	R5057198
Methyl Isobutyl Ketone	<20		20	ug/L		16-APR-20	R5057198
MTBE	<2.0		2.0	ug/L		16-APR-20	R5057198
Styrene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
Tetrachloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
Toluene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,1-Trichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,2-Trichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
Trichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
Trichlorofluoromethane	<5.0		5.0	ug/L		16-APR-20	R5057198
Vinyl chloride	<0.50		0.50	ug/L		16-APR-20	R5057198
o-Xylene	<0.30		0.30	ug/L		16-APR-20	R5057198
m+p-Xylenes	<0.40		0.40	ug/L		16-APR-20	R5057198
Xylenes (Total)	<0.50		0.50	ug/L		16-APR-20	
Surrogate: 4-Bromofluorobenzene	93.8		70-130	%		16-APR-20	R5057198
Surrogate: 1,4-Difluorobenzene	100.6		70-130	%		16-APR-20	R5057198
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L		16-APR-20	R5057198
F1-BTEX	<25		25	ug/L		16-APR-20	
F2 (C10-C16)	<100		100	ug/L	15-APR-20	16-APR-20	R5057219
F2-Naphth	<100		100	ug/L		16-APR-20	
F3 (C16-C34)	<250		250	ug/L	15-APR-20	16-APR-20	R5057219
F3-PAH	<250		250	ug/L		16-APR-20	
F4 (C34-C50)	<250		250	ug/L	15-APR-20	16-APR-20	R5057219
Total Hydrocarbons (C6-C50)	<370		370	ug/L		16-APR-20	
Chrom. to baseline at nC50	YES				15-APR-20	16-APR-20	R5057219
Surrogate: 2-Bromobenzotrifluoride	103.7		60-140	%	15-APR-20	16-APR-20	R5057219
Surrogate: 3,4-Dichlorotoluene	73.9		60-140	%		16-APR-20	R5057198
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Acenaphthylene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2437013-2 DUP1 Sampled By: CLIENT on 15-APR-20 @ 12:15 Matrix: WATER							
Polycyclic Aromatic Hydrocarbons							
Anthracene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(a)anthracene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(a)pyrene	<0.010		0.010	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(b)fluoranthene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Benzo(k)fluoranthene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Chrysene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Fluoranthene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Fluorene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
1+2-Methylnaphthalenes	<0.028		0.028	ug/L		16-APR-20	
1-Methylnaphthalene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
2-Methylnaphthalene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Naphthalene	<0.050		0.050	ug/L	15-APR-20	16-APR-20	R5057280
Phenanthrene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Pyrene	<0.020		0.020	ug/L	15-APR-20	16-APR-20	R5057280
Surrogate: d10-Acenaphthene	104.5		60-140	%	15-APR-20	16-APR-20	R5057280
Surrogate: d12-Chrysene	103.2		60-140	%	15-APR-20	16-APR-20	R5057280
Surrogate: d8-Naphthalene	98.8		60-140	%	15-APR-20	16-APR-20	R5057280
Surrogate: d10-Phenanthrene	110.4		60-140	%	15-APR-20	16-APR-20	R5057280
L2437013-3 TRIP BLANK Sampled By: CLIENT on 15-APR-20 @ 12:15 Matrix: WATER							
Volatile Organic Compounds							
Acetone	<30		30	ug/L		16-APR-20	R5057198
Benzene	<0.50		0.50	ug/L		16-APR-20	R5057198
Bromodichloromethane	<2.0		2.0	ug/L		16-APR-20	R5057198
Bromoform	<5.0		5.0	ug/L		16-APR-20	R5057198
Bromomethane	<0.50		0.50	ug/L		16-APR-20	R5057198
Carbon tetrachloride	<0.20		0.20	ug/L		16-APR-20	R5057198
Chlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
Dibromochloromethane	<2.0		2.0	ug/L		16-APR-20	R5057198
Chloroform	<1.0		1.0	ug/L		16-APR-20	R5057198
1,2-Dibromoethane	<0.20		0.20	ug/L		16-APR-20	R5057198
1,2-Dichlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,3-Dichlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,4-Dichlorobenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
Dichlorodifluoromethane	<2.0		2.0	ug/L		16-APR-20	R5057198
1,1-Dichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,2-Dichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1-Dichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2437013-3 TRIP BLANK Sampled By: CLIENT on 15-APR-20 @ 12:15 Matrix: WATER							
Volatile Organic Compounds							
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
Methylene Chloride	<5.0		5.0	ug/L		16-APR-20	R5057198
1,2-Dichloropropane	<0.50		0.50	ug/L		16-APR-20	R5057198
cis-1,3-Dichloropropene	<0.30		0.30	ug/L		16-APR-20	R5057198
trans-1,3-Dichloropropene	<0.30		0.30	ug/L		16-APR-20	R5057198
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		16-APR-20	
Ethylbenzene	<0.50		0.50	ug/L		16-APR-20	R5057198
n-Hexane	<0.50		0.50	ug/L		16-APR-20	R5057198
Methyl Ethyl Ketone	<20		20	ug/L		16-APR-20	R5057198
Methyl Isobutyl Ketone	<20		20	ug/L		16-APR-20	R5057198
MTBE	<2.0		2.0	ug/L		16-APR-20	R5057198
Styrene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
Tetrachloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
Toluene	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,1-Trichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
1,1,2-Trichloroethane	<0.50		0.50	ug/L		16-APR-20	R5057198
Trichloroethylene	<0.50		0.50	ug/L		16-APR-20	R5057198
Trichlorofluoromethane	<5.0		5.0	ug/L		16-APR-20	R5057198
Vinyl chloride	<0.50		0.50	ug/L		16-APR-20	R5057198
o-Xylene	<0.30		0.30	ug/L		16-APR-20	R5057198
m+p-Xylenes	<0.40		0.40	ug/L		16-APR-20	R5057198
Xylenes (Total)	<0.50		0.50	ug/L		16-APR-20	
Surrogate: 4-Bromofluorobenzene	95.0		70-130	%		16-APR-20	R5057198
Surrogate: 1,4-Difluorobenzene	100.4		70-130	%		16-APR-20	R5057198
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L		16-APR-20	R5057198
F1-BTEX	<25		25	ug/L		16-APR-20	
Surrogate: 3,4-Dichlorotoluene	89.6		60-140	%		16-APR-20	R5057198

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2437013-1, -2
Matrix Spike	Boron (B)-Dissolved	MS-B	L2437013-1, -2
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2437013-1, -2
Matrix Spike	Uranium (U)-Dissolved	MS-B	L2437013-1, -2

Sample Parameter Qualifier key listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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).

EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

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.
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.

Reference Information

4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	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).

F2-F4-511-WT	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).

HG-D-UG/L-CVAA-WT	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).

MET-D-UG/L-MS-WT	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).

METHYLNAPS-CALC-WT	Water	PAH-Calculated Parameters	SW846 8270
PAH-511-WT	Water	PAH-O. Reg 153/04 (July 2011)	SW846 3510/8270

Aqueous samples, fortified with surrogates, are extracted using liquid/liquid extraction technique. The sample extracts are concentrated and then analyzed using GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	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

VOC-1,3-DCP-CALC-WT	Water	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	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).

XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

Reference Information

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

Chain of Custody Numbers:

17-796250

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 weight of sample
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.

Quality Control Report

Workorder: L2437013 Report Date: 20-APR-20

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R5058039								
WG3308940-4 DUP		**L2436689-1**						
Chloride (Cl)		14.1	14.1		mg/L	0.1	20	16-APR-20
WG3308940-8 DUP		**WG3308940-10**						
Chloride (Cl)		64.1	64.1		mg/L	0.1	20	16-APR-20
WG3308940-2 LCS								
Chloride (Cl)			104.1		%		90-110	16-APR-20
WG3308940-7 LCS								
Chloride (Cl)			102.0		%		90-110	16-APR-20
WG3308940-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	16-APR-20
WG3308940-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	16-APR-20
WG3308940-5 MS		**L2436689-1**						
Chloride (Cl)			96.9		%		75-125	16-APR-20
WG3308940-9 MS		**WG3308940-10**						
Chloride (Cl)			95.9		%		75-125	16-APR-20
CN-WAD-R511-WT	**Water**							
Batch R5057428								
WG3308540-5 DUP		**L2437013-1**						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	16-APR-20
WG3308540-2 LCS								
Cyanide, Weak Acid Diss			97.6		%		80-120	16-APR-20
WG3308540-1 MB								
Cyanide, Weak Acid Diss			<2.0		ug/L		2	16-APR-20
WG3308540-6 MS		**L2437013-1**						
Cyanide, Weak Acid Diss			96.1		%		75-125	16-APR-20
CR-CR6-IC-R511-WT	**Water**							
Batch R5057701								
WG3308695-4 DUP		**WG3308695-3**						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	16-APR-20
WG3308695-2 LCS								
Chromium, Hexavalent			101.2		%		80-120	16-APR-20
WG3308695-1 MB								
Chromium, Hexavalent			<0.50		ug/L		0.5	16-APR-20
WG3308695-5 MS		**WG3308695-3**						
Chromium, Hexavalent			97.0		%		70-130	16-APR-20
EC-R511-WT	**Water**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-R511-WT	**Water**							
Batch R5057741								
WG3308753-4 DUP		**WG3308753-3**						
Conductivity		4.35	4.36		mS/cm	0.2	10	16-APR-20
WG3308753-2 LCS								
Conductivity			108.2		%		90-110	16-APR-20
WG3308753-1 MB								
Conductivity			<0.0030		mS/cm		0.003	16-APR-20
F1-HS-511-WT	**Water**							
Batch R5057198								
WG3305551-4 DUP		**WG3305551-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	16-APR-20
WG3305551-1 LCS								
F1 (C6-C10)			99.5		%		80-120	16-APR-20
WG3305551-2 MB								
F1 (C6-C10)			<25		ug/L		25	16-APR-20
Surrogate: 3,4-Dichlorotoluene			92.5		%		60-140	16-APR-20
WG3305551-5 MS		**WG3305551-3**						
F1 (C6-C10)			88.0		%		60-140	16-APR-20
F2-F4-511-WT	**Water**							
Batch R5057219								
WG3308214-2 LCS								
F2 (C10-C16)			107.9		%		70-130	16-APR-20
F3 (C16-C34)			107.7		%		70-130	16-APR-20
F4 (C34-C50)			114.2		%		70-130	16-APR-20
WG3308214-1 MB								
F2 (C10-C16)			<100		ug/L		100	16-APR-20
F3 (C16-C34)			<250		ug/L		250	16-APR-20
F4 (C34-C50)			<250		ug/L		250	16-APR-20
Surrogate: 2-Bromobenzotrifluoride			93.0		%		60-140	16-APR-20
HG-D-UG/L-CVAA-WT	**Water**							
Batch R5057100								
WG3308333-3 DUP		**L2436459-6**						
Mercury (Hg)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	15-APR-20
WG3308333-2 LCS								
Mercury (Hg)-Dissolved			103.0		%		80-120	15-APR-20
WG3308333-1 MB								
Mercury (Hg)-Dissolved			<0.0050		ug/L		0.005	15-APR-20
WG3308333-4 MS		**L2436459-7**						

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-D-UG/L-CVAA-WT	**Water**							
Batch R5057100								
WG3308333-4 MS		**L2436459-7**						
Mercury (Hg)-Dissolved			91.3		%		70-130	15-APR-20
MET-D-UG/L-MS-WT	**Water**							
Batch R5057638								
WG3308446-4 DUP		**WG3308446-3**						
Antimony (Sb)-Dissolved		1.7	1.7		ug/L	0.2	20	16-APR-20
Arsenic (As)-Dissolved		3.3	3.7		ug/L	9.9	20	16-APR-20
Barium (Ba)-Dissolved		336	334		ug/L	0.6	20	16-APR-20
Beryllium (Be)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	16-APR-20
Boron (B)-Dissolved		670	650		ug/L	2.9	20	16-APR-20
Cadmium (Cd)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	16-APR-20
Chromium (Cr)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	16-APR-20
Cobalt (Co)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	16-APR-20
Copper (Cu)-Dissolved		<2.0	<2.0	RPD-NA	ug/L	N/A	20	16-APR-20
Lead (Pb)-Dissolved		0.74	0.71		ug/L	4.3	20	16-APR-20
Molybdenum (Mo)-Dissolved		11.3	11.6		ug/L	2.7	20	16-APR-20
Nickel (Ni)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	16-APR-20
Selenium (Se)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	16-APR-20
Silver (Ag)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	16-APR-20
Sodium (Na)-Dissolved		1270000	1270000		ug/L	0.3	20	16-APR-20
Thallium (Tl)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	16-APR-20
Uranium (U)-Dissolved		3.40	3.43		ug/L	1.1	20	16-APR-20
Vanadium (V)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	16-APR-20
Zinc (Zn)-Dissolved		<10	<10	RPD-NA	ug/L	N/A	20	16-APR-20
WG3308446-2 LCS								
Antimony (Sb)-Dissolved			99.7		%		80-120	16-APR-20
Arsenic (As)-Dissolved			103.5		%		80-120	16-APR-20
Barium (Ba)-Dissolved			111.0		%		80-120	16-APR-20
Beryllium (Be)-Dissolved			97.0		%		80-120	16-APR-20
Boron (B)-Dissolved			92.9		%		80-120	16-APR-20
Cadmium (Cd)-Dissolved			101.6		%		80-120	16-APR-20
Chromium (Cr)-Dissolved			98.9		%		80-120	16-APR-20
Cobalt (Co)-Dissolved			99.4		%		80-120	16-APR-20
Copper (Cu)-Dissolved			96.8				80-120	

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5057638								
WG3308446-2 LCS								
Copper (Cu)-Dissolved			96.8		%		80-120	16-APR-20
Lead (Pb)-Dissolved			102.3		%		80-120	16-APR-20
Molybdenum (Mo)-Dissolved			103.2		%		80-120	16-APR-20
Nickel (Ni)-Dissolved			97.3		%		80-120	16-APR-20
Selenium (Se)-Dissolved			97.6		%		80-120	16-APR-20
Silver (Ag)-Dissolved			104.9		%		80-120	16-APR-20
Sodium (Na)-Dissolved			96.6		%		80-120	16-APR-20
Thallium (Tl)-Dissolved			99.7		%		80-120	16-APR-20
Uranium (U)-Dissolved			101.6		%		80-120	16-APR-20
Vanadium (V)-Dissolved			104.0		%		80-120	16-APR-20
Zinc (Zn)-Dissolved			98.7		%		80-120	16-APR-20
WG3308446-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	16-APR-20
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	16-APR-20
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	16-APR-20
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	16-APR-20
Boron (B)-Dissolved			<10		ug/L		10	16-APR-20
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	16-APR-20
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	16-APR-20
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	16-APR-20
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	16-APR-20
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	16-APR-20
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	16-APR-20
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	16-APR-20
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	16-APR-20
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	16-APR-20
Sodium (Na)-Dissolved			<50		ug/L		50	16-APR-20
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	16-APR-20
Uranium (U)-Dissolved			<0.010		ug/L		0.01	16-APR-20
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	16-APR-20
Zinc (Zn)-Dissolved			<1.0		ug/L		1	16-APR-20
WG3308446-5 MS		**WG3308446-6**						
Antimony (Sb)-Dissolved			95.5		%		70-130	16-APR-20
Arsenic (As)-Dissolved			96.6		%		70-130	16-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5057638								
WG3308446-5 MS		**WG3308446-6**						
Barium (Ba)-Dissolved			N/A	MS-B	%		-	16-APR-20
Beryllium (Be)-Dissolved			92.7		%		70-130	16-APR-20
Boron (B)-Dissolved			N/A	MS-B	%		-	16-APR-20
Cadmium (Cd)-Dissolved			92.4		%		70-130	16-APR-20
Chromium (Cr)-Dissolved			95.4		%		70-130	16-APR-20
Cobalt (Co)-Dissolved			92.6		%		70-130	16-APR-20
Copper (Cu)-Dissolved			90.6		%		70-130	16-APR-20
Lead (Pb)-Dissolved			89.2		%		70-130	16-APR-20
Nickel (Ni)-Dissolved			82.3		%		70-130	16-APR-20
Selenium (Se)-Dissolved			91.6		%		70-130	16-APR-20
Silver (Ag)-Dissolved			89.9		%		70-130	16-APR-20
Sodium (Na)-Dissolved			N/A	MS-B	%		-	16-APR-20
Thallium (Tl)-Dissolved			89.1		%		70-130	16-APR-20
Uranium (U)-Dissolved			N/A	MS-B	%		-	16-APR-20
Vanadium (V)-Dissolved			101.4		%		70-130	16-APR-20
Zinc (Zn)-Dissolved			80.1		%		70-130	16-APR-20
PAH-511-WT	**Water**							
Batch R5057280								
WG3308214-2 LCS								
1-Methylnaphthalene			91.6		%		50-140	16-APR-20
2-Methylnaphthalene			87.6		%		50-140	16-APR-20
Acenaphthene			98.0		%		50-140	16-APR-20
Acenaphthylene			102.3		%		50-140	16-APR-20
Anthracene			100.4		%		50-140	16-APR-20
Benzo(a)anthracene			111.5		%		50-140	16-APR-20
Benzo(a)pyrene			99.3		%		50-140	16-APR-20
Benzo(b)fluoranthene			94.7		%		50-140	16-APR-20
Benzo(g,h,i)perylene			107.8		%		50-140	16-APR-20
Benzo(k)fluoranthene			99.3		%		50-140	16-APR-20
Chrysene			103.1		%		50-140	16-APR-20
Dibenzo(ah)anthracene			105.8		%		50-140	16-APR-20
Fluoranthene			107.6		%		50-140	16-APR-20
Fluorene			103.8		%		50-140	16-APR-20
Indeno(1,2,3-cd)pyrene			126.8		%		50-140	

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R5057280								
WG3308214-2 LCS								
Indeno(1,2,3-cd)pyrene			126.8		%		50-140	16-APR-20
Naphthalene			95.0		%		50-140	16-APR-20
Phenanthrene			107.0		%		50-140	16-APR-20
Pyrene			108.9		%		50-140	16-APR-20
WG3308214-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	16-APR-20
2-Methylnaphthalene			<0.020		ug/L		0.02	16-APR-20
Acenaphthene			<0.020		ug/L		0.02	16-APR-20
Acenaphthylene			<0.020		ug/L		0.02	16-APR-20
Anthracene			<0.020		ug/L		0.02	16-APR-20
Benzo(a)anthracene			<0.020		ug/L		0.02	16-APR-20
Benzo(a)pyrene			<0.010		ug/L		0.01	16-APR-20
Benzo(b)fluoranthene			<0.020		ug/L		0.02	16-APR-20
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	16-APR-20
Benzo(k)fluoranthene			<0.020		ug/L		0.02	16-APR-20
Chrysene			<0.020		ug/L		0.02	16-APR-20
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	16-APR-20
Fluoranthene			<0.020		ug/L		0.02	16-APR-20
Fluorene			<0.020		ug/L		0.02	16-APR-20
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	16-APR-20
Naphthalene			<0.050		ug/L		0.05	16-APR-20
Phenanthrene			<0.020		ug/L		0.02	16-APR-20
Pyrene			<0.020		ug/L		0.02	16-APR-20
Surrogate: d8-Naphthalene			102.9		%		60-140	16-APR-20
Surrogate: d10-Phenanthrene			108.8		%		60-140	16-APR-20
Surrogate: d12-Chrysene			100.6		%		60-140	16-APR-20
Surrogate: d10-Acenaphthene			102.0		%		60-140	16-APR-20
PH-WT	**Water**							
Batch R5057741								
WG3308753-4 DUP		**WG3308753-3**						
pH		7.40	7.35	J	pH units	0.05	0.2	16-APR-20
WG3308753-2 LCS								
pH			7.03		pH units		6.9-7.1	16-APR-20
VOC-511-HS-WT	**Water**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5057198								
WG3305551-4 DUP		**WG3305551-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
1,1-Dichloroethane		1.01	1.02		ug/L	1.0	30	16-APR-20
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	16-APR-20
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	16-APR-20
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	16-APR-20
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	16-APR-20
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	16-APR-20
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-APR-20
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	16-APR-20
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	16-APR-20
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	16-APR-20
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	16-APR-20
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	16-APR-20
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	16-APR-20
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	16-APR-20
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	16-APR-20
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	16-APR-20
Styrene		<0.50	<0.50		ug/L			16-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5057198								
WG3305551-4 DUP		**WG3305551-3**						
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	16-APR-20
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	16-APR-20
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-APR-20
WG3305551-1 LCS								
1,1,1,2-Tetrachloroethane			92.9		%		70-130	16-APR-20
1,1,2,2-Tetrachloroethane			88.0		%		70-130	16-APR-20
1,1,1-Trichloroethane			102.1		%		70-130	16-APR-20
1,1,2-Trichloroethane			91.2		%		70-130	16-APR-20
1,1-Dichloroethane			95.9		%		70-130	16-APR-20
1,1-Dichloroethylene			87.3		%		70-130	16-APR-20
1,2-Dibromoethane			89.1		%		70-130	16-APR-20
1,2-Dichlorobenzene			99.2		%		70-130	16-APR-20
1,2-Dichloroethane			88.2		%		70-130	16-APR-20
1,2-Dichloropropane			91.3		%		70-130	16-APR-20
1,3-Dichlorobenzene			99.5		%		70-130	16-APR-20
1,4-Dichlorobenzene			101.0		%		70-130	16-APR-20
Acetone			88.8		%		60-140	16-APR-20
Benzene			102.1		%		70-130	16-APR-20
Bromodichloromethane			95.0		%		70-130	16-APR-20
Bromoform			91.0		%		70-130	16-APR-20
Bromomethane			84.8		%		60-140	16-APR-20
Carbon tetrachloride			106.1		%		70-130	16-APR-20
Chlorobenzene			96.3		%		70-130	16-APR-20
Chloroform			101.5		%		70-130	16-APR-20
cis-1,2-Dichloroethylene			90.5		%		70-130	16-APR-20
cis-1,3-Dichloropropene			91.1		%		70-130	16-APR-20
Dibromochloromethane			89.9		%		70-130	16-APR-20
Dichlorodifluoromethane			91.9		%		50-140	16-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5057198								
WG3305551-1 LCS								
Ethylbenzene			93.7		%		70-130	16-APR-20
n-Hexane			86.5		%		70-130	16-APR-20
m+p-Xylenes			95.4		%		70-130	16-APR-20
Methyl Ethyl Ketone			85.8		%		60-140	16-APR-20
Methyl Isobutyl Ketone			79.5		%		60-140	16-APR-20
Methylene Chloride			92.5		%		70-130	16-APR-20
MTBE			96.6		%		70-130	16-APR-20
o-Xylene			101.0		%		70-130	16-APR-20
Styrene			86.6		%		70-130	16-APR-20
Tetrachloroethylene			105.1		%		70-130	16-APR-20
Toluene			96.4		%		70-130	16-APR-20
trans-1,2-Dichloroethylene			90.4		%		70-130	16-APR-20
trans-1,3-Dichloropropene			90.9		%		70-130	16-APR-20
Trichloroethylene			103.1		%		70-130	16-APR-20
Trichlorofluoromethane			95.3		%		60-140	16-APR-20
Vinyl chloride			111.7		%		60-140	16-APR-20
WG3305551-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	16-APR-20
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	16-APR-20
1,1,1-Trichloroethane			<0.50		ug/L		0.5	16-APR-20
1,1,2-Trichloroethane			<0.50		ug/L		0.5	16-APR-20
1,1-Dichloroethane			<0.50		ug/L		0.5	16-APR-20
1,1-Dichloroethylene			<0.50		ug/L		0.5	16-APR-20
1,2-Dibromoethane			<0.20		ug/L		0.2	16-APR-20
1,2-Dichlorobenzene			<0.50		ug/L		0.5	16-APR-20
1,2-Dichloroethane			<0.50		ug/L		0.5	16-APR-20
1,2-Dichloropropane			<0.50		ug/L		0.5	16-APR-20
1,3-Dichlorobenzene			<0.50		ug/L		0.5	16-APR-20
1,4-Dichlorobenzene			<0.50		ug/L		0.5	16-APR-20
Acetone			<30		ug/L		30	16-APR-20
Benzene			<0.50		ug/L		0.5	16-APR-20
Bromodichloromethane			<2.0		ug/L		2	16-APR-20
Bromoform			<5.0		ug/L		5	16-APR-20
Bromomethane			<0.50		ug/L		0.5	16-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5057198								
WG3305551-2 MB								
Carbon tetrachloride			<0.20		ug/L		0.2	16-APR-20
Chlorobenzene			<0.50		ug/L		0.5	16-APR-20
Chloroform			<1.0		ug/L		1	16-APR-20
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	16-APR-20
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	16-APR-20
Dibromochloromethane			<2.0		ug/L		2	16-APR-20
Dichlorodifluoromethane			<2.0		ug/L		2	16-APR-20
Ethylbenzene			<0.50		ug/L		0.5	16-APR-20
n-Hexane			<0.50		ug/L		0.5	16-APR-20
m+p-Xylenes			<0.40		ug/L		0.4	16-APR-20
Methyl Ethyl Ketone			<20		ug/L		20	16-APR-20
Methyl Isobutyl Ketone			<20		ug/L		20	16-APR-20
Methylene Chloride			<5.0		ug/L		5	16-APR-20
MTBE			<2.0		ug/L		2	16-APR-20
o-Xylene			<0.30		ug/L		0.3	16-APR-20
Styrene			<0.50		ug/L		0.5	16-APR-20
Tetrachloroethylene			<0.50		ug/L		0.5	16-APR-20
Toluene			<0.50		ug/L		0.5	16-APR-20
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	16-APR-20
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	16-APR-20
Trichloroethylene			<0.50		ug/L		0.5	16-APR-20
Trichlorofluoromethane			<5.0		ug/L		5	16-APR-20
Vinyl chloride			<0.50		ug/L		0.5	16-APR-20
Surrogate: 1,4-Difluorobenzene			100.3		%		70-130	16-APR-20
Surrogate: 4-Bromofluorobenzene			96.5		%		70-130	16-APR-20
WG3305551-5 MS		**WG3305551-3**						
1,1,1,2-Tetrachloroethane			91.3		%		50-140	16-APR-20
1,1,2,2-Tetrachloroethane			88.5		%		50-140	16-APR-20
1,1,1-Trichloroethane			100.7		%		50-140	16-APR-20
1,1,2-Trichloroethane			91.6		%		50-140	16-APR-20
1,1-Dichloroethane			96.3		%		50-140	16-APR-20
1,1-Dichloroethylene			85.6		%		50-140	16-APR-20
1,2-Dibromoethane			89.6		%		50-140	16-APR-20
1,2-Dichlorobenzene			98.9		%		50-140	16-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5057198								
WG3305551-5 MS		**WG3305551-3**						
1,2-Dichloroethane			91.0		%		50-140	16-APR-20
1,2-Dichloropropane			92.8		%		50-140	16-APR-20
1,3-Dichlorobenzene			99.3		%		50-140	16-APR-20
1,4-Dichlorobenzene			101.5		%		50-140	16-APR-20
Acetone			101.2		%		50-140	16-APR-20
Benzene			102.5		%		50-140	16-APR-20
Bromodichloromethane			97.2		%		50-140	16-APR-20
Bromoform			91.5		%		50-140	16-APR-20
Bromomethane			79.8		%		50-140	16-APR-20
Carbon tetrachloride			104.1		%		50-140	16-APR-20
Chlorobenzene			96.0		%		50-140	16-APR-20
Chloroform			102.5		%		50-140	16-APR-20
cis-1,2-Dichloroethylene			91.1		%		50-140	16-APR-20
cis-1,3-Dichloropropene			87.6		%		50-140	16-APR-20
Dibromochloromethane			89.8		%		50-140	16-APR-20
Dichlorodifluoromethane			83.8		%		50-140	16-APR-20
Ethylbenzene			90.8		%		50-140	16-APR-20
n-Hexane			83.7		%		50-140	16-APR-20
m+p-Xylenes			93.5		%		50-140	16-APR-20
Methyl Ethyl Ketone			96.0		%		50-140	16-APR-20
Methyl Isobutyl Ketone			84.1		%		50-140	16-APR-20
Methylene Chloride			93.7		%		50-140	16-APR-20
MTBE			96.8		%		50-140	16-APR-20
o-Xylene			98.2		%		50-140	16-APR-20
Styrene			84.6		%		50-140	16-APR-20
Tetrachloroethylene			101.5		%		50-140	16-APR-20
Toluene			94.0		%		50-140	16-APR-20
trans-1,2-Dichloroethylene			90.4		%		50-140	16-APR-20
trans-1,3-Dichloropropene			83.3		%		50-140	16-APR-20
Trichloroethylene			102.7		%		50-140	16-APR-20
Trichlorofluoromethane			91.6		%		50-140	16-APR-20
Vinyl chloride			106.9		%		50-140	16-APR-20

Quality Control Report

Workorder: L2437013 Report Date: 20-APR-20

Client: CH2M HILL CANADA LIMITED
CH2M HILL CANADA LIMITED 72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: MICHAEL SHIRY

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.
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.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

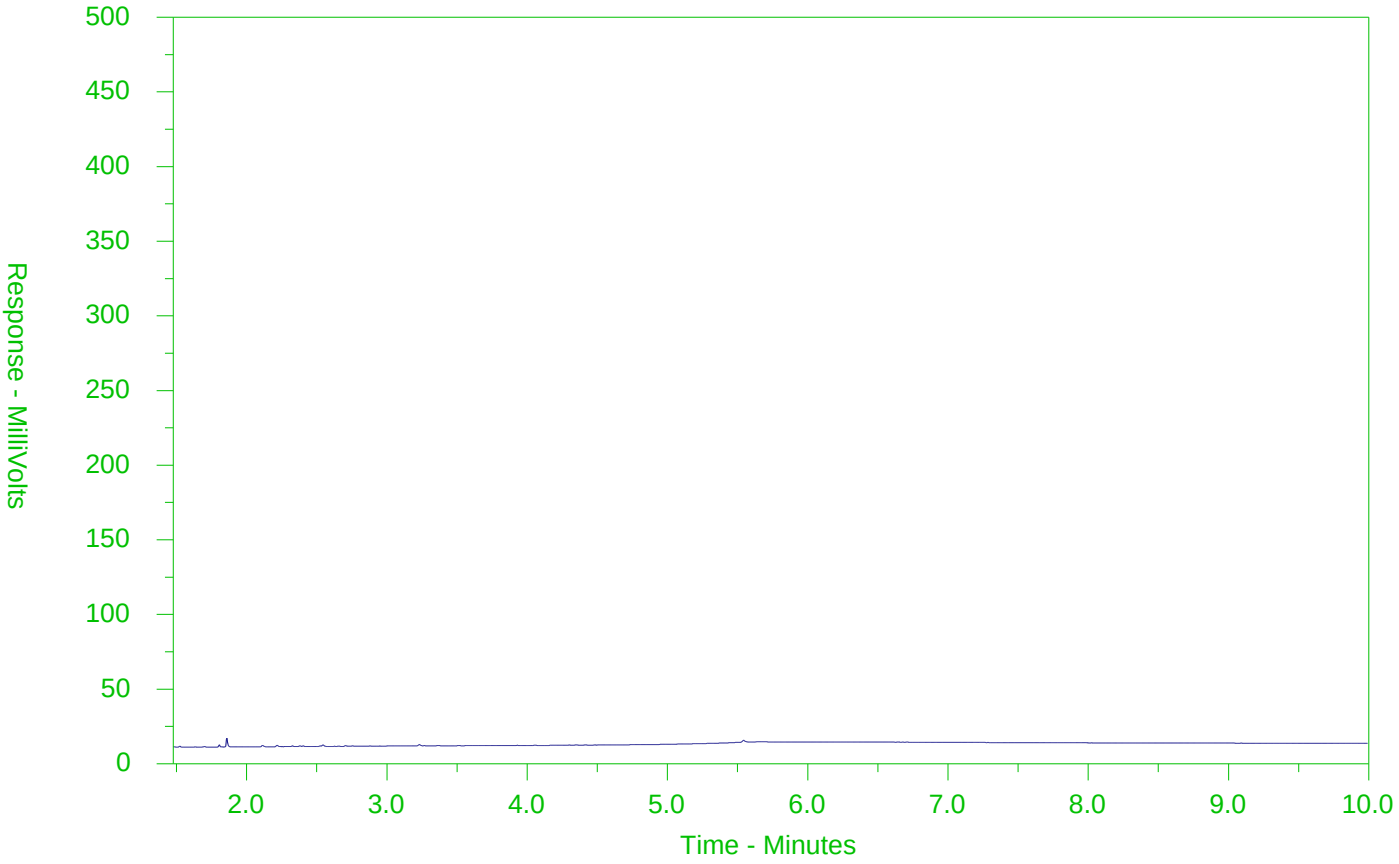
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2437013-1
Client Sample ID: MW113



←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.

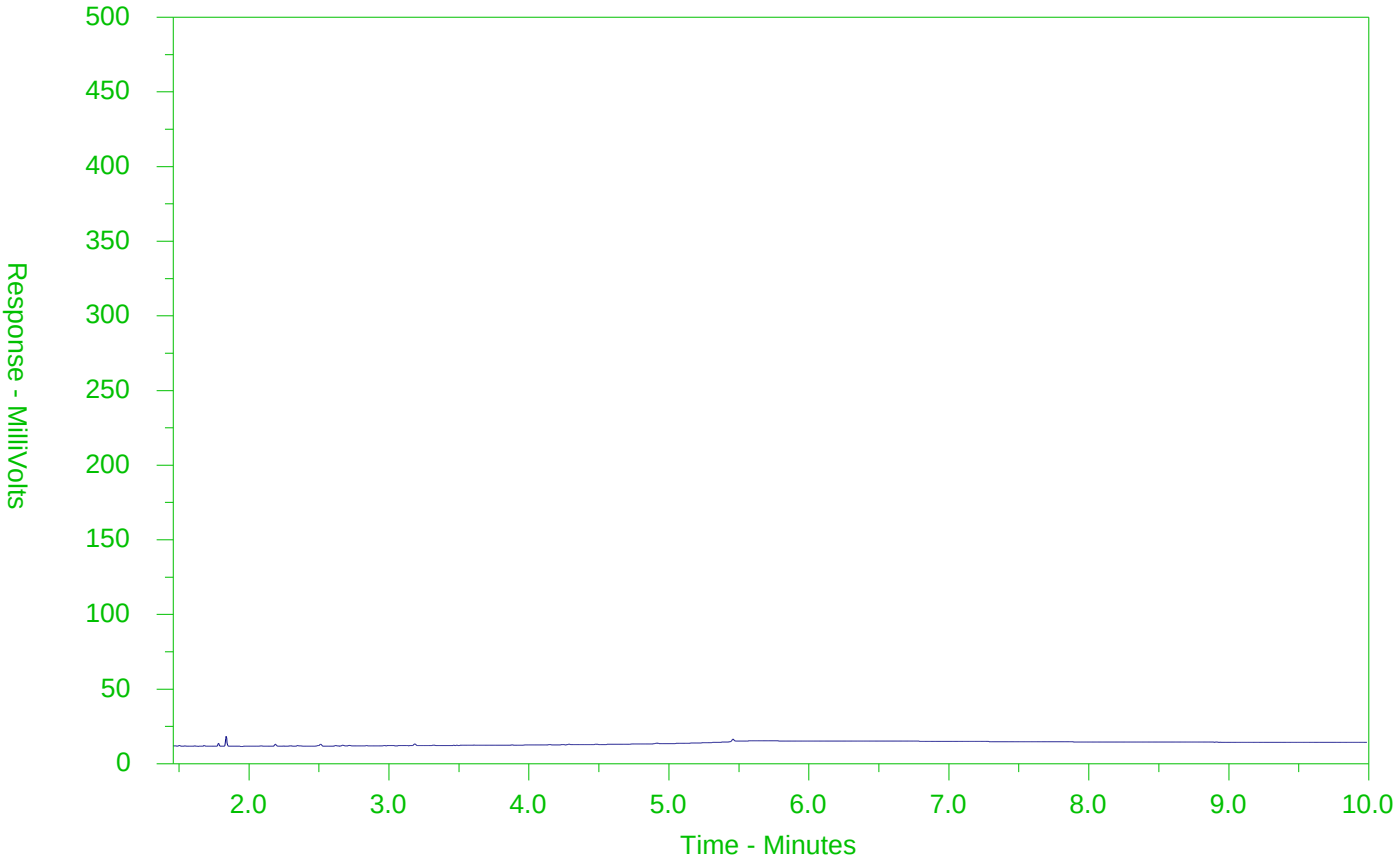
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2437013-2
Client Sample ID: DUP1



←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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2437013-COFC

COC Number: 17 - 796250

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Jacobs	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Michael Shirey / Amy Casey	Quality Control (QC) Report with Report: YES NO	PRIORITY (Business days): 4 day [P4-20%]; 3 day [P3-25%]; 2 day [P2-50%]
Phone:	519-803-2283	Compare Results to Criteria on Report: provide details below if box checked	EMERGENCY: 1 Business day [E - 100%]; Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	72 Victoria St South	Email 1 or Fax: michael.shirey@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Kitchener, ON	Email 2: tania.mccarthy@jacobs.com	
Postal Code:		Email 3: amy.casey@jacobs.com	
Invoice To	Same as Report To: YES NO	Invoice Distribution	
	Copy of Invoice with Report: YES NO	Select Invoice Distribution: EMAIL MAIL FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q72980	AFE/Cost Center:	PO#:
Job #:	CE75/900	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2437013 KH	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	O.Reg153 Metals+ Inorg.	VOC, F1	PHC F2-F4	PAH	Hg	CrVI	CN	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
						F				F	F	F		
	MW113	05-Apr-20	12:15	GW	11	X	X	X	X	X	X	X		
	DUP1	15-Apr-20	—	GW	11	X	X	X	X	X	X	X		
	Trip Blank	15-Apr-20	—		1		X							

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? YES NO		Frozen; SIF Observations Yes No; Ice Packs; Ice Cubes; Custody seal intact Yes No; Cooling Initiated
Are samples for human consumption/ use? YES NO		INITIAL COOLER TEMPERATURES °C: FINAL COOLER TEMPERATURES °C: 8.9

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Amy Casey	4/15 - 13:45					KP	4-15-2020	1345

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

1. If any water samples are taken from a Regulated Drinking Water (DW) System please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: AMY CASEY
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 22-APR-20
Report Date: 27-APR-20 12:41 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2439186

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers: 17-798380
Legal Site Desc:

Emily Hansen
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2439186-1 MW113 Sampled By: CLIENT on 22-APR-20 @ 10:50 Matrix: WATER							
Physical Tests							
Conductivity	7.79		0.0030	mS/cm		23-APR-20	R5062200
pH	7.83		0.10	pH units		23-APR-20	R5062200
Anions and Nutrients							
Chloride (Cl)	3010	DLHC	10	mg/L		23-APR-20	R5063196
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L		22-APR-20	R5061373
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD					22-APR-20	R5061197
Dissolved Metals Filtration Location	FIELD					23-APR-20	R5061456
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	23-APR-20	23-APR-20	R5061916
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	23-APR-20	23-APR-20	R5061916
Barium (Ba)-Dissolved	146	DLHC	1.0	ug/L	23-APR-20	23-APR-20	R5061916
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	23-APR-20	23-APR-20	R5061916
Boron (B)-Dissolved	<100	DLHC	100	ug/L	23-APR-20	23-APR-20	R5061916
Cadmium (Cd)-Dissolved	1.82	DLHC	0.050	ug/L	23-APR-20	23-APR-20	R5061916
Chromium (Cr)-Dissolved	5.9	DLHC	5.0	ug/L	23-APR-20	23-APR-20	R5061916
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	23-APR-20	23-APR-20	R5061916
Copper (Cu)-Dissolved	2.2	DLHC	2.0	ug/L	23-APR-20	23-APR-20	R5061916
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	23-APR-20	23-APR-20	R5061916
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	22-APR-20	23-APR-20	R5061739
Molybdenum (Mo)-Dissolved	1.61	DLHC	0.50	ug/L	23-APR-20	23-APR-20	R5061916
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	23-APR-20	23-APR-20	R5061916
Selenium (Se)-Dissolved	1.38	DLHC	0.50	ug/L	23-APR-20	23-APR-20	R5061916
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	23-APR-20	23-APR-20	R5061916
Sodium (Na)-Dissolved	1470000	DLHC	5000	ug/L	23-APR-20	24-APR-20	R5061916
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	23-APR-20	23-APR-20	R5061916
Uranium (U)-Dissolved	0.77	DLHC	0.10	ug/L	23-APR-20	23-APR-20	R5061916
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	23-APR-20	23-APR-20	R5061916
Zinc (Zn)-Dissolved	<10	DLHC	10	ug/L	23-APR-20	23-APR-20	R5061916
Speciated Metals							
Chromium, Hexavalent	5.74		0.50	ug/L		24-APR-20	R5062619
Volatile Organic Compounds							
Acetone	<30		30	ug/L		23-APR-20	R5061334
Benzene	<0.50		0.50	ug/L		23-APR-20	R5061334
Bromodichloromethane	<2.0		2.0	ug/L		23-APR-20	R5061334
Bromoform	<5.0		5.0	ug/L		23-APR-20	R5061334
Bromomethane	<0.50		0.50	ug/L		23-APR-20	R5061334
Carbon tetrachloride	<0.20		0.20	ug/L		23-APR-20	R5061334
Chlorobenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
Dibromochloromethane	<2.0		2.0	ug/L		23-APR-20	R5061334
Chloroform	4.4		1.0	ug/L		23-APR-20	R5061334
1,2-Dibromoethane	<0.20		0.20	ug/L		23-APR-20	R5061334

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2439186-1 MW113 Sampled By: CLIENT on 22-APR-20 @ 10:50 Matrix: WATER							
Volatile Organic Compounds							
1,2-Dichlorobenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
1,3-Dichlorobenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
1,4-Dichlorobenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
Dichlorodifluoromethane	<2.0		2.0	ug/L		23-APR-20	R5061334
1,1-Dichloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
1,2-Dichloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1-Dichloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
Methylene Chloride	<5.0		5.0	ug/L		23-APR-20	R5061334
1,2-Dichloropropane	<0.50		0.50	ug/L		23-APR-20	R5061334
cis-1,3-Dichloropropene	<0.30		0.30	ug/L		23-APR-20	R5061334
trans-1,3-Dichloropropene	<0.30		0.30	ug/L		23-APR-20	R5061334
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		23-APR-20	
Ethylbenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
n-Hexane	<0.50		0.50	ug/L		23-APR-20	R5061334
Methyl Ethyl Ketone	<20		20	ug/L		23-APR-20	R5061334
Methyl Isobutyl Ketone	<20		20	ug/L		23-APR-20	R5061334
MTBE	<2.0		2.0	ug/L		23-APR-20	R5061334
Styrene	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
Tetrachloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
Toluene	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1,1-Trichloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1,2-Trichloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
Trichloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
Trichlorofluoromethane	<5.0		5.0	ug/L		23-APR-20	R5061334
Vinyl chloride	<0.50		0.50	ug/L		23-APR-20	R5061334
o-Xylene	<0.30		0.30	ug/L		23-APR-20	R5061334
m+p-Xylenes	<0.40		0.40	ug/L		23-APR-20	R5061334
Xylenes (Total)	<0.50		0.50	ug/L		23-APR-20	
Surrogate: 4-Bromofluorobenzene	99.8		70-130	%		23-APR-20	R5061334
Surrogate: 1,4-Difluorobenzene	101.0		70-130	%		23-APR-20	R5061334
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L		23-APR-20	R5061334
F1-BTEX	<25		25	ug/L		23-APR-20	
F2 (C10-C16)	<100		100	ug/L	22-APR-20	22-APR-20	R5061206
F2-Naphth	<100		100	ug/L		23-APR-20	
F3 (C16-C34)	<250		250	ug/L	22-APR-20	22-APR-20	R5061206
F3-PAH	<250		250	ug/L		23-APR-20	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2439186-1 MW113 Sampled By: CLIENT on 22-APR-20 @ 10:50 Matrix: WATER							
Hydrocarbons							
F4 (C34-C50)	<250		250	ug/L	22-APR-20	22-APR-20	R5061206
Total Hydrocarbons (C6-C50)	<370		370	ug/L		23-APR-20	
Chrom. to baseline at nC50	YES				22-APR-20	22-APR-20	R5061206
Surrogate: 2-Bromobenzotrifluoride	87.3		60-140	%	22-APR-20	22-APR-20	R5061206
Surrogate: 3,4-Dichlorotoluene	87.7		60-140	%		23-APR-20	R5061334
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Acenaphthylene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Anthracene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Benzo(a)anthracene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Benzo(a)pyrene	<0.010		0.010	ug/L	22-APR-20	23-APR-20	R5061324
Benzo(b)fluoranthene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Benzo(k)fluoranthene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Chrysene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Fluoranthene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Fluorene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
1+2-Methylnaphthalenes	<0.028		0.028	ug/L		23-APR-20	
1-Methylnaphthalene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
2-Methylnaphthalene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Naphthalene	<0.050		0.050	ug/L	22-APR-20	23-APR-20	R5061324
Phenanthrene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Pyrene	<0.020		0.020	ug/L	22-APR-20	23-APR-20	R5061324
Surrogate: d10-Acenaphthene	102.7		60-140	%	22-APR-20	23-APR-20	R5061324
Surrogate: d12-Chrysene	88.9		60-140	%	22-APR-20	23-APR-20	R5061324
Surrogate: d8-Naphthalene	97.8		60-140	%	22-APR-20	23-APR-20	R5061324
Surrogate: d10-Phenanthrene	102.3		60-140	%	22-APR-20	23-APR-20	R5061324
L2439186-2 TRIP BLANK Sampled By: CLIENT on 22-APR-20 @ 10:50 Matrix: WATER							
Volatile Organic Compounds							
Acetone	<30		30	ug/L		23-APR-20	R5061334
Benzene	<0.50		0.50	ug/L		23-APR-20	R5061334
Bromodichloromethane	<2.0		2.0	ug/L		23-APR-20	R5061334
Bromoform	<5.0		5.0	ug/L		23-APR-20	R5061334
Bromomethane	<0.50		0.50	ug/L		23-APR-20	R5061334
Carbon tetrachloride	<0.20		0.20	ug/L		23-APR-20	R5061334
Chlorobenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
Dibromochloromethane	<2.0		2.0	ug/L		23-APR-20	R5061334
Chloroform	<1.0		1.0	ug/L		23-APR-20	R5061334

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2439186-2 TRIP BLANK Sampled By: CLIENT on 22-APR-20 @ 10:50 Matrix: WATER							
Volatile Organic Compounds							
1,2-Dibromoethane	<0.20		0.20	ug/L		23-APR-20	R5061334
1,2-Dichlorobenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
1,3-Dichlorobenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
1,4-Dichlorobenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
Dichlorodifluoromethane	<2.0		2.0	ug/L		23-APR-20	R5061334
1,1-Dichloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
1,2-Dichloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1-Dichloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
Methylene Chloride	<5.0		5.0	ug/L		23-APR-20	R5061334
1,2-Dichloropropane	<0.50		0.50	ug/L		23-APR-20	R5061334
cis-1,3-Dichloropropene	<0.30		0.30	ug/L		23-APR-20	R5061334
trans-1,3-Dichloropropene	<0.30		0.30	ug/L		23-APR-20	R5061334
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		23-APR-20	
Ethylbenzene	<0.50		0.50	ug/L		23-APR-20	R5061334
n-Hexane	<0.50		0.50	ug/L		23-APR-20	R5061334
Methyl Ethyl Ketone	<20		20	ug/L		23-APR-20	R5061334
Methyl Isobutyl Ketone	<20		20	ug/L		23-APR-20	R5061334
MTBE	<2.0		2.0	ug/L		23-APR-20	R5061334
Styrene	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
Tetrachloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
Toluene	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1,1-Trichloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
1,1,2-Trichloroethane	<0.50		0.50	ug/L		23-APR-20	R5061334
Trichloroethylene	<0.50		0.50	ug/L		23-APR-20	R5061334
Trichlorofluoromethane	<5.0		5.0	ug/L		23-APR-20	R5061334
Vinyl chloride	<0.50		0.50	ug/L		23-APR-20	R5061334
o-Xylene	<0.30		0.30	ug/L		23-APR-20	R5061334
m+p-Xylenes	<0.40		0.40	ug/L		23-APR-20	R5061334
Xylenes (Total)	<0.50		0.50	ug/L		23-APR-20	
Surrogate: 4-Bromofluorobenzene	99.5		70-130	%		23-APR-20	R5061334
Surrogate: 1,4-Difluorobenzene	100.2		70-130	%		23-APR-20	R5061334
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L		23-APR-20	R5061334
F1-BTEX	<25		25	ug/L		23-APR-20	
Surrogate: 3,4-Dichlorotoluene	100.8		60-140	%		23-APR-20	R5061334

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2439186-1
Matrix Spike	Boron (B)-Dissolved	MS-B	L2439186-1
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2439186-1
Matrix Spike	Uranium (U)-Dissolved	MS-B	L2439186-1

Sample Parameter Qualifier key listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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).

EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

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.
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.

Reference Information

4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	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).

F2-F4-511-WT	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).

HG-D-UG/L-CVAA-WT	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).

MET-D-UG/L-MS-WT	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).

METHYLNAPS-CALC-WT	Water	PAH-Calculated Parameters	SW846 8270
PAH-511-WT	Water	PAH-O. Reg 153/04 (July 2011)	SW846 3510/8270

Aqueous samples, fortified with surrogates, are extracted using liquid/liquid extraction technique. The sample extracts are concentrated and then analyzed using GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in 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), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	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

VOC-1,3-DCP-CALC-WT	Water	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	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).

XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

Reference Information

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

Chain of Custody Numbers:

17-798380

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 weight of sample
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.

Quality Control Report

Workorder: L2439186 Report Date: 27-APR-20

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R5063196								
WG3312570-8 DUP		**WG3312570-10**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	23-APR-20
WG3312570-7 LCS								
Chloride (Cl)			103.5		%		90-110	23-APR-20
WG3312570-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	23-APR-20
WG3312570-9 MS		**WG3312570-10**						
Chloride (Cl)			102.0		%		75-125	23-APR-20
CN-WAD-R511-WT	**Water**							
Batch R5061373								
WG3311411-9 DUP		**L2438663-1**						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	22-APR-20
WG3311411-6 LCS								
Cyanide, Weak Acid Diss			97.3		%		80-120	22-APR-20
WG3311411-5 MB								
Cyanide, Weak Acid Diss			<2.0		ug/L		2	22-APR-20
WG3311411-10 MS		**L2438663-1**						
Cyanide, Weak Acid Diss			95.2		%		75-125	22-APR-20
CR-CR6-IC-R511-WT	**Water**							
Batch R5062619								
WG3312307-4 DUP		**WG3312307-3**						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	24-APR-20
WG3312307-2 LCS								
Chromium, Hexavalent			101.2		%		80-120	24-APR-20
WG3312307-1 MB								
Chromium, Hexavalent			<0.50		ug/L		0.5	24-APR-20
WG3312307-5 MS		**WG3312307-3**						
Chromium, Hexavalent			98.4		%		70-130	24-APR-20
EC-R511-WT	**Water**							
Batch R5062200								
WG3312106-4 DUP		**WG3312106-3**						
Conductivity		1.01	1.01		mS/cm	0.0	10	23-APR-20
WG3312106-2 LCS								
Conductivity			99.4		%		90-110	23-APR-20
WG3312106-1 MB								
Conductivity			<0.0030		mS/cm		0.003	23-APR-20
F1-HS-511-WT	**Water**							

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Water**							
Batch R5061334								
WG3311300-4 DUP		**WG3311300-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	23-APR-20
WG3311300-1 LCS								
F1 (C6-C10)			92.7		%		80-120	23-APR-20
WG3311300-2 MB								
F1 (C6-C10)			<25		ug/L		25	23-APR-20
Surrogate: 3,4-Dichlorotoluene			82.1		%		60-140	23-APR-20
WG3311300-5 MS		**WG3311300-3**						
F1 (C6-C10)			65.2		%		60-140	23-APR-20
F2-F4-511-WT	**Water**							
Batch R5061206								
WG3311344-2 LCS								
F2 (C10-C16)			93.9		%		70-130	22-APR-20
F3 (C16-C34)			96.6		%		70-130	22-APR-20
F4 (C34-C50)			94.4		%		70-130	22-APR-20
WG3311344-1 MB								
F2 (C10-C16)			<100		ug/L		100	22-APR-20
F3 (C16-C34)			<250		ug/L		250	22-APR-20
F4 (C34-C50)			<250		ug/L		250	22-APR-20
Surrogate: 2-Bromobenzotrifluoride			69.3		%		60-140	22-APR-20
HG-D-UG/L-CVAA-WT	**Water**							
Batch R5061739								
WG3311915-3 DUP		**L2439186-1**						
Mercury (Hg)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	23-APR-20
WG3311915-2 LCS								
Mercury (Hg)-Dissolved			101.0		%		80-120	23-APR-20
WG3311915-1 MB								
Mercury (Hg)-Dissolved			<0.0050		ug/L		0.005	23-APR-20
WG3311915-4 MS		**L2439326-1**						
Mercury (Hg)-Dissolved			101.7		%		70-130	23-APR-20
MET-D-UG/L-MS-WT	**Water**							
Batch R5061916								
WG3312247-4 DUP		**WG3312247-3**						
Antimony (Sb)-Dissolved		0.12	0.12		ug/L	0.0	20	23-APR-20
Arsenic (As)-Dissolved		0.92	0.89		ug/L	3.0	20	23-APR-20
Barium (Ba)-Dissolved		282	280		ug/L	0.5	20	23-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5061916								
WG3312247-4 DUP		**WG3312247-3**						
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	23-APR-20
Boron (B)-Dissolved		162	166		ug/L	2.5	20	23-APR-20
Cadmium (Cd)-Dissolved		0.0071	0.0079		ug/L	11	20	23-APR-20
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	23-APR-20
Cobalt (Co)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	23-APR-20
Copper (Cu)-Dissolved		1.95	1.90		ug/L	2.3	20	23-APR-20
Lead (Pb)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	23-APR-20
Molybdenum (Mo)-Dissolved		3.85	3.88		ug/L	0.8	20	23-APR-20
Nickel (Ni)-Dissolved		0.67	0.67		ug/L	0.6	20	23-APR-20
Selenium (Se)-Dissolved		0.954	0.930		ug/L	2.5	20	23-APR-20
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	23-APR-20
Sodium (Na)-Dissolved		78600	77100		ug/L	1.9	20	23-APR-20
Thallium (Tl)-Dissolved		0.012	0.011		ug/L	8.1	20	23-APR-20
Uranium (U)-Dissolved		3.56	3.49		ug/L	2.1	20	23-APR-20
Vanadium (V)-Dissolved		2.80	2.84		ug/L	1.2	20	23-APR-20
Zinc (Zn)-Dissolved		1.6	1.6		ug/L	1.1	20	23-APR-20
WG3312247-2 LCS								
Antimony (Sb)-Dissolved			105.0		%		80-120	23-APR-20
Arsenic (As)-Dissolved			106.8		%		80-120	23-APR-20
Barium (Ba)-Dissolved			104.1		%		80-120	23-APR-20
Beryllium (Be)-Dissolved			100.7		%		80-120	23-APR-20
Boron (B)-Dissolved			97.6		%		80-120	23-APR-20
Cadmium (Cd)-Dissolved			109.4		%		80-120	23-APR-20
Chromium (Cr)-Dissolved			105.6		%		80-120	23-APR-20
Cobalt (Co)-Dissolved			103.1		%		80-120	23-APR-20
Copper (Cu)-Dissolved			106.5		%		80-120	23-APR-20
Lead (Pb)-Dissolved			106.5		%		80-120	23-APR-20
Molybdenum (Mo)-Dissolved			97.9		%		80-120	23-APR-20
Nickel (Ni)-Dissolved			105.5		%		80-120	23-APR-20
Selenium (Se)-Dissolved			105.7		%		80-120	23-APR-20
Silver (Ag)-Dissolved			104.8		%		80-120	23-APR-20
Sodium (Na)-Dissolved			108.8		%		80-120	23-APR-20
Thallium (Tl)-Dissolved			104.0		%		80-120	23-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5061916								
WG3312247-2 LCS								
Uranium (U)-Dissolved			105.5		%		80-120	23-APR-20
Vanadium (V)-Dissolved			106.6		%		80-120	23-APR-20
Zinc (Zn)-Dissolved			106.9		%		80-120	23-APR-20
WG3312247-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	23-APR-20
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	23-APR-20
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	23-APR-20
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	23-APR-20
Boron (B)-Dissolved			<10		ug/L		10	23-APR-20
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	23-APR-20
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	23-APR-20
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	23-APR-20
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	23-APR-20
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	23-APR-20
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	23-APR-20
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	23-APR-20
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	23-APR-20
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	23-APR-20
Sodium (Na)-Dissolved			<50		ug/L		50	23-APR-20
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	23-APR-20
Uranium (U)-Dissolved			<0.010		ug/L		0.01	23-APR-20
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	23-APR-20
Zinc (Zn)-Dissolved			<1.0		ug/L		1	23-APR-20
WG3312247-5 MS		**WG3312247-3**						
Antimony (Sb)-Dissolved			94.3		%		70-130	23-APR-20
Arsenic (As)-Dissolved			105.3		%		70-130	23-APR-20
Barium (Ba)-Dissolved			N/A	MS-B	%		-	23-APR-20
Beryllium (Be)-Dissolved			93.9		%		70-130	23-APR-20
Boron (B)-Dissolved			N/A	MS-B	%		-	23-APR-20
Cadmium (Cd)-Dissolved			96.3		%		70-130	23-APR-20
Chromium (Cr)-Dissolved			94.5		%		70-130	23-APR-20
Cobalt (Co)-Dissolved			87.4		%		70-130	23-APR-20
Copper (Cu)-Dissolved			84.9		%		70-130	23-APR-20
Lead (Pb)-Dissolved			87.9		%		70-130	23-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5061916								
WG3312247-5 MS		**WG3312247-3**						
Molybdenum (Mo)-Dissolved			94.6		%		70-130	23-APR-20
Nickel (Ni)-Dissolved			86.1		%		70-130	23-APR-20
Selenium (Se)-Dissolved			115.8		%		70-130	23-APR-20
Silver (Ag)-Dissolved			90.1		%		70-130	23-APR-20
Sodium (Na)-Dissolved			N/A	MS-B	%		-	23-APR-20
Thallium (Tl)-Dissolved			88.6		%		70-130	23-APR-20
Uranium (U)-Dissolved			N/A	MS-B	%		-	23-APR-20
Vanadium (V)-Dissolved			98.2		%		70-130	23-APR-20
Zinc (Zn)-Dissolved			93.4		%		70-130	23-APR-20
PAH-511-WT	**Water**							
Batch R5061324								
WG3311344-2 LCS								
1-Methylnaphthalene			93.5		%		50-140	23-APR-20
2-Methylnaphthalene			90.8		%		50-140	23-APR-20
Acenaphthene			100.6		%		50-140	23-APR-20
Acenaphthylene			102.4		%		50-140	23-APR-20
Anthracene			98.6		%		50-140	23-APR-20
Benzo(a)anthracene			116.7		%		50-140	23-APR-20
Benzo(a)pyrene			101.6		%		50-140	23-APR-20
Benzo(b)fluoranthene			98.9		%		50-140	23-APR-20
Benzo(g,h,i)perylene			107.8		%		50-140	23-APR-20
Benzo(k)fluoranthene			100.8		%		50-140	23-APR-20
Chrysene			112.7		%		50-140	23-APR-20
Dibenzo(ah)anthracene			106.6		%		50-140	23-APR-20
Fluoranthene			107.1		%		50-140	23-APR-20
Fluorene			105.2		%		50-140	23-APR-20
Indeno(1,2,3-cd)pyrene			128.6		%		50-140	23-APR-20
Naphthalene			98.5		%		50-140	23-APR-20
Phenanthrene			109.2		%		50-140	23-APR-20
Pyrene			107.8		%		50-140	23-APR-20
WG3311344-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	23-APR-20
2-Methylnaphthalene			<0.020		ug/L		0.02	23-APR-20
Acenaphthene			<0.020		ug/L		0.02	23-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R5061324								
WG3311344-1 MB								
Acenaphthylene			<0.020		ug/L		0.02	23-APR-20
Anthracene			<0.020		ug/L		0.02	23-APR-20
Benzo(a)anthracene			<0.020		ug/L		0.02	23-APR-20
Benzo(a)pyrene			<0.010		ug/L		0.01	23-APR-20
Benzo(b)fluoranthene			<0.020		ug/L		0.02	23-APR-20
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	23-APR-20
Benzo(k)fluoranthene			<0.020		ug/L		0.02	23-APR-20
Chrysene			<0.020		ug/L		0.02	23-APR-20
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	23-APR-20
Fluoranthene			<0.020		ug/L		0.02	23-APR-20
Fluorene			<0.020		ug/L		0.02	23-APR-20
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	23-APR-20
Naphthalene			<0.050		ug/L		0.05	23-APR-20
Phenanthrene			<0.020		ug/L		0.02	23-APR-20
Pyrene			<0.020		ug/L		0.02	23-APR-20
Surrogate: d8-Naphthalene			95.4		%		60-140	23-APR-20
Surrogate: d10-Phenanthrene			106.4		%		60-140	23-APR-20
Surrogate: d12-Chrysene			102.2		%		60-140	23-APR-20
Surrogate: d10-Acenaphthene			99.3		%		60-140	23-APR-20
PH-WT	**Water**							
Batch R5062200								
WG3312106-4 DUP		**WG3312106-3**						
pH		7.55	7.59	J	pH units	0.04	0.2	23-APR-20
WG3312106-2 LCS								
pH			6.99		pH units		6.9-7.1	23-APR-20
VOC-511-HS-WT	**Water**							
Batch R5061334								
WG3311300-4 DUP		**WG3311300-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5061334								
WG3311300-4 DUP		**WG3311300-3**						
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	23-APR-20
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	23-APR-20
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	23-APR-20
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	23-APR-20
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	23-APR-20
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	23-APR-20
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	23-APR-20
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	23-APR-20
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	23-APR-20
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	23-APR-20
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	23-APR-20
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	23-APR-20
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	23-APR-20
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	23-APR-20
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	23-APR-20
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	23-APR-20
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
Trichlorofluoromethane		<5.0	<5.0		ug/L			23-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5061334								
WG3311300-4 DUP		**WG3311300-3**						
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	23-APR-20
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-APR-20
WG3311300-1 LCS								
1,1,1,2-Tetrachloroethane			89.9		%		70-130	23-APR-20
1,1,2,2-Tetrachloroethane			91.4		%		70-130	23-APR-20
1,1,1-Trichloroethane			92.9		%		70-130	23-APR-20
1,1,2-Trichloroethane			89.3		%		70-130	23-APR-20
1,1-Dichloroethane			91.5		%		70-130	23-APR-20
1,1-Dichloroethylene			87.9		%		70-130	23-APR-20
1,2-Dibromoethane			87.6		%		70-130	23-APR-20
1,2-Dichlorobenzene			89.0		%		70-130	23-APR-20
1,2-Dichloroethane			86.3		%		70-130	23-APR-20
1,2-Dichloropropane			92.3		%		70-130	23-APR-20
1,3-Dichlorobenzene			87.3		%		70-130	23-APR-20
1,4-Dichlorobenzene			88.7		%		70-130	23-APR-20
Acetone			89.5		%		60-140	23-APR-20
Benzene			93.5		%		70-130	23-APR-20
Bromodichloromethane			96.7		%		70-130	23-APR-20
Bromoform			92.4		%		70-130	23-APR-20
Bromomethane			109.9		%		60-140	23-APR-20
Carbon tetrachloride			93.2		%		70-130	23-APR-20
Chlorobenzene			90.3		%		70-130	23-APR-20
Chloroform			93.6		%		70-130	23-APR-20
cis-1,2-Dichloroethylene			86.4		%		70-130	23-APR-20
cis-1,3-Dichloropropene			84.4		%		70-130	23-APR-20
Dibromochloromethane			87.7		%		70-130	23-APR-20
Dichlorodifluoromethane			88.7		%		50-140	23-APR-20
Ethylbenzene			88.1		%		70-130	23-APR-20
n-Hexane			91.4		%		70-130	23-APR-20
m+p-Xylenes			86.6		%		70-130	23-APR-20
Methyl Ethyl Ketone			96.6		%		60-140	23-APR-20
Methyl Isobutyl Ketone			87.5		%		60-140	23-APR-20
Methylene Chloride			90.0		%		70-130	23-APR-20
MTBE			93.3		%		70-130	23-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5061334								
WG3311300-1 LCS								
o-Xylene			96.1		%		70-130	23-APR-20
Styrene			89.9		%		70-130	23-APR-20
Tetrachloroethylene			89.7		%		70-130	23-APR-20
Toluene			88.7		%		70-130	23-APR-20
trans-1,2-Dichloroethylene			88.4		%		70-130	23-APR-20
trans-1,3-Dichloropropene			83.1		%		70-130	23-APR-20
Trichloroethylene			93.5		%		70-130	23-APR-20
Trichlorofluoromethane			86.2		%		60-140	23-APR-20
Vinyl chloride			100.9		%		60-140	23-APR-20
WG3311300-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	23-APR-20
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	23-APR-20
1,1,1-Trichloroethane			<0.50		ug/L		0.5	23-APR-20
1,1,2-Trichloroethane			<0.50		ug/L		0.5	23-APR-20
1,1-Dichloroethane			<0.50		ug/L		0.5	23-APR-20
1,1-Dichloroethylene			<0.50		ug/L		0.5	23-APR-20
1,2-Dibromoethane			<0.20		ug/L		0.2	23-APR-20
1,2-Dichlorobenzene			<0.50		ug/L		0.5	23-APR-20
1,2-Dichloroethane			<0.50		ug/L		0.5	23-APR-20
1,2-Dichloropropane			<0.50		ug/L		0.5	23-APR-20
1,3-Dichlorobenzene			<0.50		ug/L		0.5	23-APR-20
1,4-Dichlorobenzene			<0.50		ug/L		0.5	23-APR-20
Acetone			<30		ug/L		30	23-APR-20
Benzene			<0.50		ug/L		0.5	23-APR-20
Bromodichloromethane			<2.0		ug/L		2	23-APR-20
Bromoform			<5.0		ug/L		5	23-APR-20
Bromomethane			<0.50		ug/L		0.5	23-APR-20
Carbon tetrachloride			<0.20		ug/L		0.2	23-APR-20
Chlorobenzene			<0.50		ug/L		0.5	23-APR-20
Chloroform			<1.0		ug/L		1	23-APR-20
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	23-APR-20
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	23-APR-20
Dibromochloromethane			<2.0		ug/L		2	23-APR-20
Dichlorodifluoromethane			<2.0		ug/L		2	23-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5061334								
WG3311300-2 MB								
Ethylbenzene			<0.50		ug/L		0.5	23-APR-20
n-Hexane			<0.50		ug/L		0.5	23-APR-20
m+p-Xylenes			<0.40		ug/L		0.4	23-APR-20
Methyl Ethyl Ketone			<20		ug/L		20	23-APR-20
Methyl Isobutyl Ketone			<20		ug/L		20	23-APR-20
Methylene Chloride			<5.0		ug/L		5	23-APR-20
MTBE			<2.0		ug/L		2	23-APR-20
o-Xylene			<0.30		ug/L		0.3	23-APR-20
Styrene			<0.50		ug/L		0.5	23-APR-20
Tetrachloroethylene			<0.50		ug/L		0.5	23-APR-20
Toluene			<0.50		ug/L		0.5	23-APR-20
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	23-APR-20
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	23-APR-20
Trichloroethylene			<0.50		ug/L		0.5	23-APR-20
Trichlorofluoromethane			<5.0		ug/L		5	23-APR-20
Vinyl chloride			<0.50		ug/L		0.5	23-APR-20
Surrogate: 1,4-Difluorobenzene			101.4		%		70-130	23-APR-20
Surrogate: 4-Bromofluorobenzene			97.9		%		70-130	23-APR-20
WG3311300-5 MS		**WG3311300-3**						
1,1,1,2-Tetrachloroethane			86.7		%		50-140	23-APR-20
1,1,2,2-Tetrachloroethane			92.0		%		50-140	23-APR-20
1,1,1-Trichloroethane			89.7		%		50-140	23-APR-20
1,1,2-Trichloroethane			90.0		%		50-140	23-APR-20
1,1-Dichloroethane			91.5		%		50-140	23-APR-20
1,1-Dichloroethylene			83.3		%		50-140	23-APR-20
1,2-Dibromoethane			88.8		%		50-140	23-APR-20
1,2-Dichlorobenzene			87.9		%		50-140	23-APR-20
1,2-Dichloroethane			95.0		%		50-140	23-APR-20
1,2-Dichloropropane			94.4		%		50-140	23-APR-20
1,3-Dichlorobenzene			85.7		%		50-140	23-APR-20
1,4-Dichlorobenzene			88.1		%		50-140	23-APR-20
Acetone			90.9		%		50-140	23-APR-20
Benzene			93.8		%		50-140	23-APR-20
Bromodichloromethane			98.9		%		50-140	23-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5061334								
WG3311300-5 MS		**WG3311300-3**						
Bromoform			91.7		%		50-140	23-APR-20
Bromomethane			109.8		%		50-140	23-APR-20
Carbon tetrachloride			89.0		%		50-140	23-APR-20
Chlorobenzene			88.9		%		50-140	23-APR-20
Chloroform			94.7		%		50-140	23-APR-20
cis-1,2-Dichloroethylene			86.9		%		50-140	23-APR-20
cis-1,3-Dichloropropene			89.9		%		50-140	23-APR-20
Dibromochloromethane			86.3		%		50-140	23-APR-20
Dichlorodifluoromethane			75.3		%		50-140	23-APR-20
Ethylbenzene			83.6		%		50-140	23-APR-20
n-Hexane			84.3		%		50-140	23-APR-20
m+p-Xylenes			82.7		%		50-140	23-APR-20
Methyl Ethyl Ketone			105.9		%		50-140	23-APR-20
Methyl Isobutyl Ketone			91.4		%		50-140	23-APR-20
Methylene Chloride			93.7		%		50-140	23-APR-20
MTBE			92.7		%		50-140	23-APR-20
o-Xylene			92.2		%		50-140	23-APR-20
Styrene			86.3		%		50-140	23-APR-20
Tetrachloroethylene			84.0		%		50-140	23-APR-20
Toluene			84.2		%		50-140	23-APR-20
trans-1,2-Dichloroethylene			87.6		%		50-140	23-APR-20
trans-1,3-Dichloropropene			86.8		%		50-140	23-APR-20
Trichloroethylene			92.3		%		50-140	23-APR-20
Trichlorofluoromethane			80.1		%		50-140	23-APR-20
Vinyl chloride			92.6		%		50-140	23-APR-20

Quality Control Report

Workorder: L2439186 Report Date: 27-APR-20

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY

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.
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.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

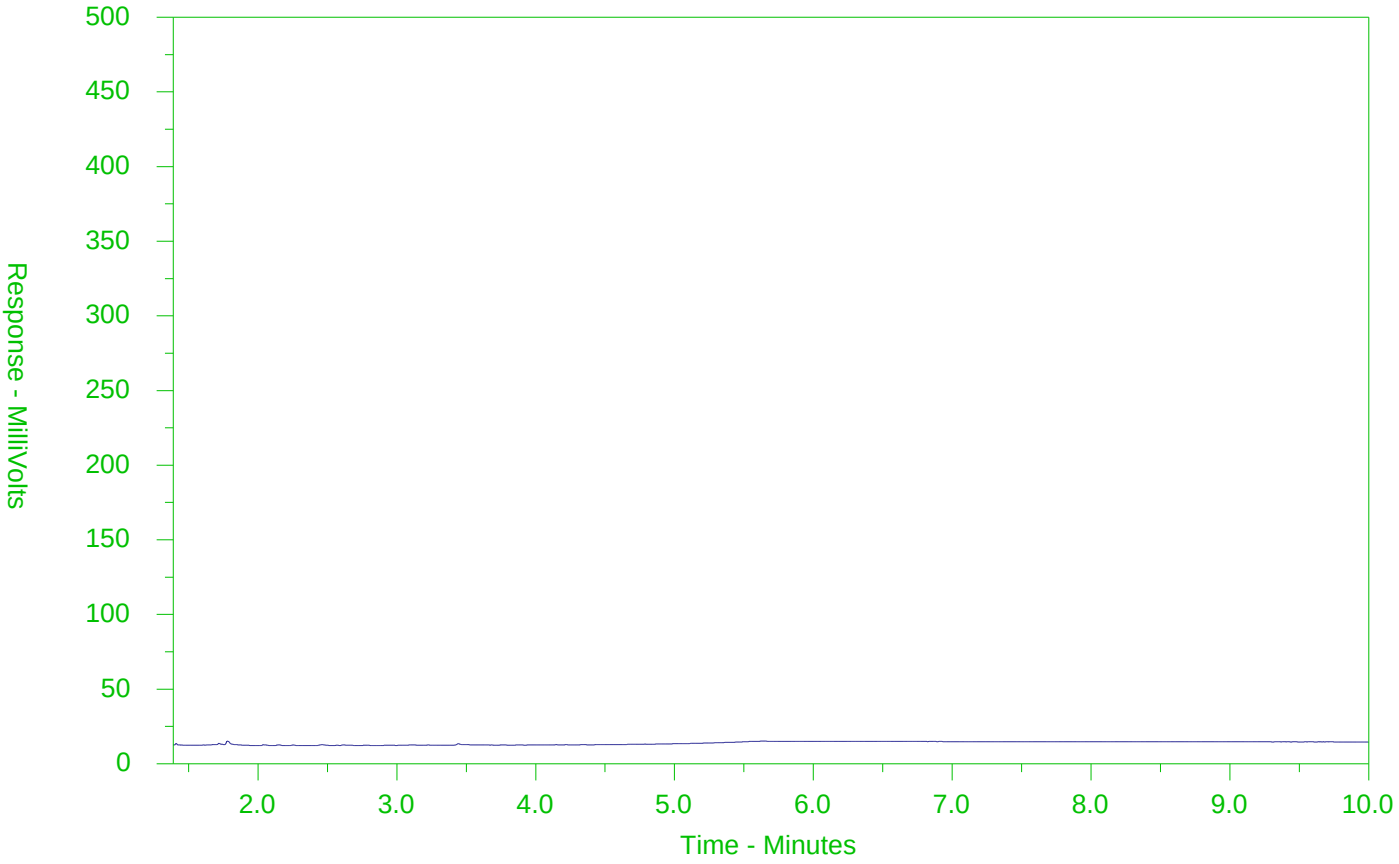
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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: L2439186-1
Client Sample ID: MW113



←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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2439186-COFC

COC Number: 17 - 798380

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Form	Turnaround Time (TAT) Requested - Contact your AM to confirm all E&P TATs [surcharges may apply]
Company	Jacobs	Select Report Format: [x] PDF [x] EXCEL [ ] EDD (DIGITAL)	Regular [R] [x] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact	Amy Casey	Quality Control (QC) Report with Report [ ] YES [ ] NO	PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone	519-803-2283	[ ] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] [ ]; Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution [ ] EMAIL [ ] MAIL [ ] FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street	72 Victoria St. South	Email 1 or Fax tania.mccarthy@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted
City/Province	Kitchener, ON	Email 2 michael.shirey@jacobs.com	
Postal Code		Email 3 amy.casey@jacobs.com	
Invoice To	Same as Report To [x] YES [ ] NO	Invoice Distribution	
	Copy of Invoice with Report [ ] YES [ ] NO	Select Invoice Distribution: [x] EMAIL [ ] MAIL [ ] FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q72980	AFE/Cost Center:	PO#:
Job #:	CE75190O	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2439186KH	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	O.Reg153 Metals+Hg-F	VOC, F1	PHCs F2-F4	PAH	Hg	Cr6+	Cl2	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW113	22-Apr-20	10:50	GW	11	x	x	x	x	x	x	x		
	TRIP BLANK	22-Apr-20	—	GW	1		x							

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below: F F F

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO		Frozen [ ] SIF Observations Yes [ ] No [ ]
Are samples for human consumption/ use? [ ] YES [ ] NO		Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]
		Cooling Initiated [ ]
		INITIAL COOLER TEMPERATURES °C:	FINAL COOLER TEMPERATURES °C: 8.4

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: A Casey	Date: 4-22-2020	Time: 11:45	Received by:	Date:	Time:	Received by:	Date: 4-27-2020	Time: 1200

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

[1] If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CH2M HILL CANADA LIMITED
ATTN: AMY CASEY/MIKE SHIRY
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9

Date Received: 29-APR-20
Report Date: 05-MAY-20 15:00 (MT)
Version: FINAL

Client Phone: 519-579-3500

Certificate of Analysis

Lab Work Order #: L2441806

Project P.O. #: NOT SUBMITTED
Job Reference: CE751900
C of C Numbers:
Legal Site Desc:

Emily Hansen
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2441806-1 MW113 Sampled By: CLIENT on 29-APR-20 @ 10:15 Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD					30-APR-20	R5069807
Antimony (Sb)-Dissolved	<1.0	DLHC	1.0	ug/L	30-APR-20	30-APR-20	R5069917
Arsenic (As)-Dissolved	<1.0	DLHC	1.0	ug/L	30-APR-20	30-APR-20	R5069917
Barium (Ba)-Dissolved	319	DLHC	1.0	ug/L	30-APR-20	30-APR-20	R5069917
Beryllium (Be)-Dissolved	<1.0	DLHC	1.0	ug/L	30-APR-20	30-APR-20	R5069917
Boron (B)-Dissolved	<100	DLHC	100	ug/L	30-APR-20	30-APR-20	R5069917
Cadmium (Cd)-Dissolved	6.16	DLHC	0.050	ug/L	30-APR-20	30-APR-20	R5069917
Chromium (Cr)-Dissolved	6.4	DLHC	5.0	ug/L	30-APR-20	30-APR-20	R5069917
Cobalt (Co)-Dissolved	<1.0	DLHC	1.0	ug/L	30-APR-20	30-APR-20	R5069917
Copper (Cu)-Dissolved	3.1	DLHC	2.0	ug/L	30-APR-20	30-APR-20	R5069917
Lead (Pb)-Dissolved	<0.50	DLHC	0.50	ug/L	30-APR-20	30-APR-20	R5069917
Molybdenum (Mo)-Dissolved	1.53	DLHC	0.50	ug/L	30-APR-20	30-APR-20	R5069917
Nickel (Ni)-Dissolved	<5.0	DLHC	5.0	ug/L	30-APR-20	30-APR-20	R5069917
Selenium (Se)-Dissolved	1.25	DLHC	0.50	ug/L	30-APR-20	30-APR-20	R5069917
Silver (Ag)-Dissolved	<0.50	DLHC	0.50	ug/L	30-APR-20	30-APR-20	R5069917
Sodium (Na)-Dissolved	3170000	DLHC	5000	ug/L	30-APR-20	30-APR-20	R5069917
Thallium (Tl)-Dissolved	<0.10	DLHC	0.10	ug/L	30-APR-20	30-APR-20	R5069917
Uranium (U)-Dissolved	1.06	DLHC	0.10	ug/L	30-APR-20	30-APR-20	R5069917
Vanadium (V)-Dissolved	<5.0	DLHC	5.0	ug/L	30-APR-20	30-APR-20	R5069917
Zinc (Zn)-Dissolved	15	DLHC	10	ug/L	30-APR-20	30-APR-20	R5069917

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2441806-1
Matrix Spike	Boron (B)-Dissolved	MS-B	L2441806-1
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2441806-1
Matrix Spike	Uranium (U)-Dissolved	MS-B	L2441806-1

Sample Parameter Qualifier key listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MET-D-UG/L-MS-WT	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).

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

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

Chain of Custody Numbers:

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 weight of sample
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.

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY/MIKE SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5069917								
WG3315420-4 DUP		**WG3315420-3**						
Antimony (Sb)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	30-APR-20
Arsenic (As)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	30-APR-20
Barium (Ba)-Dissolved		291	288		ug/L	0.8	20	30-APR-20
Beryllium (Be)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	30-APR-20
Boron (B)-Dissolved		<100	<100	RPD-NA	ug/L	N/A	20	30-APR-20
Cadmium (Cd)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	30-APR-20
Chromium (Cr)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	30-APR-20
Cobalt (Co)-Dissolved		4.5	4.5		ug/L	1.2	20	30-APR-20
Copper (Cu)-Dissolved		<2.0	<2.0	RPD-NA	ug/L	N/A	20	30-APR-20
Lead (Pb)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	30-APR-20
Molybdenum (Mo)-Dissolved		1.85	1.77		ug/L	4.3	20	30-APR-20
Nickel (Ni)-Dissolved		6.5	6.7		ug/L	3.5	20	30-APR-20
Selenium (Se)-Dissolved		1.06	1.06		ug/L	0.4	20	30-APR-20
Silver (Ag)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	30-APR-20
Sodium (Na)-Dissolved		74500	77300		ug/L	3.6	20	30-APR-20
Thallium (Tl)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	30-APR-20
Uranium (U)-Dissolved		3.26	3.36		ug/L	2.8	20	30-APR-20
Vanadium (V)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	30-APR-20
Zinc (Zn)-Dissolved		<10	<10	RPD-NA	ug/L	N/A	20	30-APR-20
WG3315420-2 LCS								
Antimony (Sb)-Dissolved			96.5		%		80-120	30-APR-20
Arsenic (As)-Dissolved			100.8		%		80-120	30-APR-20
Barium (Ba)-Dissolved			100.2		%		80-120	30-APR-20
Beryllium (Be)-Dissolved			99.1		%		80-120	30-APR-20
Boron (B)-Dissolved			97.6		%		80-120	30-APR-20
Cadmium (Cd)-Dissolved			101.4		%		80-120	30-APR-20
Chromium (Cr)-Dissolved			101.0		%		80-120	30-APR-20
Cobalt (Co)-Dissolved			101.0		%		80-120	30-APR-20
Copper (Cu)-Dissolved			99.4		%		80-120	30-APR-20
Lead (Pb)-Dissolved			99.1		%		80-120	30-APR-20
Molybdenum (Mo)-Dissolved			97.3		%		80-120	30-APR-20
Nickel (Ni)-Dissolved			99.6		%		80-120	30-APR-20
Selenium (Se)-Dissolved			101.9		%		80-120	30-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY/MIKE SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5069917								
WG3315420-2 LCS								
Silver (Ag)-Dissolved			99.1		%		80-120	30-APR-20
Sodium (Na)-Dissolved			103.5		%		80-120	30-APR-20
Thallium (Tl)-Dissolved			101.2		%		80-120	30-APR-20
Uranium (U)-Dissolved			98.9		%		80-120	30-APR-20
Vanadium (V)-Dissolved			101.5		%		80-120	30-APR-20
Zinc (Zn)-Dissolved			99.5		%		80-120	30-APR-20
WG3315420-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	30-APR-20
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	30-APR-20
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	30-APR-20
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	30-APR-20
Boron (B)-Dissolved			<10		ug/L		10	30-APR-20
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	30-APR-20
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	30-APR-20
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	30-APR-20
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	30-APR-20
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	30-APR-20
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	30-APR-20
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	30-APR-20
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	30-APR-20
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	30-APR-20
Sodium (Na)-Dissolved			<50		ug/L		50	30-APR-20
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	30-APR-20
Uranium (U)-Dissolved			<0.010		ug/L		0.01	30-APR-20
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	30-APR-20
Zinc (Zn)-Dissolved			<1.0		ug/L		1	30-APR-20
WG3315420-5 MS		**WG3315420-6**						
Antimony (Sb)-Dissolved			98.9		%		70-130	30-APR-20
Arsenic (As)-Dissolved			107.1		%		70-130	30-APR-20
Barium (Ba)-Dissolved			N/A	MS-B	%		-	30-APR-20
Beryllium (Be)-Dissolved			94.9		%		70-130	30-APR-20
Boron (B)-Dissolved			N/A	MS-B	%		-	30-APR-20
Cadmium (Cd)-Dissolved			103.8		%		70-130	30-APR-20
Chromium (Cr)-Dissolved			101.6		%		70-130	30-APR-20

Quality Control Report

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY/MIKE SHIRY

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5069917								
WG3315420-5 MS		**WG3315420-6**						
Cobalt (Co)-Dissolved			93.4		%		70-130	30-APR-20
Copper (Cu)-Dissolved			90.0		%		70-130	30-APR-20
Lead (Pb)-Dissolved			87.6		%		70-130	30-APR-20
Molybdenum (Mo)-Dissolved			103.9		%		70-130	30-APR-20
Nickel (Ni)-Dissolved			90.5		%		70-130	30-APR-20
Selenium (Se)-Dissolved			109.5		%		70-130	30-APR-20
Silver (Ag)-Dissolved			93.3		%		70-130	30-APR-20
Sodium (Na)-Dissolved			N/A	MS-B	%		-	30-APR-20
Thallium (Tl)-Dissolved			92.6		%		70-130	30-APR-20
Uranium (U)-Dissolved			N/A	MS-B	%		-	30-APR-20
Vanadium (V)-Dissolved			105.1		%		70-130	30-APR-20
Zinc (Zn)-Dissolved			89.4		%		70-130	30-APR-20

Quality Control Report

Workorder: L2441806 Report Date: 05-MAY-20

Client: CH2M HILL CANADA LIMITED
72 VICTORIA ST S, SUITE 300
KITCHENER ON N2G 4Y9
Contact: AMY CASEY/MIKE SHIRY

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
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.

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.

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.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2441806-COFC

COC Number: 17 - 801110 8N

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Jacobs	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Amy Casey / Mike Shirey	Quality Control (QC) Report with Report: YES NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-803-2283	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200%] (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	
Street	72 Victoria St S.	Email 1 or Fax: tania.mccarthy@jacobs.com	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province	Kitchener, ON	Email 2: Michael.shirey@jacobs.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3: Amy.Casey@jacobs.com	
Invoice To	Same as Report To ☒ YES ☐ NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q72980	AFE/Cost Center:	PO#
Job #:	CE751906	Major/Minor Code:	Routing Code
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2441806 8N	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	F/P	10.Reg 153 Metals	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW113	29-Apr-20	10:15	GW	1	X			

Drinking Water (DW) Samples (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO		Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human consumption/ use? ☐ YES ☐ NO		Ice Packs ☐ Ice Cubes ☑ Custody seal intact Yes ☐ No ☐
		Cooling Initiated ☑
		INITIAL COOLER TEMPERATURES °C: — / FINAL COOLER TEMPERATURES °C: 11.4

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: 4/29/2020	Time: 16:45	Received by:	Date:	Time:	Received by:	Date: 4-29-2020	Time: 1700

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

1 If any water samples are taken from a Regulated Drinking Water (DW) System please submit using an Authorized DW COC form

Appendix G
Data Quality and Evaluation Report

Appendix G. Data Quality Evaluation for Investigation at Baker Street in Guelph, Ontario

G.1 Introduction

This data quality evaluation (DQE) report assesses the quality of analytical results for soil and groundwater samples collected as part of the investigation at Baker Street in Guelph, Ontario, Canada. Jacobs collected samples between July 22, 2019 and April 29, 2020.

Guidance for this DQE report came from the following:

- Ontario Ministry of the Environment, Conservation and Parks (MECP) Protocol for Analytical Methods Used in the Assessment of Properties under Past XV.1 of the Environmental Protection Act (MECP, 2011)
- Professional judgment based on the U.S. Environmental Protection Agency (EPA) National Functional Guidelines for Organic Superfund Methods Data Review (EPA, 2017a)
- Professional judgment based on the EPA National Function Guidelines for Inorganic Superfund Methods Data Review (EPA, 2017b)
- Individual method requirements

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC) as described in the EPA guidance documents.

G.2 Analytical Data

This DQE report covers 117 normal (N) (81-soil and 36-groundwater), 20 field duplicate samples (FD) (11-soil and 8–groundwater) and 18 trip blank (TB) samples. The samples were reported in 21 Certificate of Analysis (COAs) that are listed in Appendix F.

Samples were collected and delivered to ALS Environmental in Waterloo, Ontario. The samples were analyzed by one or more of the methods listed in Table G-1.

Table G-1. Analytical Parameters

Parameter	Reference Method
ABN,CP,PAH	SW846 8270, SW846 3510/8270
Boron-HWE	HW EXTR, EPA 6010B
Chloride by IC	EPA 300.1 (mod)
Cyanide (WAD)	MOE 3015/APHA 4500CN I-WAD
Hexavalent Chromium	SW846 3060A/7199
Dioxins and Furans	USEPA 1613B
Conductivity (EC) in soil	MOEE E3138
Conductivity	APHA 2510 B

Table G-1. Analytical Parameters

Parameter	Reference Method
PHC F1	E3398/CCME TIER 1-HS
PHC F2-F4	CCME Tier 1, EPA 3511/CCME Tier 1
PHC F4G SG	MOE DECPH-E3398/CCME TIER 1
Mercury by CVAAS	EPA 200.2/1631E (mod), EPA 1631E (mod)
Methylmercury	DeWild et al. (2004)
Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
% Moisture	ASTM D2974-00, CCME PHC in Soil - Tier 1 (mod)
Diss. Metals in Water by ICPMS	EPA 200.8
Polychlorinated Biphenyls (PCB)	SW846 3510/8082
pH in soil	MOEE E3137A
PH in water	APHA 4500 H
SAR	SW846 6010C
TOC & FOC-O.Reg 153/04	CARTER 21.3.2
VOC-O.Reg 153/04	SW846 8260

G.3 Overall Assessment

The goal of this assessment is to demonstrate that enough representative samples were collected, and the resulting analytical data can be used to support the decision-making process.

The overall summary of the precision, accuracy, representativeness, comparability and completeness (PARCC) evaluation is contained in the following sections and summarized in Table G-2. Data users should consider the impact to any result that is qualified as estimated as it may contain a bias which could affect the decision-making process.

Precision of the data was verified through the review of the laboratory and field data quality indicators that include laboratory duplicate and field duplicate relative percent differences (RPD). All field (FD) and laboratory duplicate RPDs calculated for the Baker Street samples were within the acceptable limits (below 30% for groundwater and 50% for soil) except the following:

- Three FD pairs due to RPD exceedances for three metal analytes; 6 results were qualified
- One FD pair due to RPD exceedance for moisture; 2 results were qualified

Detected results associated with the RPD exceedance were flagged "J" and are considered estimated.

Accuracy of the data was verified through the review of the laboratory control sample (LCS), matrix spike (MS) and surrogate recoveries, as well as the evaluation of laboratory method blanks (LB), trip blank (TB) data and other method specific criteria. The overall accuracy reported in this DQE is considered acceptable but was affected by the following:

- Three PAH and five dioxin and furan sample results in a combined three samples from COAs L2318180, L2320007 and L2328062 were flagged due GC/MS qualifier ion ratio not meeting criteria
- Eleven dioxin and furan result were flagged due to concentrations below the calibration range but above the EDL. The estimated maximum concentrations (EMPC) are reported
- Four sodium adsorption ratio (SAR) result were flagged due to non-detection for both calcium and magnesium; the lowest possible concentration is reported as a minimum value
- Nineteen SAR result were flagged due to non-detection for sodium or one of calcium or magnesium; the highest possible concentration is reported as a maximum
- Two sample results for n-hexane from COA L2336718 were flagged due to LCS recovery less than the lower control limit
- Four sample results for dichlorodifluoromethane were flagged due to LCS recovery less than the lower control limit; two samples each from COA L2320007 and COA L2436005
- Three F1 (C6-C10) result from COA L2333129 were flagged due to surrogate recoveries less than the lower control limit
- Two dioxin and furan sample result in sample MW108-5-6' from COA L2318180 were flagged due to associated laboratory blank contamination

Detected and non-detected results associated with the QC issues above were flagged “J” and “UJ”, respectively and are considered estimated. There were also two sample results that were flagged “U” and are considered non-detected due to detections in the laboratory blank.

Representativeness of the data was verified through the samples’ collection, storage, and preservation procedures and the verification of holding-time compliance. All samples shipped to the laboratory arrived below the recommended 10°C and were analyzed within the required holding time except for moisture result in sample BH203-0.5-2 that was analyzed beyond recommended holding time. This result was flagged “J” and is considered estimated.

Comparability of the data was ensured using standard analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Valid data are defined as all data that are not rejected for project use. No data has been rejected. All data are considered valid.

The soil (SO) and groundwater (GW) analytical data evaluated herein, with the QC issues described above, are considered valid and can be used to support the project decision making process.

Table G-2. Data Qualifiers and Flags

SDG	Matrix	Native ID	Analyte	Result	Units	Validation Flag	Validation Reason
L2318180	SO	MW109-2.5-3.5'	1,2,3,6,7,8-HxCDD	0.04	pg/g	J	EMPC
L2318180	SO	MW109-2.5-3.5'	1,2,3,4,6,7,8-HpCDD	0.808	pg/g	J	EMPC
L2318180	SO	MW109-2.5-3.5'	2,3,4,7,8-PeCDF	0.024	pg/g	J	EMPC/ IonRatio
L2318180	SO	MW109-2.5-3.5'	1,2,3,4,6,7,8-HpCDF	0.29	pg/g	J	EMPC/ IonRatio
L2318180	SO	MW109-2.5-3.5'	OCDF	0.862	pg/g	J	EMPC
L2318180	SO	MW108-5-6'	1,2,3,6,7,8-HxCDD	0.023	pg/g	J	EMPC/ IonRatio
L2318180	SO	MW108-5-6'	1,2,3,4,6,7,8-HpCDD	0.133	pg/g	J	EMPC
L2318180	SO	MW108-5-6'	OCDD	1.06	pg/g	J	EMPC
L2318180	SO	MW108-5-6'	1,2,3,7,8,9-HxCDF	<0.025	pg/g	UJ	EMPC/ IonRatio
L2318180	SO	MW108-5-6'	1,2,3,4,6,7,8-HpCDF	0.068	pg/g	J	EMPC/ IonRatio
L2318180	SO	MW108-5-6'	OCDF	0.175	pg/g	J	EMPC
L2318180	SO	MW102-20-25"	Sodium Adsorption Ratio	94.2	SAR	J	EMPC
L2318180	SO	BH200-3.5-4.0"	Magnesium (Mg)	4.16	mg/L	J	FD>RPD
L2318180	SO	DUP1	Magnesium (Mg)	0.98	mg/L	J	FD>RPD
L2318180	SO	MW108-5-6'	1,2,3,4,6,7,8-HpCDF	0.068	pg/g	U	LB>RL
L2318180	SO	MW108-5-6'	OCDF	0.175	pg/g	U	LB>RL
L2336718	SO	MW102-7.5-9.5	n-Hexane	<0.050	ug/g	UJ	LCS<LCL
L2336718	SO	MW102-12.5-14.5	n-Hexane	<0.050	ug/g	UJ	LCS<LCL
L2343122	GW	MW108	Sodium Adsorption Ratio	<10	SAR	UJ	EMPC
L2343122	GW	MW104	Sodium Adsorption Ratio	<130	SAR	UJ	EMPC
L2343122	GW	MW103	Sodium Adsorption Ratio	<130	SAR	UJ	EMPC
L2343122	GW	MW101	Sodium Adsorption Ratio	21.8	SAR	J	EMPC
L2343122	GW	MW102B	Sodium Adsorption Ratio	>22	SAR	J	ELPC
L2343122	GW	MW105	Sodium Adsorption Ratio	<130	SAR	UJ	EMPC
L2343122	GW	MW107	Sodium Adsorption Ratio	>5.8	SAR	J	ELPC

Table G-2. Data Qualifiers and Flags

SDG	Matrix	Native ID	Analyte	Result	Units	Validation Flag	Validation Reason
L2343122	GW	DUP1	Sodium Adsorption Ratio	<130	SAR	UJ	EMPC
L2343122	GW	DUP3	Sodium Adsorption Ratio	>5.8	SAR	J	ELPC
L2343122	GW	MW103	Copper (Cu)-Dissolved	4.4	ug/L	J	FD>RPD
L2343122	GW	DUP1	Copper (Cu)-Dissolved	3.1	ug/L	J	FD>RPD
L2334358	SO	BH201-12.11"-13.2"	Sodium Adsorption Ratio	47.6	SAR	J	EMPC
L2334358	SO	MW100-7.5-9.5	Sodium Adsorption Ratio	65.9	SAR	J	EMPC
L2333129	SO	BH203-0.5-2	Moisture	3.46	%	J	HT>UCL
L2333129	SO	MW107-2.5-4.5	F1 (C6-C10)	<5.0	ug/g	UJ	SURR<LCL
L2333129	SO	MW107-7.5-9.5	F1 (C6-C10)	<5.0	ug/g	UJ	SURR<LCL
L2333129	SO	DUP15	F1 (C6-C10)	<5.0	ug/g	UJ	SURR<LCL
L2333129	SO	MW101-7.5-9.5	Sodium Adsorption Ratio	9	SAR	J	EMPC
L2330748	SO	MW109-8-9.5	Sodium Adsorption Ratio	16.5	SAR	J	EMPC
L2328062	SO	MW105-15-17	Sodium Adsorption Ratio	>40.	SAR	J	ELPC
L2328062	SO	BH202-10-12	Sodium Adsorption Ratio	70.3	SAR	J	EMPC
L2328062	SO	BH205-10-12	Sodium Adsorption Ratio	23.3	SAR	J	EMPC
L2328062	SO	MW105-5-6	Sodium Adsorption Ratio	29.9	SAR	J	EMPC
L2328062	SO	MW105-10-12	Sodium Adsorption Ratio	79.8	SAR	J	EMPC
L2328062	SO	DUP12	Sodium Adsorption Ratio	60	SAR	J	EMPC
L2328062	SO	MW104-7-9	Sodium Adsorption Ratio	69.3	SAR	J	EMPC
L2328062	SO	DUP13	Sodium Adsorption Ratio	60.2	SAR	J	EMPC
L2436005	SO	MW113-6.5-8.5	Sodium Absorption Ratio	108	SAR	J	EMPC

Table G-2. Data Qualifiers and Flags

SDG	Matrix	Native ID	Analyte	Result	Units	Validation Flag	Validation Reason
L2328062	SO	MW105-5-6	Benzo(a)anthracene	0.086	ug/g	J	IonRatio
L2328062	SO	MW104-7-9	Barium (Ba)	14.6	ug/g	J	FD>RPD
L2328062	SO	DUP13	Barium (Ba)	24.5	ug/g	J	FD>RPD
L2320007	SO	BH204 - 2.5-3.5'	Dichlorodifluoromethane	<0.050	ug/g	UJ	LCS<LCL
L2320007	SO	MW106 -0.5-1.5'	Dichlorodifluoromethane	<0.050	ug/g	UJ	LCS<LCL
L2436005	SO	MW113-2.5-4.5	Dichlorodifluoromethane	<0.050	ug/g	UJ	LCS<LCL
L2436005	SO	MW113-6.5-8.5	Dichlorodifluoromethane	<0.050	ug/g	UJ	LCS<LCL
L2320007	SO	MW106 -0.5-1.5'	Benzo(a)anthracene	3.32	ug/g	J	IonRatio
L2320007	SO	MW106 - 2-3'	Benzo(b)fluoranthene	0.061	ug/g	J	IonRatio
L2381422	SO	BH207-1.75-2.25	% Moisture	3.68	%	J	FD>RPD
L2381422	SO	DUP 1	% Moisture	7.86	%	J	FD>RPD

Notes:

ug/g = microgram per gram
ug/L = microgram per Liter
mg/L = milligram per liter
pg/g = picogram per gram
SAR = Sodium Adsorption Ratio

Validation Reasons:

EMPC = Estimated maximum potential concentration
ELPC = Estimated lowest potential concentration
FD>RPD = Field duplicate relative percent difference greater than the control limit
HT>UCL = Sample was analyzed past the method recommended holding time
Ion Ratio = Ion ratio from mass spectroscopy did not meet acceptance criteria
LB>RL = Analyte detected in the method blank greater than the reporting limit
LCS<LCL = Laboratory control sample recovery below the lower control limit
Surr<LCL = Surrogate spike sample recovery below lower control limit

G.4 References

Ontario Ministry of the Environment, Conservation and Parks (MECP). 2011. *Protocol for Analytical Methods Used in the Assessment of Properties under Past XV.1 of the Environmental Protection Act*. July.

U.S. Environmental Protection Agency (EPA). 2017a. *National Functional Guidelines for Organic Data Review. EPA540/R-2017/002*. January. https://www.epa.gov/clp/national-functional-guidelines-organic-superfund-methods-data-review-som024.

U.S. Environmental Protection Agency (EPA). 2017a. *National Functional Guidelines for Inorganic Data Review*. EPA540/R-2017/001. January. https://www.epa.gov/clp/national-functional-guidelines-inorganic-superfund-methods-data-review-ism024