PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ON

Project No.: CP-17-0635

Prepared for:

Chris McCluskey
6 Edgewater Street
Kanata, ON
K2L 1V8

Prepared by:

McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road, R.R.3
Carp, ON
K0A 1L0

October 6, 2021

McINTOSH PERRY

Executive Summary

McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) was retained by McCluskey Group to conduct a Phase Two Environmental Site Assessment (ESA) for the property addressed as 16 Edgewater Street, formerly a portion of 6 Edgewater Street, Kanata, Ontario. The property is currently divided into two sections; the southeast section is occupied by a one-storey commercial building (Tim Horton's and Wendy's restaurant) with associated parking. The northwest section ("the Site") is a vacant lot covered in grass.

It is understood that this Phase Two ESA is being completed as a component of the City of Ottawa site plan submission process, in support of an application to construct an industrial showroom and office building on the vacant portion of the lot.

McIntosh Perry completed a Phase One Environmental Site Assessment (ESA) (December 5, 2018, updated October 5, 2021) for the subject property. The Phase One ESA identified potential contaminating activities (PCAs) and Areas of Potential Environmental Concern (APECs) on site and/or in the Phase One Study area. These included;

- 6 Edgewater Street (On-Site)
    - Former above ground fuel storage tanks (Previous Phase I and II ESA report)
    - Cashway Building Centre material storage yard (Aerial Photos and Interviews)
- 5 Edgewater Street
    - Heavy equipment garage and storage yard (Site visit)
    - Former private fuel outlet with fuel storage tanks (ERIS Eco Logs)
    - Former trichloroethane spill (Former Phase I and II ESA report)
- 501 Hazeldean Road
    - Former retail fuel outlet (Aerial photos and ERIS Eco Log)
- 21 Young Road
    - Spill of heating oil (ERIS EcoLog report)

Based on this information, a Phase Two Environmental Site Assessment (ESA) was recommended for Site to assess soil and groundwater quality.

The Phase Two ESA involved the drilling of three boreholes and installation of three monitoring wells on the Site (two along the southwest property by Edgewater Street and one in the south east corner by the Tim Horton's Parking lot). Soil and groundwater samples were collected and submitted for laboratory analysis of benzene, toluene, ethylbenzene and xylenes (BTEX), petroleum hydrocarbons (PHCs) in four fractions (F1-F4), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), metals and inorganics.

The findings of the Phase Two ESA are summarized as follows:

- Site stratigraphy consists of a thin layer of topsoil overlying silt, underlain by clay.

- No exceedances for the analyzed parameters in soil were detected above applicable site condition standards at the Site.

From the initial groundwater sampling event, concentrations of PHC F2 and F3 in BH/MW 18-1 and F2 in BH/MW18-2 were above the applicable Site Condition Standard. However due to observed sediment in the groundwater samples and the lack of elevated soil vapour readings and/or soil vapour exceedances at the Site, two additional groundwater sampling events were completed to confirm the exceedances. The second ground water sampling event in BH/MW18-1 and BH/MW18-2 indicated that the concentrations of F2-F4 PHC fraction were below laboratory detections. The third sampling event indicated that all parameter concentrations in all groundwater monitoring wells including PHC F2-F4 were in compliance with applicable SCS. These results are considered representative of conditions at the Site.

McIntosh Perry does not recommend any further investigative or remedial action for the Site at this time. The environmental condition of the Site is considered suitable for the proposed development.

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) was retained by McCluskey Group to conduct a Phase Two Environmental Site Assessment (ESA) for 16 Edgewater Street (formerly a portion of 6 Edgewater Street), Kanata, Ontario. The Site is bounded to the northwest by a commercial building 20 Edgewater Street, to the northeast by residential dwellings along Foulis Crescent and a multi-unit commercial building, to the southwest by Edgewater Street followed by Toromont CAT maintenance garage and storage yard and southeast by Hazeldean Road followed by commercial buildings. The property is currently divided into two sections; the southeast section is occupied by a one-storey commercial building (Tim Horton's and Wendy's restaurant) with associated parking. The northwest section ("the Site") is a vacant lot covered in grass. Borehole/monitoring well locations are indicated on Figure 2.

It is understood that this Phase Two ESA is being completed as a component of the City of Ottawa site plan submission process, in support of an application to construct an industrial showroom and office building on the vacant portion of the lot.

McIntosh Perry completed a Phase One Environmental Site Assessment (ESA) (December 5, 2018, updated October 5, 2021) for the subject property. The Phase One ESA identified potential contaminating activities (PCAs) and Areas of Potential Environmental Concern (APECs) on site and/or in the Phase One Study area. These included;

- 6 Edgewater Street (On-Site)
    - Former above ground fuel storage tanks (Previous Phase I and II ESA report)
    - Cashway Building Centre material storage yard (Aerial Photos and Interviews)
- 5 Edgewater Street
    - Heavy equipment garage and storage yard (Site visit)
    - Former private fuel outlet with fuel storage tanks (ERIS Eco Logs)
    - Former trichloroethane spill (Former Phase I and II ESA report)
- 501 Hazeldean Road
    - Former retail fuel outlet (Aerial photos and ERIS Eco Log)
- 21 Young Road
    - Spill of heating oil (ERIS EcoLog report)

Based on this information, a Phase Two Environmental Site Assessment (ESA) was recommended for Site to assess soil and groundwater quality.

A Phase Two ESA is typically used to confirm the presence (or absence) of contaminant(s) of concern and to characterize impacts, if any, to soil and/or groundwater. The Phase Two ESA was conducted in accordance with McIntosh Perry's standard procedures.

1.1 Property Information

The property is addressed as 16 Edgewater Street and is currently vacant. Previously, the Site was combined with 6 Edgewater Street but has since been severed (approximately 2019).

Site zoning is IG2 (General Industrial Zone, Subzone 2) as described under section 199-200 of the City of Ottawa Zoning by-laws, which currently does not allow for residential housing.

The total area of the Site is approximately 0.62 hectares (ha).

1.1.1 Property Identification

The legal description of the entire property is as follows;

- Part Lot 30 Concession 12 Part 1 4R31503 City of Ottawa; (PIN 044980170)

1.1.2 Property Ownership and Contact Details

McIntosh Perry was retained to complete this Phase One ESA by Chris McCluskey of McCluskey Group. Mr. McCluskey can be contacted at (613) 627-0611. The property is currently owned by 11143921 Canada Inc.

1.1.3 Current and Proposed Future Uses

The Site is currently vacant. The intended future use of the Site will be residential housing.

1.2 Applicable Site Condition Standard

The following parameters were used to select the most appropriate Site Condition Standards (SCS) for the site:

- Proposed property use is residential;
- The Site and surrounding properties in the area are serviced by municipal water supply and not by water wells (i.e., the subject site will continue to have treated potable water available, and potable groundwater standards do not need to be applied);
- Soil depth across the property is more than two metres on average (i.e., the site does not have shallow soil);
- The site is not located within 30 metres of a water body; the closest significant water body, the Carp River, is approximately 650 m to the southwest;
- The site is not located near any areas of natural significance (e.g. Provincially Significant Wetland), and
- Native soil at the site is fine textured (based on classification of borehole samples collected during the geotechnical investigation completed at the Site by McIntosh Perry).

Given these parameters, it was determined that Ministry of the Environment, Conservation, and Parks (MECP) Ontario Regulation (O.Reg.) 153/04, as amended (Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act) is the most applicable reference criteria for the site. The following SCS were selected:

MECP Table 3 – Full Depth Generic Site Condition Standards in a non-potable groundwater condition, for residential land use, with coarse textured soils.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

2.1.1 Water Bodies and Areas of Natural Significance

The closest permanent waterbody is the Carp River (located 0.65 km southwest of the Site at its closest point).

When completing a Phase One ESA, considerations are made for the following Areas of Natural Significance as defined by O.Reg. 153/04:

- Provincial Parks and conservation reserves
- Areas of Natural and Scientific Interest (ANSIs)
- Provincially Significant Wetlands (PSWs)
- Environmentally/ecologically sensitive/significant areas per the City of Ottawa Official Plan
- Areas designated by the Niagara Escarpment Plan
- Areas identified by MNRF as significant habitat of a threatened or endangered species or areas of habitat of a species classified under section 7 of the Endangered Species Act
- Areas designated by the Oak Ridges Moraine Conservation Plan
- Areas set apart under the Wilderness Areas Act

No areas of natural significance were observed within the Study Area.

2.1.2 Topography and Surface Water Drainage Features

The elevation at the Site is approximately 101-102 m above sea level (m asl). The topography is generally flat.

The Site occurs within the Mississippi River watershed. The Carp River is approximately 650 m southwest of the Site. Drainage at the Site consists primarily of infiltration to the permeable ground surface. A drainage ditch is present along the southwest boundary of the Site along Edgewater Street.

2.1.3 Geology and Hydrogeology

Geological maps of the area classify the overburden at the Site as fine-textured glaciomarine deposits, consisting predominantly of silt and clay. (OGS, 2018).

Geological maps of the area classify the bedrock at the Site as predominantly limestone, dolostone, shale, arkose and sandstone of the Ottawa Group (OGS, 2018).

Based on a review of site geology and topography, groundwater is likely to flow southwest toward the Carp River. Groundwater flow may be influenced by underground service trenches along Edgewater Street and Hazeldean Road.

2.1.4 Potable Water Source

The Phase Two Property and properties within the Phase One Study Area are situated in the City of Ottawa. It is our understanding that the Phase Two Property and other properties within the Phase One Study Area are currently serviced by the City of Ottawa municipal water distribution system; ground water is not used as a source of potable water.

During the Site reconnaissance conducted during the 2021 McIntosh Perry Phase One ESA, potable water wells were not observed on the Phase Two Property or on properties within the Phase One Study Area.

2.2 Past Investigations

A Phase One ESA was conducted on the subject property by McIntosh Perry in December of 2018 and updated in October 2021. The Phase One ESA identified potential contaminating activities (PCAs) and Areas of Potential Environmental Concern (APECs) on site and/or in the Phase One Study area.

The following potentially contaminating activity (PCA) were identified on the Phase One ESA property:

- Former above ground fuel storage tanks (Previous Phase I and II ESA report)
- Cashway Building Center material storage yard (Aerial Photos and Interviews)

The following potentially contaminating activities (PCAs) were identified in the Phase One ESA Study area:

- 5 Edgewater Street
    - Heavy equipment garage and storage yard (Site visit)
    - Former private fuel outlet with fuel storage tanks (ERIS Eco Logs)
    - Former trichloroethane spill (Former Phase I and II ESA report)
- 501 Hazeldean Road
    - Former retail fuel outlet (Aerial photos and ERIS Eco Log)
- 21 Young Road
    - Spill of heating oil (ERIS EcoLog report)

Based on the nature of these records and their proximity to the Site, these PCAs are considered to have the potential to result in environmental impacts to the Site, and are therefore considered APECs with respect to the Site. Contaminants of concern include benzene, toluene, ethylbenzene, and xylenes (BTEX) and petroleum hydrocarbons, fractions 1 through 4 (PHC F1-F4), associated with the retail fuel outlet, fuel storage tanks and maintenance garage, and volatile organic compounds (VOCs) associated with former spill and material storage yard, and Polycyclic Aromatic Hydrocarbons (PAHs) and inorganics including metals associated with the material storage yard.

McIntosh Perry also completed a geotechnical investigation for the Site concurrently with the original Phase Two ESA. The geotechnical investigation did not identify any environmental concerns at the Site. Grain size analysis results completed as a part of the geotechnical investigation are included in this report as Appendix D.

2.3 Overview of Soil and Groundwater Data and Regulation Changes

It is noted that in December of 2019, new regulation amendments associated with salt impacts were enacted. These amendments permitted the exemption of salt impacts if the impacts were deemed by the Qualified Person (QP) to be resultant from de-icing activities for the purpose of human and vehicular safety.

A data analysis was completed to re-evaluate existing soil results in the context of current regulations. Based on this re-evaluation, the QP determined that as EC and SAR were eligible for the exemption application. Accordingly, with application of the regulatory amendment that provides exemption relief for impact resulting from de-icing activities, EC, SAR, sodium and chloride are not considered contaminants of concern for the Phase Two Property. However, these parameters must still be considered when determining destinations for excess soil from the Site, per the requirements of O.Reg. 406/19 (On-Site and Excess Soil Management).

3.0 SCOPE OF THE INVESTIGATION

The Phase Two ESA site investigation at the Site consisted of the following components:

- Underground service locate clearance was provided by public utility service provides through Ontario One Call and a private utility locating service;
- In coordination with a geotechnical investigation at the Site, the advancement of three (3) boreholes at the Phase Two Property to a maximum depth of 6.1 m mbgs, all three (3) of which were completed as monitoring wells by a licensed water well contractor to the requirements of O.Reg. 903;
- Submission of select "worst case" soil samples collected from each borehole, as determined through field screening, for laboratory analyses of VOCs (including BTEX), PHCs, PAHs, metals & inorganics;
- Submission of ground water samples collected from each monitoring well for laboratory analysis of VOCs (including BTEX), PHCs, PAHs, and metals & inorganics;
- Submission of representative soil samples for analysis of pH and grain size, for determination of the appropriate MECP standards for the Phase Two Property (undertaken as part of the geotechnical investigation);
- Completion of a quality assurance/quality control (QA/QC) program consisting of the submission of field duplicate samples; and
- Completion of a relative elevation survey of the ground surface elevation of each borehole advanced at the Site.

The Phase Two ESA was completed in general accordance with the requirements of O. Reg. 153/04 (as amended).

3.1 Media Investigated

Soil samples were obtained from each borehole advanced during the investigation and submitted for laboratory analyses of the selected contaminants of potential concern (COPCs). Each borehole was instrumented with a monitoring well and subsequently sampled for each of the selected COPCs.

No water bodies were present on the Phase Two Property and, as such, no sediment samples were collected as part of this Phase Two ESA.

3.1.1 Contaminants of Potential Concern

The following contaminants of potential concern (COCs) are suspected and should be tested at the Phase One Property:

- Petroleum hydrocarbons Fractions 1 to 4 (PHCs): This parameter group consists of petroleum hydrocarbons of various carbon chain lengths commonly encountered in gasoline (PHC F1), diesel and furnace oil (PHC F2), and heavy oils and asphalts (PHC F3-F4). This parameter group was selected as COPCs for the Site due to the historic presence of ASTs at the Site, the historic presence of a retail fuel outlet at 501 Hazeldean Road, a record of a fuel oil spill at 21 Young Road, and ASTs and garage activities at 5 Edgewater Street.

- Volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, and xylenes (BTEX): This parameter group consists of soluble components in gasoline, diesel, and fuel oil, as well as various chlorinated solvents used in degreasing, dry cleaning, and industrial applications. VOCs were selected as COPCs for the Site due to the historic presence of ASTs at the Site, the historic presence of a retail fuel outlet at 501 Hazeldean Road, a record of a fuel oil spill at 21 Young Road, and ASTs and garage activities at 5 Edgewater Street, as well as the historic TCE spill record noted in a previous environmental report at 5 Edgewater Street.
- Polycyclic aromatic hydrocarbons (PAHs): This parameter group consists of various complex hydrocarbons associated with heavy oils as well as combustion byproducts, coal, etc. PAHs were selected as COPCs for the Site due to the historic use of the Site as a building materials storage yard and garage activities at 5 Edgewater Street.

Metals and inorganic parameters (As, Sb, Se, B, B-HWS, Na, Hg, Cl-, CN, Cr-VI, pH, EC and SAR) were selected as COPCs for the Site based on the historic use of the Site as a building materials storage yard.

3.2 Phase One Conceptual Site Model

During the 2021 McIntosh Perry Phase One ESA, a Phase One Conceptual Site Model (CSM) was developed. A Phase One CSM provides a summary of environmental conditions at the Site, as identified through the completion of a Phase One ESA. The purpose of the CSM is to identify the location and nature of all PCAs within the Phase One Study Area, including the Phase One Property, and to determine whether these PCAs result in APECs in relation to the Phase One Property. The Phase One CSM is presents the following information:

- The locations of existing buildings and structures;
- The location of any water bodies within the Phase One Study Area;
- The locations of any areas of natural significance within the Phase One Study Area;
- The locations of any potable drinking water wells on the Phase One Property;
- Roads within the Phase One Study Area;
- Uses of properties within the Phase One Study Area outside of the Phase One Property;
- Areas where any PCAs have occurred within the Phase One Study Area; and
- The locations of APECs on the Phase One Property.

The following subsections provide a discussion of the above-noted information.

3.2.1 Phase One Property and Phase One Study Area

The Phase One Study Area includes the following properties:

- The Site
- All properties within approximately 250m of the Site boundary (Phase One ESA Study Area)

The Phase One ESA Study Area, including surrounding land uses, is shown on Figure 2 (Study Area) and Figure 3 (Surrounding Land Use).

3.2.2 Existing Buildings and Structures on the Phase One Property

There are currently no existing buildings, structures, or below ground structures on the Phase One Property.

3.2.3 Water Bodies

There are no water bodies within the Phase One Study Area. The closest permanent waterbody is the Carp River (located 0.65 km southwest of the Site at its closest point).

3.2.4 Areas of Natural Significance

When completing a Phase One ESA, considerations are made for the following Areas of Natural Significance as defined by O.Reg. 153/04:

- Provincial Parks and conservation reserves
- Areas of Natural and Scientific Interest (ANSIs)
- Provincially Significant Wetlands (PSWs)
- Environmentally/ecologically sensitive/significant areas per the City of Ottawa Official Plan
- Areas designated by the Niagara Escarpment Plan
- Areas identified by MNRF as significant habitat of a threatened or endangered species or areas of habitat of a species classified under section 7 of the Endangered Species Act
- Areas designated by the Oak Ridges Moraine Conservation Plan
- Areas set apart under the Wilderness Areas Act

No areas of natural significance were observed within the Study Area.

3.2.5 Water Wells

No potable water wells were observed on the Phase One Property or within the Phase One Study Area during the Site reconnaissance. Three (3) groundwater monitoring wells installed by McIntosh Perry during the 2018 subsurface investigation were observed during the 2021 Phase One ESA Update.

The Phase Two Property and properties within the Phase One Study Area are situated in the City of Ottawa. It is our understanding that the Phase Two Property and other properties within the Phase One Study Area are currently serviced by the City of Ottawa municipal water distribution system; ground water is not used as a source of potable water.

3.2.6 Potentially Contaminating Activities

The following potentially contaminating activity (PCA) were identified on the Phase One ESA property:

- Former above ground fuel storage tanks (Previous Phase I and II ESA report)
- Cashway Building Center material storage yard (Aerial Photos and Interviews)

The following potentially contaminating activities (PCAs) were identified in the Phase One ESA Study area:

- 5 Edgewater Street
    - Heavy equipment garage and storage yard (Site visit)
    - Former private fuel outlet with fuel storage tanks (ERIS Eco Logs)
    - Former trichloroethane spill (Former Phase I and II ESA report)
- 501 Hazeldean Road
    - Former retail fuel outlet (Aerial photos and ERIS Eco Log)
- 21 Young Road
    - Spill of heating oil (ERIS EcoLog report)

Based on the nature of these records and their proximity to the Site, these PCAs are considered to have the potential to result in environmental impacts to the Site, and are therefore considered APECs with respect to the Site. Contaminants of concern include benzene, toluene, ethylbenzene, and xylenes (BTEX) and petroleum hydrocarbons, fractions 1 through 4 (PHC F1-F4), associated with the retail fuel outlet, fuel storage tanks and maintenance garage, and volatile organic compounds (VOCs) associated with former spill and material storage yard, and Polycyclic Aromatic Hydrocarbons (PAHs) and inorganics including metals associated with the material storage yard.

3.2.7 Underground Utilities

In general, there is the potential for underground service trenches to serve as preferential contaminant transport pathways. Underground service trenches are interpreted to be present along Edgewater Street and Hazeldean Road; however, it is unknown whether these trenches will act as preferential flowpaths enabling contaminant transport towards the Site, or will intercept off-site contamination away from the Site.

3.2.8 Validity of Conceptual Site Model

During the Phase One ESA, McIntosh Perry obtained and reviewed all readily available historical and regulatory information available. In our review of the information, no data gaps that would question the validity of this CSM were identified.

3.3 Deviations from Sampling and Analysis Plan

The field investigative and sampling program was carried out following the requirements of the Sampling and analysis plan (SAP). No deviations occurred to the SAP.

The SAP are provided in Appendix B.

3.4 Impediments

There were no physical impediments or denial of access to the Phase Two Property during this Phase Two ESA.

4.0 METHODOLOGY

4.1 General

Prior to the commencement of subsurface investigations, a private underground service locating company, Ottawa Locates of Ottawa, Ontario, obtained all applicable public and private underground service location reports/clearances (i.e., hydro, natural gas, telephone and cable).

4.2 Drilling

McIntosh Perry advanced three boreholes BH/MW18-1 to BH/MW18-3 as part of the Phase Two ESA on December 13, 2018, at the locations indicated on Figure 2. Boreholes BH/MW18-1 and BH/MW18-3 were completed to address the on-site PCA (former material storage yard and fuel storage tanks) and off-site PCA (maintenance garage and VOC spill). BH/MW18-2 was completed to address the off-site PCA (retail fuel outlet) and the on-site PCAs (former material storage yard and fuel storage tanks). All boreholes were instrumented with monitoring wells.

Drilling services were provided by Canadian Environmental Drilling and Contracting Inc (Canadian Environmental), of Inverary, Ontario, using a truck mounted drill rig. Boreholes were advanced using Standard Penetration Test (SPT) 0.61 m (2') split spoon sampling rod and hollow stem augers. All drilling was conducted under the supervision of McIntosh Perry personnel.

4.3 Soil Sampling

Soil samples were taken from the 0.61 m (2') split spoons at regular intervals across multiple stratigraphic layers. In general, one sample per stratigraphic layer was considered sufficient, unless an area of concern was noted or change in moisture content. Soil samples were collected with a gloved hand and deposited directly into sealed bags. The samples were then divided into two representative portions; one portion in a glass container for possible laboratory analysis (if selected based on screening results), and one portion in a plastic bag for soil headspace combustible gas screening, which was performed on site. Recovered soil samples were generally logged for soil type, moisture, colour, texture, and visual evidence of impacts.

Based on field observations and CGI/PID readings it was determined that the submission of three soils samples, one from BH/MW18-1, one from BH/MW18-2, one from BH/MW18-3 and one blind duplicate for QA/QC purposes from BH/MW18-3 would be sufficient to determine potential impacts to the Study Area. Samples that were chosen for laboratory analysis were placed into laboratory supplied sample jars, stored in a cooler with ice, and delivered directly to ALS Laboratories (ALS) of Ottawa, Ontario.

Soil samples that were selected for VOC, BTEX and F1 Hydrocarbon analysis were preserved immediately after sampling with laboratory supplied vials containing methanol.

Soil sample identification and details are included on the graphic borehole logs presented in Appendix B.

4.4 Field Screening Measurements

Soil headspace vapour concentration readings of soil samples obtained from the boreholes were taken using a RKI Eagle 2 Gas (combined CGI and PID). The CGI was operated in methane elimination mode and both the CGI and PID were calibrated prior to use in the field. Calibration was performed following the manufacturer's instructions.

4.5 Groundwater – Monitoring Well Installation

Three monitoring wells (BH/MW18-1, BH/MW18-2 and BH/MW18-3) were installed December 13, 2018 by Canadian Environmental, under the supervision of McIntosh Perry personnel.

The boreholes were instrumented with PVC monitoring well components and protected at the surface with a stick-up monument well casing (Photo 5).

BH(MW)18-1, BH(MW)18-2 and BH(MW)18-3 was constructed using 50.8 mm (2") diameter, Schedule 40 PVC well screen (10 slot), flush-threaded to Schedule 40 PVC riser pipe. A silica sand 'filter pack' was installed in the annular space around the well screen. A bentonite clay seal was installed above the screened interval to prevent infiltration of surface water into the well. The screened interval was positioned to intersect the estimated water table elevation, based on moisture content observations of recovered soil samples obtained during drilling and from measured water levels in existing on-site wells. Monitoring well installation was conducted in conformance with O.Reg. 903, as amended.

Detailed graphic logs showing the monitoring well installation details are included in Appendix B.

4.6 Field Measurement of Water Quality Parameters

Field measurement of water quality parameters was not undertaken as part of this investigation.

4.7 Groundwater – Monitoring and Sampling

McIntosh Perry carried out initial groundwater level monitoring and sampling activities on December 14 and 17, 2018. Groundwater level monitoring and sampling activities occurred again following the receipt of initial 2018 sample results on January 4 and 7, 2019. Following the receipt of the 2019 results, groundwater level monitoring and sampling activities occurred again on May 20, 2021 to confirm groundwater quality. The static water level was measured at the well using an electronic water level tape. Groundwater levels in 2019 ranged between 0.82 and 1.38 m below ground surface. During the 2021 groundwater investigation, groundwater levels ranged between 1.82 and 2.14 m below ground surface.

Prior to water sample collection, an attempt was made to purge the wells by removing a minimum of three well volumes using dedicated polyethylene tubing and a positive displacement foot valve. During the 2018 groundwater investigation, the recharge rate of BH/MW18-1 was slow due to shallow bedrock and was purged dry three times. To allow ensure proper development of the wells, the wells were purged on December 14 and sampled on December 17, 2018.

Groundwater was sampled directly into laboratory provided bottles and delivered directly to ALS Laboratory Group of Ottawa, Ontario.

BH/MW18-1, BH/MW18-2 and BH/MW18-3 were sampled for BTEX, F1-F4 PHCs, VOC, PAHs and inorganics including metals.

A confirmatory sampling event was completed on January 7, 2019 to confirm the PHC concentrations within BH/MW18-1 and BH/MW18-2. Wells were purged on January 3, 2019 and again on January 7, 2019 prior to sampling. BH/MW18-1 remains a low recharge well, as such only approximately one well volume could be purged prior to sampling.

Groundwater was resampled directly into laboratory provided bottles and delivered directly to ALS Laboratory Group of Ottawa, Ontario.

In the 2019 sampling event, BH/MW18-1 and BH/MW18-2 were sampled for F1-F4 PHCs.

To confirm groundwater quality, another sampling event was completed on May 20, 2021 within BH/MW18-1, BH/MW18-2, and BH/MW18-3. Wells were purged and then sampled on May 20, 2021.

Groundwater was resampled directly into laboratory provided bottles and delivered directly to ALS Laboratory Group of Ottawa, Ontario.

In the 2021 sampling event, BH/MW18-1, BH/MW18-2 and BH/MW18-3 were sampled for BTEX, F1-F4 PHCs, VOC, PAHs and inorganics including metals.

4.8 Sediment: Sampling

No water bodies are present on the Phase Two Property. As such, sediment sampling was not conducted as part of this Phase Two ESA.

4.9 Analytical Testing

All soil and water samples selected for laboratory analysis were submitted to ALS Laboratory Group of Ottawa, Ontario, under strict 'chain of custody' documentation protocols.

Samples were submitted for laboratory analysis of the following parameter groups:

- Volatile organic compounds (VOC)
- Benzene, toluene, ethylbenzene and xylenes (BTEX), which are a sub-set of the volatile organic compound (VOC) parameter set
- Petroleum hydrocarbons (PHCs) in four fractions (F1-F4) according to MECP requirements
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Metals and inorganic parameters (M&I)

Copies of all laboratory Certificates of Analysis and chain of custody documentation are included in Appendix C.

4.10 Residue Management Procedures

Soil cuttings and purge water generated as part a of this Phase Two ESA were retained on-Site.

4.11 Elevation Surveying

Geodetic elevations of the ground surface of each borehole were surveyed during a topographical survey of the Site by McIntosh Perry Surveying Inc. Ground surface elevations at each borehole are provided on the borehole logs in Appendix C and are shown on Figure 3 – Groundwater Contour Plan.

4.12 Quality Assurance and Quality Control Measures

All activities completed as part of this Phase Two ESA were conducted in accordance with McIntosh Perry's Standard Operating Procedures (SOPs). Details of QA/QC measures, including sampling containers, preservation, labelling, handling, and custody, equipment cleaning procedures, and field quality control measurements can be provided upon request.

Additionally, all soil and ground water samples submitted as part of this assessment were handled in accordance with laboratory analytical protocols with respect to holding time, preservation method, storage requirements, and container type. All Certificates of Analysis provided by the laboratory are appended to this report in Appendix D.

No deviations were made from the QA/QC program outlined in the Sampling and Analysis Plan.

5.0 RESULTS

5.1 Geology

Overburden at the site consisted of topsoil from ground surface to approximately 0.2 meters below ground surface (m bgs), underlain by silt with clay and sand, at depths ranging between 0.1 and 5.5 m bgs. Clay with silt was found underlying the silt material from depths of 3.1 m bgs to 5.5 m bgs. BH/MW18-3 boreholes were terminated in clay, and BH/MW18-1 and BH/MW18-2 were terminated on inferred bedrock.

Geological maps of the area classify the bedrock under the Site as predominantly Limestone, Sandstone and Dolostone (OGS, 2017). Based on the results of this investigation, and on additional boreholes drilled on-site for a geotechnical investigation by McIntosh Perry, bedrock was encountered at depths ranging from 4.0 to 8.0 m bgs.

5.2 Groundwater: Elevations and Flow Direction

Groundwater elevations were calculated for all groundwater monitoring and sampling events and are summarized in Table 1, appended to this report. Groundwater elevations varied between approximately 99.8 and 101.6 m ASL at the Site.

Using the groundwater elevations from the May 2021 sampling event, groundwater contour mapping was completed for the Site. Groundwater elevation contours are shown on Figure 3. Groundwater at the Site is interpreted to flow in a southerly direction.

5.3 Groundwater: Hydraulic Gradients

The horizontal hydraulic gradient was estimated for the Site based on May 2021 groundwater elevations. The horizontal hydraulic gradient is calculated using the following equation:

$i = \Delta h / \Delta s$

Where,

i = horizontal hydraulic gradient

Δh (m) = ground water elevation difference; and,

Δs (m) = separation distance.

Based on measured ground water elevations, the on-site hydraulic gradient was calculated to be approximately 0.015 m/m.

It should be noted that vertical hydraulic gradients were not evaluated for the Site as a second water bearing unit was not encountered at the depths investigated at the Site.

5.4 Coarse Soil Texture

Based on the grain size analysis completed by McIntosh Perry's geotechnical laboratory, the results of the analysis indicated the following soil composition for the native soil at the Site:

- Gravel Composition Average of 41.0 %;
- Sand Composition Average of 40.0%;
- Silt Composition Average of 16.0%; and
- Clay Composition Average of 3.0%.

The grain size analysis results are provided in Appendix E.

Based on the results of grain size analysis conducted during this Phase Two ESA, as well as the soil type observed within the boreholes advanced at the Phase Two Property, it is our opinion that the soil type at the Phase Two Property is medium-fine-grained for the purposes of this Phase Two ESA.

5.5 Soil: Field Screening

Soil headspace for combustible gas readings and volatile organic compounds were taken using a combustible gas indicator (CGI) operated in methane elimination mode and a photoionization detector (PID) respectively. The CGI/PID readings were intended to identify "worst-case" samples from each borehole. However, the CGI and PID readings were not indicative of significant contamination.

5.6 Soil Quality

Based on field observations and CGI/PID readings it was determined that one submission of soil from each borehole would be sufficient to determine potential impacts to the Site; no evidence of impacts (visual, olfactory or screening) were observed in the soil samples.

All soil analysis results were compared to the applicable SCS, as presented in the following table:

- Table 2 – Soil Analytical Results: VOC, BTEX, PHCs, PAHs, Metals and Inorganics

Sample depths are indicated on the tables and on the borehole logs presented in Appendix B. Laboratory Certificates of Analysis are included in Appendix C.

VOCs

Results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 soil samples that were submitted for analysis of VOC parameters indicate that all parameters were below laboratory detection limits and therefore in compliance with MECP Table 3 SCS.

BTEX

Results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 soil samples that were submitted for analysis of BTEX parameters indicate that all parameters were below laboratory detection limits and therefore in compliance with MECP Table 3 SCS.

PHCs

Results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 soil samples that were submitted for analysis of PHCs parameters indicated that all parameters were below laboratory detection and therefore in compliance with MECP Table 3 SCS.

PAHs

Results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 soil samples that were submitted for analysis of PAH parameters indicated detections of benzo(a)anthracene, benzo(a)pyrene, benzon(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene and indeno(1,2,3-cd)pyrene in BH/MW18-1, however all detection were in compliance with MECP Table 3 SCS. All PAH parameters in BH/MW18-2 and BH/MW18-3 were below laboratory detection and therefore in compliance with MECP Table 3 SCS.

Metals and Inorganics

Results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 soil samples that were submitted for analysis of metals and inorganic parameters indicated multiple detections of many metals, however all were below laboratory detection and therefore below MECP Table 3 SCS.

5.7 Groundwater Quality

All groundwater analysis results were compared to the applicable SCS, as shown on the following table:

- Table 3 – Groundwater Analytical Results: VOC, BTEX, PHCs, PAHs, Metals and Inorganics

Laboratory Certificates of Analysis are included in Appendix C.

VOCs

Results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 groundwater samples that were submitted for analysis of VOC parameters in 2018 and 2021 indicate that all parameters were below laboratory detection limits and therefore below MECP Table 3 SCS.

BTEX

Results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 groundwater samples that were submitted for analysis of VOC parameters in 2018 and 2021 indicate that all parameters were below laboratory detection limits and therefore below MECP Table 3 SCS.

PHCs

Initial results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 groundwater samples collected for PHCs indicate that PHCs exceeded MECP Table 3 SCS for F2 in BH/MW18-1 and BH/MW18-2, and F3 in BH/MW18-2. BH/MW18-1 had detectable concentrations of F3 and F4 and BH/MW18-3 had detectable concentrations of F3, however these did not exceed MECP Table 3 SCS. BH/MW18-1, BH/MW18-2 and BH/MW18-3 had non-detectable concentrations of F1, therefore are below MECP Table 3 SCS.

Results for the confirmatory groundwater sampling of boreholes BH/MW18-1 and BH/MW18-2 for PHCs in 2019 indicate that concentrations of PHC F2, F3, and F4 in BH/MW18-1 and BH/MW18-2 were below laboratory detection limits, and therefore are below MECP Table 3 SCS.

Results for the confirmatory groundwater sampling of boreholes BH/MW18-1, BH/MW18-2, and BH/MW18-3 for PHCs in 2021 indicate that concentrations of PHC F2, F3, and F4 in BH/MW18-1 and BH/MW18-2 were below laboratory detection limits, and therefore are below MECP Table 3 SCS.

PAHs

Results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 groundwater samples that were submitted for analysis of PAH parameters in 2018 indicated numerous PAH detections. However, all detections were below MECP Table 3 SCS. In the 2021 analytical results, all PAH parameters were below laboratory detection limits, suggesting that the detected parameters in 2018 may have been false positives similar to the PHC exceedances identified in the 2018 sampling event.

Metals and Inorganics

Results for the boreholes BH/MW18-1, BH/MW18-2 and BH/MW18-3 groundwater samples that were submitted for analysis of metals and inorganic parameters in 2018 and 2021 indicated multiple detections of dissolved metals and inorganics in each sample. However, all detections were below MECP Table 3 SCS.

5.8 Sediment Quality

Sediment quality was not assessed as part of this Phase Two ESA.

5.9 Quality Assurance and Quality Control Results

All soil and groundwater samples submitted as part of this assessment were handled in accordance with laboratory analytical protocols with respect to holding time, preservation method, storage requirements, and container type. A Certificate of Analysis has been received for each sample submitted for analysis, and all Certificates of Analysis are appended to this report.

Overall, the quality of the field data collected during this Phase Two ESA are considered to be sufficient to meet the overall objectives of this assessment. No significant discrepancies between soils samples BH/MW18-3 SS 3 and BH/MW18-99, which was a blind duplicate of BH/MW18-3 SS3 were noted. Relative present differences

between the two samples was very small, with a maximum calculated difference between parameters of 14.8%. Data sets with relive present differences less that 20% are considered to be accurate.

Groundwater samples from MW18-2 and MW-18-3 were noted by the laboratory to have visible sediment within the water samples. This can cause false positives within the PHC fraction parameters, however BH/MW18-1 had exceedances of PHC F2 with no laboratory indication of excessive sediment. However, BH/MW18-1 is a low recovery well and due to time constraints could not be purged the standard 3 well volumes. This could have been a contributing factor to a false positive detection of PHC F2 as the sample may not have been representative. This was a factor in recommending a confirmatory sampling event. All metal samples were field filtered.

Due to the observed sediment in the groundwater samples and the lack of elevated soil vapour readings and/or soil vapour exceedances at the Site, two (2) additional groundwater sampling events were completed to confirm the exceedances.

Confirmatory samples indicated that the initial exceedances in BH/MW18-1 and BH/MW18-2 for PHCs was likely a result of excessive sediment within the initial samples. Excessive sediment in samples can produce false positives due to interference within the laboratory detection method from organic materials in the sediment. This is a common occurrence in wells that have not had the opportunity to be developed properly. Following additional well development and purging on January 3 and January 7, 2019, less sediment was present within the wells and the follow-up samples were considered to be more representative of groundwater conditions.

5.10 Phase Two Conceptual Site Model

The Phase Two Property is located at 16 Edgewater Street, Kanata (Ottawa) ("the Site") is approximately 0.62 hectares in area. The Site Building is currently vacant, and was previously occupied by the materials storage yard of a hardware store/building centre. The Phase Two Property is at an elevation of approximately 101-102 mAMSL. The Site configuration is shown on Figure 2 – Site Layout.

Properties surrounding the Phase Two Property generally consist of residential and commercial land uses and are shown on Figure 2.

5.10.1 Potentially Contaminating Activities

The following PCAs were identified in on the Phase Two Property:

Table 1: Potentially Contaminating Activities						
No.	Potential Contaminating Activity (PCA)	Location of PCA	Proximity of PCA to Phase One ESA Property	Time Frame Associated with PCA	Information Source	Does the PCA warrant an area of potential environmental concern (APEC)
1	Item 28, Column A, Table 2, Schedule D, O.Reg. 153/04: Gasoline and Associated Products Storage in Fixed Tanks (on-site ASTs)	On-Site	On-Site	1970s-1995	Interviews, previous report	YES – on-site PCA
2	No item under Column A, Table 2, Schedule D, O.Reg. 153/04: Building materials storage yard	On-Site	On-Site	1970s-1995	Interviews, air photos, previous report	YES – on-site PCA
3a	Item 27, Column A, Table 2, Schedule D, O.Reg. 153/04: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles (heavy equipment garage)	5 Edgewater Street	45 m southwest	1980s-present	Aerial photos, site visit, previous report, ERIS report	YES, based on proximity
3b	Item 28, Column A, Table 2, Schedule D, O.Reg. 153/04: Gasoline and Associated Products Storage in Fixed Tanks (AST records)	5 Edgewater Street	45 m southwest	1980s-present	ERIS report	YES, based on proximity
3c	No item under Column A, Table 2, Schedule D, O.Reg. 153/04: historical spill record (TCE)	5 Edgewater Street	45 m southwest	Unknown	Report by others	YES, based on proximity

Table 1: Potentially Contaminating Activities						
No.	Potential Contaminating Activity (PCA)	Location of PCA	Proximity of PCA to Phase One ESA Property	Time Frame Associated with PCA	Information Source	Does the PCA warrant an area of potential environmental concern (APEC)
4	Item 28, Column A, Table 2, Schedule D, O.Reg. 153/04: Gasoline and Associated Products Storage in Fixed Tanks (former retail fuel outlet)	501 Hazeldean Road	150 m south	Prior to 1994	ERIS report, air photos	YES, based on proximity
5	No item under Column A, Table 2, Schedule D, O.Reg. 153/04: Spill of fuel oil from residential fuel storage tank	21 Young Road	80 m north	2008	ERIS report	YES, based on proximity

No additional PCAs were identified within the Phase Two Study Area, including on the Phase Two Property, during the 2021 McIntosh Perry Phase Two ESA. The location of the PCAs are shown on Figure 2.

5.10.2 Area of Potential Environmental Concern

The above noted on-site PCAs are considered to result in APECs for the Site. Due to the limited information available for type of materials and operational procedures of the Cashway Building Centers stock yard, it is possible that the operations have had impacts to the soil and groundwater in the vicinity of the materials storage yard.

The above noted off-site PCAs are considered to represent APECs at the Site due to their proximity.

5.10.3 Subsurface Structures and Utilities

As part of the Phase Two ESA, utility service clearances were provided by public and private locating companies. n general, there is the potential for underground service trenches to serve as preferential contaminant transport pathways. Underground service trenches were identified along Edgewater Street and Hazeldean Road by the underground service locates. No underground service trenches were identified on the Site itself, and based on the results of the Phase Two ESA, and no other subsurface structures were identified. Subsurface structures and utilities are not considered to significantly affect contaminant distribution at the Site.

5.10.4 Physical Setting

5.10.4.1 Stratigraphy

Overburden at the site consisted of topsoil from ground surface to approximately 0.2 meters below ground surface (m bgs), underlain by silt with clay and sand, at depths ranging between 0.1 and 5.5 m bgs. Clay with silt was found underlying the silt material from depths of 3.1 m bgs to 5.5 m bgs. BH/MW18-3 boreholes were terminated in clay, and BH/MW18-1 and BH/MW18-2 were terminated on inferred bedrock.

Borehole logs are included in this report as Appendix C.

5.10.4.2 Hydrogeology

Groundwater elevations were calculated for all groundwater monitoring and sampling events and are summarized in Table 1, appended to this report. Groundwater elevations varied between approximately 99.8 and 101.6 m ASL at the Site.

Using the groundwater elevations from the May 2021 sampling event, groundwater contour mapping was completed for the Site. Groundwater elevation contours are shown on Figure 3. Groundwater at the Site is interpreted to flow in a southerly direction.

The horizontal hydraulic gradient was estimated for the Site based on May 2021 groundwater elevations.

Based on measured ground water elevations, the on-site hydraulic gradient was calculated to be approximately 0.015 m/m.

It should be noted that vertical hydraulic gradients were not evaluated for the Site as a second water bearing unit was not encountered at the depths investigated at the Site.

5.10.4.3 Bedrock

Geological maps of the area classify the bedrock under the Site as predominantly Limestone, Sandstone and Dolostone (OGS, 2017). Based on the results of this investigation, and on additional boreholes drilled on-site for a geotechnical investigation by McIntosh Perry, bedrock was encountered at depths ranging from 4.0 to 8.0 m bgs.

5.10.5 Potable Site Condition Standards

The Phase Two Property is serviced by the City of Ottawa municipal water distribution system; ground water is not used as a source of potable water.

5.10.6 Water Bodies and Areas of Natural Significance

The closest permanent waterbody is the Carp River (located 0.65 km southwest of the Site at its closest point).

When completing a Phase One ESA, considerations are made for the following Areas of Natural Significance as defined by O.Reg. 153/04:

- Provincial Parks and conservation reserves
- Areas of Natural and Scientific Interest (ANSIs)
- Provincially Significant Wetlands (PSWs)
- Environmentally/ecologically sensitive/significant areas per the City of Ottawa Official Plan
- Areas designated by the Niagara Escarpment Plan
- Areas identified by MNRF as significant habitat of a threatened or endangered species or areas of habitat of a species classified under section 7 of the Endangered Species Act
- Areas designated by the Oak Ridges Moraine Conservation Plan
- Areas set apart under the Wilderness Areas Act

No areas of natural significance were observed within the Study Area.

5.10.7 Site Condition Standards - N/A or N/V Values

During this Phase Two ESA, no contaminants were found at the Phase Two Property that do not have corresponding criteria listed within the Table 3 Standards.

5.10.8 Approximate Locations of Proposed Buildings and Other Structures

It is understood that the Client is considering constructing a number of residential buildings at the Site, including stacked townhomes along the southern Site boundary and two multi-storey residential buildings in the central portion of the Site.

5.10.9 Concentrations of COPCs above the Table 3 Standards

Based on the results of the Phase Two ESA, all soil results were in compliance with applicable Site Condition Standards.

Initial groundwater samples indicated exceedances of Petroleum Hydrocarbons in groundwater at the Site; however, these results were interpreted to be anomalous. In the absence of odours, screening measurements, or analytical results in soil samples indicating PHC contamination, and in the absence of sheen or odour in groundwater samples, the PHC concentrations identified were considered to be false positives due to sediment in the groundwater samples. Subsequent sampling events did not identify any PHC concentrations above laboratory detection limits.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

From the initial groundwater sampling event, concentrations of PHC F2 and F3 in BH/MW 18-1 and F2 in BH/MW18-2 were above the applicable Site Condition Standard. However due to observed sediment in the groundwater samples and the lack of elevated soil vapour readings and/or soil vapour exceedances at the Site, a second groundwater sampling event was completed to confirm the exceedances. The second ground water sampling event in BH/MW18-1 and BH/MW18-2 indicated that the concentrations of F2-F4 PHC fraction were below laboratory detections. To confirm groundwater quality, a third ground water sampling event took place in BH/MW18-1, BH/MW18-2, and BH/MW18-3. These analytical tests resulted in no exceedances of applicable SCS standards. These results are considered representative of conditions at the Site.

Soil samples selected for analytical tests resulted in no exceedances of applicable SCS standards.

6.2 Recommendations

McIntosh Perry does not recommend any further investigative or remedial action for the Site at this time. The environmental condition of the Site is considered suitable for the proposed development.

7.0 LIMITATIONS

This report has been prepared, and the work referred to in this report has been undertaken by, McIntosh Perry Consulting Engineers Ltd. for McCluskey Group. It is intended for the sole, and exclusive use of McCluskey Group and any affiliated companies and partners and their respective financial institutions, insurers, agents, employees and advisors (collectively, McCluskey Group). The report may not be relied upon by any other person or entity without the express written consent of McIntosh Perry Any use which a third party makes of this report, or any reliance on decisions made based on it, without a Reliance Letter are the responsibility of such third parties. McIntosh Perry Consulting Engineers Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The investigation undertaken by McIntosh Perry Consulting Engineers Ltd. with respect to this report and any conclusions or recommendations made in this report reflect McIntosh Perry Consulting Engineers Ltd.'s judgment based on the site conditions observed at the time of the site investigations, inspections and sampling on the date(s) set out in this report and on information available at the time of the preparation of this report.

This report has been prepared for specific application to this site and it is based, in part, upon visual observation of the site, subsurface investigation at discrete locations and depths, and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future site conditions, portions of the site which were unavailable for direct investigation, subsurface locations which were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Substances other than those addressed by the investigation described in this report may exist within the site, substances addressed by the investigation may exist in areas of the site not investigated and concentrations of substances addressed which are different than those reported may exist in areas other than the locations from which samples were taken.

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

8.0 CLOSURE

We trust that this information is satisfactory for your present requirements. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Respectfully submitted,

McIntosh Perry Consulting Engineers Ltd.

Jenna Gaetano, B.Sc.
Environmental Scientist

Dan Arnott, P.Eng., QP_{ESA}
Geo-Environmental Engineer

U:\Ottawa\01 Project - Proposals\2022 Jobs\CCO\CCO-22-0244 Park River_Kanata Affordable Housing_16 Edgewater\13 - Environmental\Phase Two ESA\09 Report\CP-22-0244 16 Edgewater Phase Two ESA_6Oct2021.docx

9.0 REFERENCES

Canadian Standards Association (CSA), Z768-01: Phase I Environmental Site Assessment, CSA International, Toronto, 2001 (Updated 2003, Reaffirmed 2016).

McIntosh Perry Consulting Engineers Ltd., December 5, 2018. Phase One Environmental Site Assessment – 6 Edgewater Street, Kanata, ON

Jacques Whitford Environmental Ltd., June 9, 1995. Phase I & II Environmental Site - Assessment Proposed Restaurant Development. 6 Edgewater Street, Kanata, ON.

Natural Resources Canada (NRCAN), 2011. Geobase online mapping tool: Hydro Network GIS Data accessed through <http://geobase.ca/geobase/en/viewer.jsp?group=nhn>.

Ontario Geologic Survey (OGS), 2017. GIS Data for bedrock and surficial geology stratigraphy.

Ontario Ministry of Environment, Conservation and Parks (MECP), Ontario Regulation (O.Reg.) 153/04; Records of Site Condition – Part XV.1 of the Act (i.e. The Environmental Protection Act), as amended.

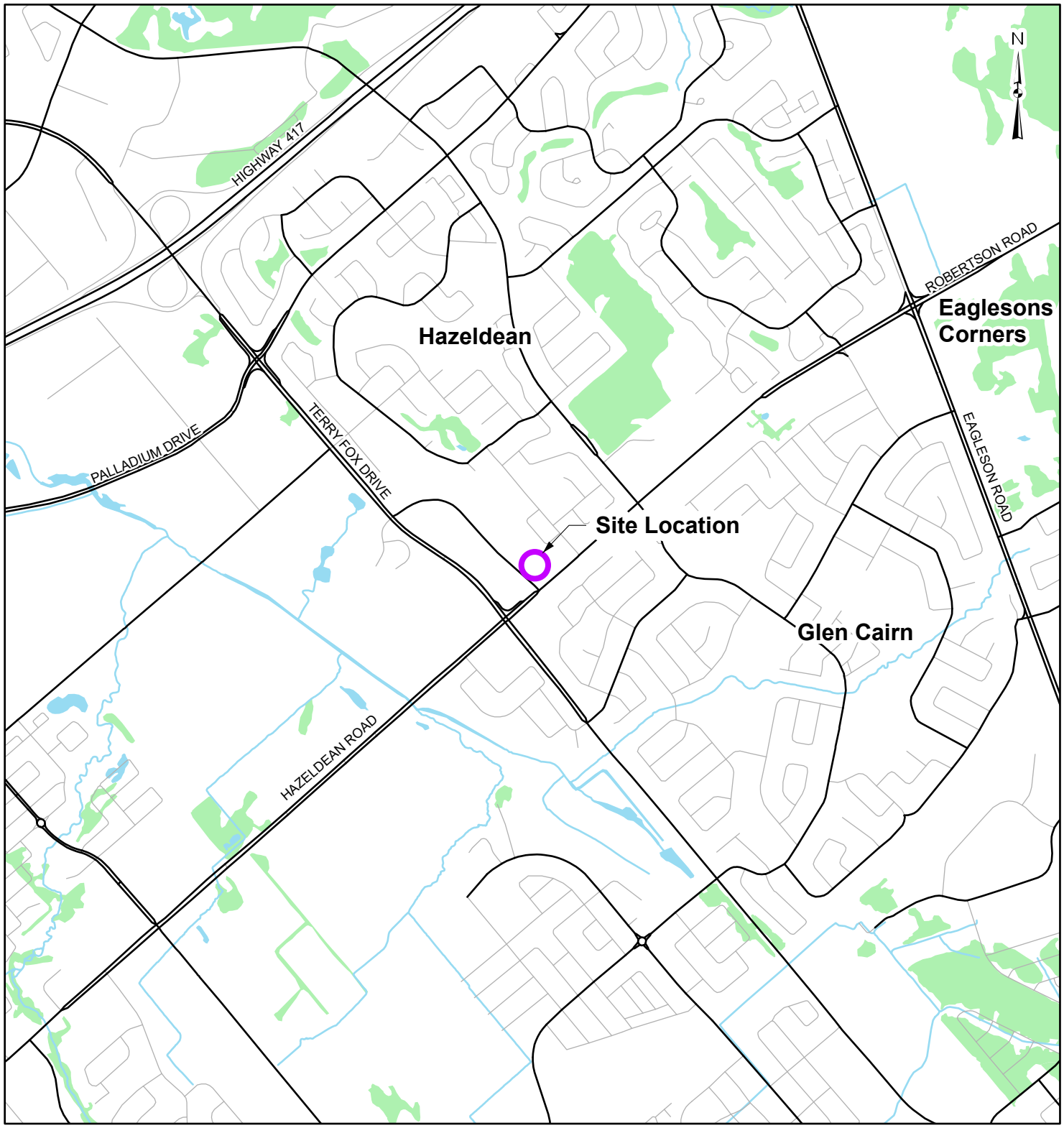
Ontario Geological Survey (OGS), 2017 – Google EarthTM (website: http://www.mndmf.gov.on.ca /mines/ogs_earth _e.asp).

McIntosh Perry Consulting Engineers Ltd., December 21, 2018. Technical Memorandum – Preliminary Geotechnical Investigation Results (Updated), 6 Edgewater Street, Ottawa, ON.

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

FIGURES

McINTOSH PERRY



LEGEND

- Site Location
- Local Road
- Major Road
- Watercourse
- Waterbody
- Wooded Area

500 250 0 500

Scale 1:20,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

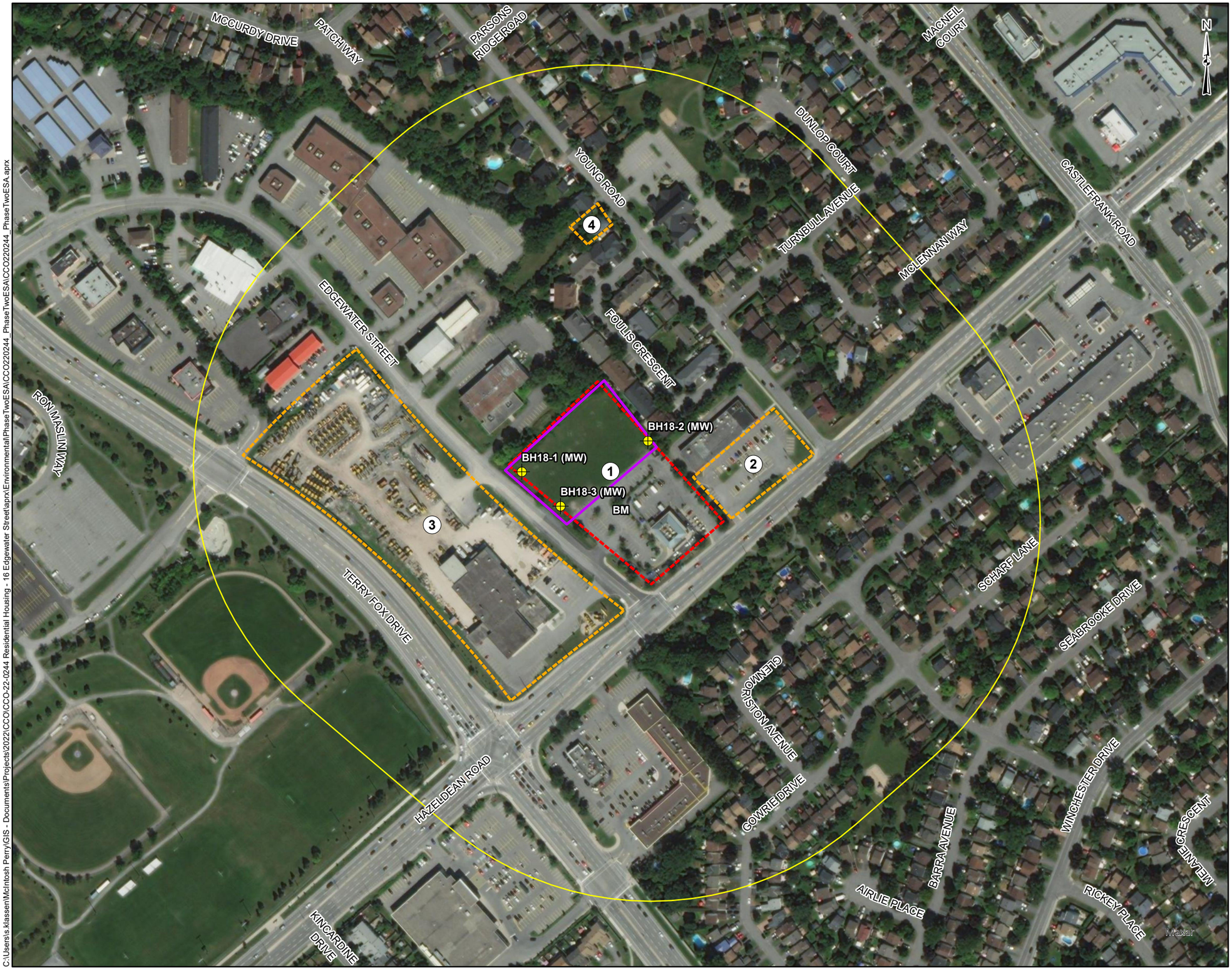
CLIENT: CHRIS McCLUSKEY

PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ON

TITLE: SITE LOCATION

115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO:CCO-22-0244		FIGURE:
Date	Oct., 06, 2021	1
GIS	SK	
Checked By	DA	



LEGEND

- Approximate Site Boundary
- 250m Buffer
- Monitoring Well
- APECs
- PCAs

1 6 Edgewater Street
- Former materials storage yard with AST

2 501 Hazeldean Road
- Former retail fuel outlet
- 3 fuel storage tanks
- Ontario spill (20L hydraulic oil to catch basin

3 5 Edgewater Street
- Heavy equiptment garage
- Former private fuel outlet
- 2 fuel storage tanks (status unknown)
- Former trichloroethane leak from tank

4 21 Young Road
- Ontario spill (4-5L of heating oil, cleaned up)

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

0 30 60 120

Scale 1:3,000 Metres

CLIENT: CHRIS McCLUSKEY

PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ON

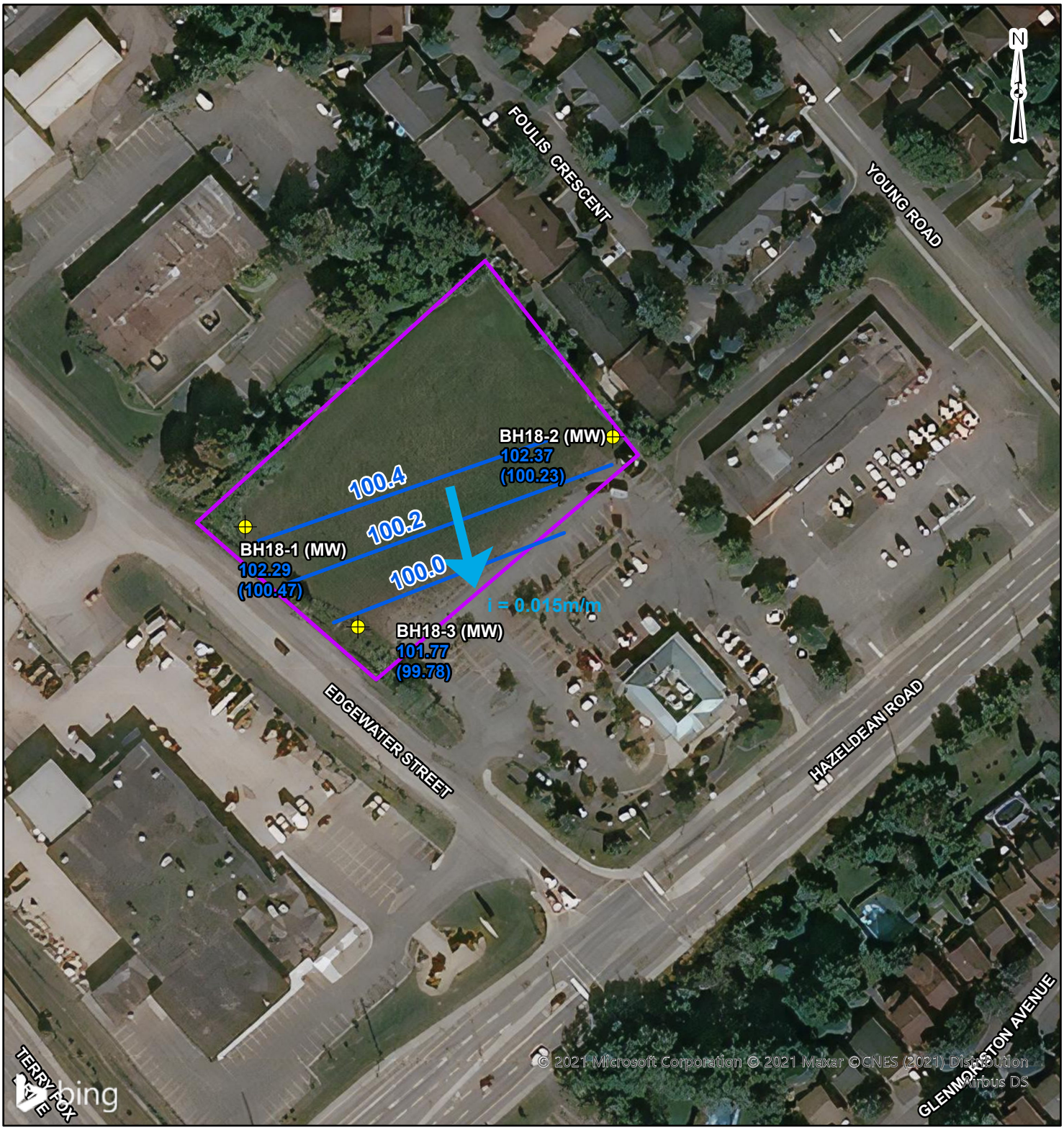
TITLE: BOREHOLE LOCATION PLAN

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO:	CCO-22-0244
Date	Oct., 07, 2021
GIS	SK
Checked By	DA

FIGURE: 2

C:\Users\s.klassen\McIntosh Perry\GIS - Documents\Projects\2022\CCO\CCO-22-0244 Residential Housing - 16 Edgewater Street\aprx\Environmental\PhaseTwoESA\CCO220244_PhaseTwoESA\CCO220244_PhaseTwoESA.aprx



LEGEND

- Approximate Site Boundary
- Monitoring Well
- 102.29 Ground Surface Elevation
- (100.47) Groundwater Elevation
- 102.29 Groundwater Elevation Contour
- Groundwater Flow Direction and Hydraulic Gradient
  i = 0.015m/m

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

50 25 0 50

Scale 1:1,500 Metres

CLIENT: CHRIS McCLUSKEY

PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ON

TITLE: GROUNDWATER CONTOUR PLAN

115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO:CCO-22-0244	FIGURE: 3
Date	Oct., 07, 2021
GIS	SK
Checked By	DA

C:\Users\sklassen\McIntosh Perry\GIS - Documents\Projects\2022\CCO\CCO-22-0244 Residential Housing - 16 Edgewater Street\aprx\Environmental\PhaseTwoESA\CCO220244_PhaseTwoESA.aprx

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

TABLES

McINTOSH PERRY

Table 1: Monitoring Well Construction Detains and Groundwater Elevations

Monitoring Well ID	Total Depth (m)	Screened Interval (m BGS)	Top of Pipe Elevation (m ASL)	Ground Elevation (m ASL)	Stick-up (m)	Water Level Measurement (m BTOP)	Water Level Measurement (m BGS)	Water Elevation (m LD)	Date	Comments
BH/MW 18-1	4.57	1.52-4.57	103.132	102.29	0.842	2.225	1.383	100.907	14-Dec-18	Stick up well
						2.073	1.231	101.059	17-Dec-18	Used to determine GW flow direction
						2.186	1.344	100.946	07-Jan-19	Resample
						2.665	1.823	100.467	20-May-21	Resample
BH/MW 18-2	6.1	3.05-6.10	103.315	102.37	0.945	1.761	0.816	101.554	14-Dec-18	Stick up well
						1.778	0.833	101.537	17-Dec-18	Used to determine GW flow direction
						1.85	0.905	101.465	07-Jan-19	Resample
						3.085	2.14	100.23	20-May-21	Resample
BH/MW 18-3	4.88	1.83-4.88	102.676	101.77	0.906	2.017	1.111	100.659	14-Dec-18	Stick up well
						1.921	1.015	100.755	17-Dec-18	Used to determine GW flow direction
						1.994	1.088	100.682	07-Jan-19	Resample
						2.897	1.991	99.779	20-May-21	Resample

Notes:

GS	*ground surface*
TOP	*top of casing (i.e. top of pvc riser)*
Btop	*below top of casing*

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX A
SURVEY PLAN OF THE PHASE TWO PROPERTY

McINTOSH PERRY

I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE LAND TITLES ACT.	PLAN 4R-31503
DATE: october 31, 2018	RECEIVED AND DEPOSITED DATE: Oct 31, 2018
A.J. Broxham ANDREW J. BROXHAM ONTARIO LAND SURVEYOR	D. Bourdeau REPRESENTATIVE FOR LAND REGISTRAR FOR THE LAND TITLES DIVISION OF OTTAWA-CARLETON NO. 4.

SCHEDULE

PART	LOT	CONCESSION	PIN
1 2	PART OF 30	12	ALL OF 04498-0112

PLAN OF SURVEY OF

PART OF LOT 30
CONCESSION 12
GEOGRAPHIC TOWNSHIP OF GOULBOURN
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 250

10 7.5 5.0 2.5 0 5 10 Metres

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 and the Land Titles Act and the regulations made under them.
2. The survey was completed on the 29th day of October, 2018.

october 30, 2018
Date

A.J. Broxham
Andrew J. Broxham
Ontario Land Surveyor

Notes & Legend

—□—	Denotes	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
(WIT)	"	Witness
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
Meas.	"	Measured
(P1)	"	Plan 5R-6120
(P2)	"	Plan 4R-18403
(P3)	"	Plan 5R-2711
(P4)	"	Plan 4R-13349
(P5)	"	Plan 4R-17168
(P6)	"	Plan 4R-16158
(P7)	"	Plan by (857) dated April 26, 1988
(P8)	"	Plan by (1474) dated June 12, 2001
CLF	"	Chain Link Fence
BF	"	Board Fence

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.999912.

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations on reference points A and B, shown hereon, having a bearing of N43°04'00"W and are referenced to Specified Control Points 01919750705 and 01919770923, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For bearing comparisons, a rotation of 0°26'30" counter-clockwise was applied to bearings on P3, P4, P5 & P6.

For bearing comparisons, a rotation of 0°28'40" counter-clockwise was applied to bearings on P7.

Coordinates are derived from Can-Net 2016 Real Time Network GPS observations referenced to Specified Control Points 01919750705 and 01919770923, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

Coordinate values are to urban accuracy in accordance with O. Reg. 216/10.

. 01919750705	Northing	5016816.93	Easting	360806.84
. 01919770923	Northing	5013536.21	Easting	346275.92
. Point A	Northing	5017536.57	Easting	352277.65
. Point B	Northing	5017425.04	Easting	352381.89

Caution: Coordinates cannot, in themselves, be used to re-establish corners or boundaries shown on this plan.

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com
Ontario Land Surveyors

Job No. 18940-18 TimWen 6EdgewaterDr PtLt30Con12 R F A.M.

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX B
SAMPLING AND ANALYSIS PLAN

McINTOSH PERRY

SAMPLING AND ANALYSIS PLAN
6 EDGEWATER STREET, KANATA, ONTARIO

Project No.: 0CP-17-0635

Prepared for:

Chris McCluskey
6 Edgewater Street
Kanata, ON
K2L 1V8

Prepared by:

McIntosh Perry Consulting Engineers Ltd
115 Walgreen Road
Carp, ON
K0A 1L0

McINTOSH PERRY

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Background

McIntosh Perry ("MP") was retained by Chris McCluskey of McCluskey Group ("the Client") to conduct a Phase Two ESA at 6 Edgewater Street, Kanata, Ontario

The environmental subsurface investigation will be completed concurrently with a geotechnical investigation at the Site. The investigation will be completed in general accordance with Ontario Regulation (O. Reg.) 153/04 (as amended).

1.2 Objectives

As per the requirements of O. Reg. 153/04, the objectives of this Sampling and Analysis Plan are as follows:

- Plan an investigation that will achieve the general objectives of a Phase Two Environmental Site Assessment:
    - Through the use of an appropriate and complete information base concerning the Phase Two Property; and
    - Through the conduct of an investigation based both on information obtained before the Phase Two Environmental Site Assessment and on the incorporation of information obtained during the subsurface investigation.
- To develop a Sampling and Analysis Plan that will adequately assess all areas of the subsurface investigation property where contaminants may be present in land or water on, in or under the property.
  To develop a quality assurance program that is designed to effectively limit errors and bias in sampling and analysis through implementation of assessment and control measures that will ensure data are useful, appropriate and accurate in the determination of whether the Phase Two Property meets applicable Ontario Ministry of the Environment, Conservation and Parks (MECP) Site Condition Standards.

2.0 SAMPLING PROGRAM

2.1 Areas of Potential Environmental Concern and Contaminants of Potential Concern

Based on a Phase One ESA completed for the Site, McIntosh Perry identified the following Potentially Contaminating Activities which are interpreted to result in Areas of Potential Environmental Concern:

Table 1: Potentially Contaminating Activities

No.	Potential Contaminating Activity (PCA)	Location of PCA	Proximity of PCA to Phase One ESA Property	Time Frame Associated with PCA	Information Source	Does the PCA warrant an area of potential environmental concern (APEC)
1	Item 28, Column A, Table 2, Schedule D, O.Reg. 153/04: Gasoline and Associated Products Storage in Fixed Tanks (on-site ASTs)	On-Site	On-Site	1970s-1995	Interviews, previous report	YES – on-site PCA
2	No item under Column A, Table 2, Schedule D, O.Reg. 153/04: Building materials storage yard	On-Site	On-Site	1970s-1995	Interviews, air photos, previous report	YES – on-site PCA
3a	Item 27, Column A, Table 2, Schedule D, O.Reg. 153/04: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles (heavy equipment garage)	5 Edgewater Street	45 m southwest	1980s-present	Aerial photos, site visit, previous report, ERIS report	YES, based on proximity
3b	Item 28, Column A, Table 2, Schedule D, O.Reg. 153/04: Gasoline and Associated Products Storage in Fixed Tanks (AST records)	5 Edgewater Street	45 m southwest	1980s-present	ERIS report	YES, based on proximity
3c	No item under Column A, Table 2, Schedule D, O.Reg. 153/04: historical spill record (TCE)	5 Edgewater Street	45 m southwest	Unknown	Report by others	YES, based on proximity

Table 1: Potentially Contaminating Activities						
No.	Potential Contaminating Activity (PCA)	Location of PCA	Proximity of PCA to Phase One ESA Property	Time Frame Associated with PCA	Information Source	Does the PCA warrant an area of potential environmental concern (APEC)
4	Item 28, Column A, Table 2, Schedule D, O.Reg. 153/04: Gasoline and Associated Products Storage in Fixed Tanks (former retail fuel outlet)	501 Hazeldean Road	150 m south	Prior to 1994	ERIS report, air photos	YES, based on proximity
5	No item under Column A, Table 2, Schedule D, O.Reg. 153/04: Spill of fuel oil from residential fuel storage tank	21 Young Road	80 m north	2008	ERIS report	YES, based on proximity

The following contaminants of potential concern (COCs) are suspected and should be tested at the Phase One Property:

- Petroleum hydrocarbons Fractions 1 to 4 (PHCs): This parameter group consists of petroleum hydrocarbons of various carbon chain lengths commonly encountered in gasoline (PHC F1), diesel and furnace oil (PHC F2), and heavy oils and asphalts (PHC F3-F4). This parameter group was selected as COPCs for the Site due to the historic presence of ASTs at the Site, the historic presence of a retail fuel outlet at 501 Hazeldean Road, a record of a fuel oil spill at 21 Young Road, and ASTs and garage activities at 5 Edgewater Street.
- Volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, and xylenes (BTEX): This parameter group consists of soluble components in gasoline, diesel, and fuel oil, as well as various chlorinated solvents used in degreasing, dry cleaning, and industrial applications. VOCs were selected as COPCs for the Site due to the historic presence of ASTs at the Site, the historic presence of a retail fuel outlet at 501 Hazeldean Road, a record of a fuel oil spill at 21 Young Road, and ASTs and garage activities at 5 Edgewater Street, as well as the historic TCE spill record noted in a previous environmental report at 5 Edgewater Street.
- Polycyclic aromatic hydrocarbons (PAHs): This parameter group consists of various complex hydrocarbons associated with heavy oils as well as combustion byproducts, coal, etc. PAHs were selected as COPCs for the Site due to the historic use of the Site as a building materials storage yard and garage activities at 5 Edgewater Street.

Metals and inorganic parameters (As, Sb, Se, B, B-HWS, Na, Hg, Cl-, CN, Cr-VI, pH, EC and SAR) were selected as COPCs for the Site based on the historic use of the Site as a building materials storage yard.

2.2 Borehole Locations

The environmental subsurface investigation is to be completed concurrently with a geotechnical investigation, and the boreholes and test pits proposed under this investigation are located to achieve general site coverage from an environmental/soil quality and hydrogeological perspective. A summary of proposed borehole locations are provided below.

Borehole (BH)/ Test Pit (TP) ID	Location and Rationale	Depth and Rationale
BH 1	General site coverage; at/near site boundary to intercept potential groundwater impacts from off-site sources	Refusal on bedrock or encounter water table
BH 2	General site coverage; at/near site boundary to intercept potential groundwater impacts from off-site sources	Refusal on bedrock or encounter water table
BH 3	General site coverage; at/near site boundary to intercept potential groundwater impacts from off-site sources	Refusal on bedrock or encounter water table

2.3 Soil Samples

A summary of proposed soil samples to be submitted for laboratory analysis is provided below.

BH ID	Sample ID	Approx. Depth/ Stratigraphy	Chemical Analysis	Rationale
BH 1	TBC	TBC based on field screening	Metals and inorganics,PAHs, PHCs F1-F4, VOCs	General characterization
BH 2	TBC	TBC based on field screening	Metals and inorganics ,PAHs, PHCs F1-F4, VOCs	General characterization
BH 3	TBC	TBC based on field screening	Metals and inorganics, PAHs, PHCs F1-F4, VOCs	General characterization

It is noted that if visual or olfactory evidence of contamination is encountered during the subsurface investigation, different or additional samples may be submitted for laboratory analysis to capture the true "worst-case" scenario with respect to potential contamination.

2.4 Groundwater Samples

A summary of proposed groundwater samples to be submitted for laboratory analysis is provided below.

BH ID	Sample ID	Approx. Depth/ Stratigraphy	Chemical Analysis	Rationale
BH 1	BH1-GW	Shallow water table	Metals and inorganics, PAHs, PHCs F1-F4, VOCs	General characterization
BH 2	BH2-GW	Shallow water table	Metals and inorganics, PAHs, PHCs F1-F4, VOCs	General characterization
BH 3	BH3-GW	Shallow water table	Metals and inorganics, PAHs, PHCs F1-F4, VOCs	General characterization

2.5 Field Screening

Given the results of the previous investigation, the contaminants of concern, and the limited lateral extent of the project site, field screening will be limited to visual and olfactory observations of evidence of contamination. Field screening measurements will be recorded in our field notes and summarized in the Subsurface Characterization Report.

3.0 QUALITY ASSURANCE AND QUALITY CONTROL

A summary of quality assurance and quality control measures to be employed during the investigation is provided below.

3.1 Decontamination of Equipment

Boreholes will be advanced using direct push methods with single-use macro tubes or using conventional equipment (split spoon samplers and hollow stem augers). Hollow stem augers and split spoon samplers will arrive at the Site in a pre-cleaned condition. Between boreholes, the augers will be cleaned with a brush and washed with a water and Alconox™ solution.

Stainless steel split spoon samplers will be decontaminated between sampling locations in the following sequence: cleaned with a brush to remove adhered soil and/or debris, washed with a dilute solution of Alconox™ and water, rinsed with potable water and distilled water, then rinsed with methanol and allowed to air dry.

No other non-dedicated sampling equipment is expected to be used.

3.2 Field Duplicates

At least one (1) field duplicate sample will be collected and analysed for each ten (10) “worst-case” soil samples. Field duplicates will be analyzed for all parameters for which their corresponding samples are analyzed.

3.3 Sampling Protocols

The jars and preservatives (where applicable) used in the collection of soil samples will be supplied by the analytical laboratory. The soil samples intended to be submitted for analysis of VOCs and PHCs in the F1 fraction range will be immediately preserved in laboratory provided vials pre-charged with to sequester the volatile compounds.

Soil samples will be labelled as they are collected. Samples will be stored in ice-packed coolers until the samples are transported to the laboratory for chemical analysis. Samples will be either handed over to or dropped off at the laboratory by MP personnel. Chains of Custody for the samples will be prepared using laboratory-provided Chain of Custody forms.

4.0 DATA QUALITY OBJECTIVES

The purpose of the collection of field duplicate samples is to measure the precision or reproducibility of the field and laboratory methodology used in the collection and analysis of the samples. The precision is evaluated in terms of the relative percent difference (RPD) between the analyses of the field duplicate sample and its corresponding original sample. The RPDs of the original and field duplicate samples will not be calculated in situations where one or both of the original and field duplicate samples exhibit concentrations of analyzed parameters that are below the laboratory Reporting Detection Limits (RDLs).

The RPD between the involved samples will be calculated using the following formula:

$$RPD = \frac{(A - B)}{\frac{(A + B)}{2}} \times 100\%$$

Where:
A = concentration of compound in the primary sample
B = concentration of compound in the duplicate sample

Notes:

- RPD is calculated only for result pairs with concentrations greater than 5 times of the method detection limit in both samples.
- RPDs are not calculated where results are below the laboratory RDLs for sample pair.

The acceptable RPD limits for various analyzed groups are listed in the following table:

Parameter Group	Recommended RPD in Soil	Recommended RPD in Groundwater
PHC	30%	30%
VOCs	50%	30%
PAHs	40%	30%
PCBs	40%	30%
1,4-Dioxane	50%	30%
Dioxins/Furans	40%	30%
Organochlorine (OC) Pesticides	40%	30%
Metals	30%	20%
Hexavalent Chromium, Cr(VI)	35%	20%
Cyanide (CN–)	35%	20%

Parameter Group	Recommended RPD in Soil	Recommended RPD in Groundwater
Fraction Organic Carbon (FOC), Chloride	35%	20%
Methyl Mercury	40%	30%
Electric Conductivity	10%	-
pH	Within 0.3 pH units	-
* Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act - Laboratory Services Branch Ministry of the Environment - March 9, 2004, amended as of July 1, 2011		

Laboratory quality control limits for duplicate, method blank, method blank spike, matrix spike and surrogate recoveries will also be reviewed.

5.0 STANDARD OPERATING PROCEDURES

MP has implemented a Standard Operating Procedures (SOPs) program for environmental field activities. The SOPs are regularly updated and are provided to field staff as needed. SOPs applicable to this program may include:

- SOP 1-01: Field Notes and Record Keeping
- SOP 1-02: Field Equipment
- SOP 1-03: Sample Management
- SOP 3-01: Planning a Phase Two ESA Field Program
- SOP 3-02: Naming Conventions: Boreholes, Test Pits, and Monitoring Wells
- SOP 3-03: Naming Conventions: Individual Soil and Groundwater Samples
- SOP 3-04: Duplicate Samples
- SOP 3-05: Underground Service Locates
- SOP 3-06: Soil Sample Management and Disposal
- SOP 3-07: Cuttings and Purge Water Management
- SOP 3-08: Overburden Drilling – Geoprobe or Geomachine
- SOP 3-09: Overburden Drilling – Conventional Rig
- SOP 3-13: Test Pit Excavation – Power Equipment
- SOP 3-15: Sample Selection and Submission for Delineation of Contamination
- SOP 3-22: Description of Soil Samples
- SOP 3-23: Combined Environmental and Geotechnical Investigations
- SOP 3-24: Field Screening of Samples – Soil Vapour
- SOP 3-27: Phase Two ESA Reports

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX C
BOREHOLE LOGS

McINTOSH PERRY

BORING NUMBER 18-1

McIntosh Perry
115 Walgreen Rd
Carp, Ontario, K0A1L0

CLIENT Chris McCluskey Group
PROJECT NAME 6 Edgewater Street Phase II ESA
PROJECT NUMBER CP-17-0635
PROJECT LOCATION 6 Edgewater Street
DATE STARTED 13-12-18 **COMPLETED** 13-12-18 **GROUND ELEVATION** 102.29 m ASL **HOLE SIZE**
DRILLING CONTRACTOR Canadian Environmental Drilling
GROUND WATER LEVELS:
DRILLING METHOD Truck-Mounted Acker
AT TIME OF DRILLING ---
LOGGED BY PH **CHECKED BY** DJA
AT END OF DRILLING ---
NOTES
96hrs AFTER DRILLING 1.23 m

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	VOC Concentration (ppm) 20 40 60 80 / LEL (%) 20 40 60 80	WELL DIAGRAM
0							Casing Top Elev: 100.954 (m) Casing Type: Monument
	SS 1	3-7-9-5 (16)	PID = 1 Vapor = 15		0.2 Topsoil Clayey Silt, some gravel, some sand. Brown, moist, very stiff	15	
	SS 2	3-3-3-3 (6)	PID = 0 Vapor = 10		1.5	10	
	SS 3	1-2-3-3 (5)	PID = 0 Vapor = 0		clayey silt, some sand, brown, firm	0	
2	SS 4	1-2-3-3 (5)	PID = 0 Vapor = 15			15	
	SS 5	8-27-38-16 (65)	PID = 1 Vapor = 20		3.0	20	
	SS 6	4-4-4-8 (8)	PID = 0 Vapor = 0		Sand with some gravel and trace silt. Brown, wet, loose	0	
4	SS 7	4-4-12-30 (16)	PID = 0 Vapor = 0		4.1	0	
	SS 8	50	PID = 0 Vapor = 0		4.6 Clay with sand and silt and some gravel, wet, hard Refusal on inferred bedrock Bottom of hole at 4.57 m.	0	

BORING NUMBER 18-2

McIntosh Perry
115 Walgreen Rd
Carp, Ontario, K0A1L0

CLIENT Chris McCluskey Group
PROJECT NAME 6 Edgewater Street Phase II ESA
PROJECT NUMBER CP-17-0635
PROJECT LOCATION 6 Edgewater Street
DATE STARTED 13-12-18 **COMPLETED** 13-12-18
GROUND ELEVATION 102.37 m ASL **HOLE SIZE**
DRILLING CONTRACTOR Canadian Environmental Drilling
GROUND WATER LEVELS:
DRILLING METHOD Truck-Mounted Acker
AT TIME OF DRILLING ---
LOGGED BY PH **CHECKED BY** DJA
AT END OF DRILLING ---
NOTES
96hrs AFTER DRILLING 0.83 m

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	VOC Concentration (ppm) 20 40 60 80 / LEL (%) 20 40 60 80	WELL DIAGRAM
0							Casing Top Elev: 101.099 (m) Casing Type: Monument
	SS 1		PID = 1 Vapor = 0		0.2 Topsoil Silt with clay, some sand and some gravel. Brown, moist, stiff to firm		
	SS 2		PID = 1 Vapor = 0		1.1 Sand with silt and some clay. Brown, moist to wet, loose		
	SS 3		PID = 1 Vapor = 0				
2	SS 4		PID = 0 Vapor = 0				
	SS 5		PID = 1 Vapor = 0		2.4 Clay with silt, grey, wet, very soft		
	SS 6		PID = 0 Vapor = 0				
4	SS 7		PID = 0 Vapor = 0				
					5.5 Clay with silt and sand, some gravel. Grey, wet, compact to dense		
6	SS 8		PID = 1 Vapor = 0		6.1 Refusal on inferred bedrock Bottom of hole at 6.10 m.		

BORING NUMBER 18-3

McIntosh Perry
115 Walgreen Rd
Carp, Ontario, K0A1L0

CLIENT Chris McCluskey Group
PROJECT NAME 6 Edgewater Street Phase II ESA
PROJECT NUMBER CP-17-0635
PROJECT LOCATION 6 Edgewater Street
DATE STARTED 13-12-18 **COMPLETED** 13-12-18
GROUND ELEVATION 101.77 m ASL **HOLE SIZE**
DRILLING CONTRACTOR Canadian Environmental Drilling
GROUND WATER LEVELS:
DRILLING METHOD Truck-Mounted Acker
AT TIME OF DRILLING ---
LOGGED BY BS **CHECKED BY** DJA
AT END OF DRILLING ---
NOTES
96hrs AFTER DRILLING 1.02 m

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	VOC Concentration (ppm) 20 40 60 80 / LEL (%) 20 40 60 80	WELL DIAGRAM
0	SS 1		PID = 0 Vapor = 0		0.1 Top Soil; Sand with gravel. Brown		Casing Top Elev: 100.405 (m) Casing Type: Monument
					0.6 Gravel, low recovery, rock stuck in split spoon		
					1.2 Silt with sand and trace clay. Brown, moist to wet.		
2	SS 2		PID = 1 Vapor = 0				
	SS 3		PID = 0 Vapor = 0				
	SS 4		PID = 0 Vapor = 0		3.0 Clay with silt with some sand and trace gravel. Brown, wet, soft to firm		
	SS 5		PID = 0 Vapor = 0				
4	SS 6		PID = 0 Vapor = 0				
	SS 7		PID = 0 Vapor = 0		4.9 EOH traget depth; Bottom of hole at 4.88 m.		

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX D
LABORATORY CERTIFICATES OF ANALYSIS

McINTOSH PERRY

McIntosh Perry Engineering Consultants (Ottawa)
ATTN: Bradley Sutherland
115 Walgreen Road RR3
Carp ON K0A 1L0

Date Received: 14-DEC-18
Report Date: 20-DEC-18 07:51 (MT)
Version: FINAL

Client Phone: 613-836-2184

Certificate of Analysis

Lab Work Order #: L2211036

Project P.O. #: NOT SUBMITTED
Job Reference: CP-17-0635
C of C Numbers:
Legal Site Desc:

Melanie Moshi
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211036-1 BH1 Sampled By: CLIENT on 13-DEC-18 @ 10:00 Matrix: SOIL							
Physical Tests							
Conductivity	0.550		0.0040	mS/cm		17-DEC-18	R4397413
% Moisture	33.0		0.10	%	17-DEC-18	18-DEC-18	R4396792
pH	7.56		0.10	pH units		17-DEC-18	R4397016
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4400394
Saturated Paste Extractables							
SAR	3.54		0.10	SAR		17-DEC-18	R4400088
Calcium (Ca)	27.4		1.0	mg/L		17-DEC-18	R4400088
Magnesium (Mg)	3.3		1.0	mg/L		17-DEC-18	R4400088
Sodium (Na)	73.7		1.0	mg/L		17-DEC-18	R4400088
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Arsenic (As)	3.5		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Barium (Ba)	283		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Beryllium (Be)	0.61		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B)	5.4		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B), Hot Water Ext.	0.23		0.10	ug/g	16-DEC-18	17-DEC-18	R4396954
Cadmium (Cd)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Chromium (Cr)	40.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Cobalt (Co)	11.1		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Copper (Cu)	20.5		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Lead (Pb)	7.5		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Mercury (Hg)	0.0181		0.0050	ug/g	16-DEC-18	17-DEC-18	R4397072
Molybdenum (Mo)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Nickel (Ni)	22.7		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Selenium (Se)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Silver (Ag)	<0.20		0.20	ug/g	16-DEC-18	17-DEC-18	R4399967
Thallium (Tl)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Uranium (U)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Vanadium (V)	51.8		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Zinc (Zn)	63.8		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Speciated Metals							
Chromium, Hexavalent	0.50		0.20	ug/g	17-DEC-18	18-DEC-18	R4400151
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Benzene	<0.0068		0.0068	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromodichloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromoform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromomethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Carbon tetrachloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dibromochloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356

* 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
L2211036-1 BH1 Sampled By: CLIENT on 13-DEC-18 @ 10:00 Matrix: SOIL							
Volatile Organic Compounds							
Chloroform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dibromoethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,4-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dichlorodifluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methylene Chloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloropropane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		18-DEC-18	
Ethylbenzene	<0.018		0.018	ug/g	17-DEC-18	18-DEC-18	R4399356
n-Hexane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Ethyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
MTBE	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Styrene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Tetrachloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Toluene	<0.080		0.080	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichloroethylene	<0.010		0.010	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichlorofluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Vinyl chloride	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
o-Xylene	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
m+p-Xylenes	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
Xylenes (Total)	<0.050		0.050	ug/g		18-DEC-18	
Surrogate: 4-Bromofluorobenzene	93.6		50-140	%	17-DEC-18	18-DEC-18	R4399356
Surrogate: 1,4-Difluorobenzene	105.9		50-140	%	17-DEC-18	18-DEC-18	R4399356
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	17-DEC-18	18-DEC-18	R4399356
F1-BTEX	<5.0		5.0	ug/g		18-DEC-18	
F2 (C10-C16)	<10		10	ug/g	15-DEC-18	17-DEC-18	R4398472
F2-Naphth	<10		10	ug/g		18-DEC-18	

* 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
L2211036-1 BH1 Sampled By: CLIENT on 13-DEC-18 @ 10:00 Matrix: SOIL							
Hydrocarbons							
F3 (C16-C34)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
F3-PAH	<50		50	ug/g		18-DEC-18	
F4 (C34-C50)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
Total Hydrocarbons (C6-C50)	<72		72	ug/g		18-DEC-18	
Chrom. to baseline at nC50	YES				15-DEC-18	17-DEC-18	R4398472
Surrogate: 2-Bromobenzotrifluoride	98.1		60-140	%	15-DEC-18	17-DEC-18	R4398472
Surrogate: 3,4-Dichlorotoluene	76.4		60-140	%	17-DEC-18	18-DEC-18	R4399356
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Acenaphthylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)anthracene	0.082		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)pyrene	0.086		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(b)fluoranthene	0.144		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(g,h,i)perylene	0.081		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Chrysene	0.081		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluoranthene	0.076		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluorene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Indeno(1,2,3-cd)pyrene	0.068		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		18-DEC-18	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
2-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
Naphthalene	<0.013		0.013	ug/g	15-DEC-18	18-DEC-18	R4399050
Phenanthrene	<0.046		0.046	ug/g	15-DEC-18	18-DEC-18	R4399050
Pyrene	0.083		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Surrogate: 2-Fluorobiphenyl	105.2		50-140	%	15-DEC-18	18-DEC-18	R4399050
Surrogate: p-Terphenyl d14	106.4		50-140	%	15-DEC-18	18-DEC-18	R4399050
L2211036-2 BH2 Sampled By: CLIENT on 13-DEC-18 @ 13:00 Matrix: SOIL							
Physical Tests							
Conductivity	0.133		0.0040	mS/cm		17-DEC-18	R4397413
% Moisture	26.2		0.10	%	17-DEC-18	18-DEC-18	R4396792
pH	7.39		0.10	pH units		17-DEC-18	R4397016
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4400394
Saturated Paste Extractables							
SAR	1.08		0.10	SAR		17-DEC-18	R4400088
Calcium (Ca)	8.1		1.0	mg/L		17-DEC-18	R4400088
Magnesium (Mg)	1.7		1.0	mg/L		17-DEC-18	R4400088

* 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
L2211036-2 BH2 Sampled By: CLIENT on 13-DEC-18 @ 13:00 Matrix: SOIL							
Saturated Paste Extractables							
Sodium (Na)	13.0		1.0	mg/L		17-DEC-18	R4400088
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Arsenic (As)	2.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Barium (Ba)	142		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Beryllium (Be)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B)	<5.0		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B), Hot Water Ext.	0.10		0.10	ug/g	16-DEC-18	17-DEC-18	R4396954
Cadmium (Cd)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Chromium (Cr)	22.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Cobalt (Co)	6.5		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Copper (Cu)	13.6		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Lead (Pb)	3.7		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Mercury (Hg)	<0.0050		0.0050	ug/g	16-DEC-18	17-DEC-18	R4397072
Molybdenum (Mo)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Nickel (Ni)	12.3		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Selenium (Se)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Silver (Ag)	<0.20		0.20	ug/g	16-DEC-18	17-DEC-18	R4399967
Thallium (Tl)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Uranium (U)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Vanadium (V)	33.9		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Zinc (Zn)	33.3		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	17-DEC-18	18-DEC-18	R4400151
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Benzene	<0.0068		0.0068	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromodichloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromoform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromomethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Carbon tetrachloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dibromochloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chloroform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dibromoethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,4-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dichlorodifluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356

* 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
L2211036-2 BH2 Sampled By: CLIENT on 13-DEC-18 @ 13:00 Matrix: SOIL							
Volatile Organic Compounds							
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methylene Chloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloropropane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		18-DEC-18	
Ethylbenzene	<0.018		0.018	ug/g	17-DEC-18	18-DEC-18	R4399356
n-Hexane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Ethyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
MTBE	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Styrene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Tetrachloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Toluene	<0.080		0.080	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichloroethylene	<0.010		0.010	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichlorofluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Vinyl chloride	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
o-Xylene	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
m+p-Xylenes	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
Xylenes (Total)	<0.050		0.050	ug/g		18-DEC-18	
Surrogate: 4-Bromofluorobenzene	96.5		50-140	%	17-DEC-18	18-DEC-18	R4399356
Surrogate: 1,4-Difluorobenzene	109.8		50-140	%	17-DEC-18	18-DEC-18	R4399356
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	17-DEC-18	18-DEC-18	R4399356
F1-BTEX	<5.0		5.0	ug/g		18-DEC-18	
F2 (C10-C16)	<10		10	ug/g	15-DEC-18	17-DEC-18	R4398472
F2-Naphth	<10		10	ug/g		18-DEC-18	
F3 (C16-C34)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
F3-PAH	<50		50	ug/g		18-DEC-18	
F4 (C34-C50)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
Total Hydrocarbons (C6-C50)	<72		72	ug/g		18-DEC-18	
Chrom. to baseline at nC50	YES				15-DEC-18	17-DEC-18	R4398472
Surrogate: 2-Bromobenzotrifluoride	99.6		60-140	%	15-DEC-18	17-DEC-18	R4398472
Surrogate: 3,4-Dichlorotoluene	62.6		60-140	%	17-DEC-18	18-DEC-18	R4399356
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050

* 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
L2211036-2 BH2 Sampled By: CLIENT on 13-DEC-18 @ 13:00 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Acenaphthylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(b)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Chrysene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluorene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		18-DEC-18	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
2-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
Naphthalene	<0.013		0.013	ug/g	15-DEC-18	18-DEC-18	R4399050
Phenanthrene	<0.046		0.046	ug/g	15-DEC-18	18-DEC-18	R4399050
Pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Surrogate: 2-Fluorobiphenyl	100.1		50-140	%	15-DEC-18	18-DEC-18	R4399050
Surrogate: p-Terphenyl d14	99.7		50-140	%	15-DEC-18	18-DEC-18	R4399050
L2211036-3 BH3 Sampled By: CLIENT on 13-DEC-18 @ 15:00 Matrix: SOIL							
Physical Tests							
Conductivity	0.323		0.0040	mS/cm		17-DEC-18	R4397413
% Moisture	27.0		0.10	%	17-DEC-18	18-DEC-18	R4396792
pH	7.53		0.10	pH units		17-DEC-18	R4397016
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4400394
Saturated Paste Extractables							
SAR	2.91		0.10	SAR		17-DEC-18	R4400088
Calcium (Ca)	13.2		1.0	mg/L		17-DEC-18	R4400088
Magnesium (Mg)	2.5		1.0	mg/L		17-DEC-18	R4400088
Sodium (Na)	44.0		1.0	mg/L		17-DEC-18	R4400088
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Arsenic (As)	2.8		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Barium (Ba)	162		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Beryllium (Be)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B)	<5.0		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	16-DEC-18	17-DEC-18	R4396954
Cadmium (Cd)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967

* 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
L2211036-3 BH3 Sampled By: CLIENT on 13-DEC-18 @ 15:00 Matrix: SOIL							
Metals							
Chromium (Cr)	28.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Cobalt (Co)	7.9		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Copper (Cu)	17.3		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Lead (Pb)	4.6		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Mercury (Hg)	<0.0050		0.0050	ug/g	16-DEC-18	17-DEC-18	R4397072
Molybdenum (Mo)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Nickel (Ni)	16.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Selenium (Se)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Silver (Ag)	<0.20		0.20	ug/g	16-DEC-18	17-DEC-18	R4399967
Thallium (Tl)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Uranium (U)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Vanadium (V)	44.2		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Zinc (Zn)	43.1		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Speciated Metals							
Chromium, Hexavalent	0.29		0.20	ug/g	17-DEC-18	18-DEC-18	R4400151
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Benzene	<0.0068		0.0068	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromodichloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromoform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromomethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Carbon tetrachloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dibromochloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chloroform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dibromoethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,4-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dichlorodifluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methylene Chloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloropropane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		18-DEC-18	
Ethylbenzene	<0.018		0.018	ug/g	17-DEC-18	18-DEC-18	R4399356

* 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
L2211036-3 BH3 Sampled By: CLIENT on 13-DEC-18 @ 15:00 Matrix: SOIL							
Volatile Organic Compounds							
n-Hexane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Ethyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
MTBE	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Styrene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Tetrachloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Toluene	<0.080		0.080	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichloroethylene	<0.010		0.010	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichlorofluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Vinyl chloride	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
o-Xylene	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
m+p-Xylenes	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
Xylenes (Total)	<0.050		0.050	ug/g		18-DEC-18	
Surrogate: 4-Bromofluorobenzene	92.5		50-140	%	17-DEC-18	18-DEC-18	R4399356
Surrogate: 1,4-Difluorobenzene	103.2		50-140	%	17-DEC-18	18-DEC-18	R4399356
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	17-DEC-18	18-DEC-18	R4399356
F1-BTEX	<5.0		5.0	ug/g		18-DEC-18	
F2 (C10-C16)	<10		10	ug/g	15-DEC-18	17-DEC-18	R4398472
F2-Naphth	<10		10	ug/g		18-DEC-18	
F3 (C16-C34)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
F3-PAH	<50		50	ug/g		18-DEC-18	
F4 (C34-C50)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
Total Hydrocarbons (C6-C50)	<72		72	ug/g		18-DEC-18	
Chrom. to baseline at nC50	YES				15-DEC-18	17-DEC-18	R4398472
Surrogate: 2-Bromobenzotrifluoride	90.0		60-140	%	15-DEC-18	17-DEC-18	R4398472
Surrogate: 3,4-Dichlorotoluene	73.6		60-140	%	17-DEC-18	18-DEC-18	R4399356
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Acenaphthylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(b)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Chrysene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050

* 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
L2211036-3 BH3 Sampled By: CLIENT on 13-DEC-18 @ 15:00 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluorene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		18-DEC-18	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
2-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
Naphthalene	<0.013		0.013	ug/g	15-DEC-18	18-DEC-18	R4399050
Phenanthrene	<0.046		0.046	ug/g	15-DEC-18	18-DEC-18	R4399050
Pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Surrogate: 2-Fluorobiphenyl	101.5		50-140	%	15-DEC-18	18-DEC-18	R4399050
Surrogate: p-Terphenyl d14	99.7		50-140	%	15-DEC-18	18-DEC-18	R4399050
L2211036-4 BH99 Sampled By: CLIENT on 13-DEC-18 @ 15:30 Matrix: SOIL							
Physical Tests							
Conductivity	0.338		0.0040	mS/cm		17-DEC-18	R4397413
% Moisture	26.8		0.10	%	17-DEC-18	18-DEC-18	R4396792
pH	7.51		0.10	pH units		17-DEC-18	R4397016
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4400394
Saturated Paste Extractables							
SAR	2.79		0.10	SAR		17-DEC-18	R4400088
Calcium (Ca)	14.8		1.0	mg/L		17-DEC-18	R4400088
Magnesium (Mg)	2.9		1.0	mg/L		17-DEC-18	R4400088
Sodium (Na)	44.9		1.0	mg/L		17-DEC-18	R4400088
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Arsenic (As)	3.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Barium (Ba)	164		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Beryllium (Be)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B)	<5.0		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	16-DEC-18	17-DEC-18	R4396954
Cadmium (Cd)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Chromium (Cr)	29.9		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Cobalt (Co)	8.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Copper (Cu)	17.8		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Lead (Pb)	4.6		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Mercury (Hg)	<0.0050		0.0050	ug/g	16-DEC-18	17-DEC-18	R4397072
Molybdenum (Mo)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Nickel (Ni)	16.7		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Selenium (Se)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967

* 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
L2211036-4 BH99 Sampled By: CLIENT on 13-DEC-18 @ 15:30 Matrix: SOIL							
Metals							
Silver (Ag)	<0.20		0.20	ug/g	16-DEC-18	17-DEC-18	R4399967
Thallium (Tl)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Uranium (U)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Vanadium (V)	46.3		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Zinc (Zn)	44.3		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Speciated Metals							
Chromium, Hexavalent	0.29		0.20	ug/g	17-DEC-18	18-DEC-18	R4400151
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Benzene	<0.0068		0.0068	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromodichloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromoform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromomethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Carbon tetrachloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dibromochloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chloroform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dibromoethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,4-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dichlorodifluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methylene Chloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloropropane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		18-DEC-18	
Ethylbenzene	<0.018		0.018	ug/g	17-DEC-18	18-DEC-18	R4399356
n-Hexane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Ethyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
MTBE	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Styrene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Tetrachloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356

* 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
L2211036-4 BH99 Sampled By: CLIENT on 13-DEC-18 @ 15:30 Matrix: SOIL							
Volatile Organic Compounds							
Toluene	<0.080		0.080	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichloroethylene	<0.010		0.010	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichlorofluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Vinyl chloride	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
o-Xylene	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
m+p-Xylenes	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
Xylenes (Total)	<0.050		0.050	ug/g		18-DEC-18	
Surrogate: 4-Bromofluorobenzene	94.8		50-140	%	17-DEC-18	18-DEC-18	R4399356
Surrogate: 1,4-Difluorobenzene	103.1		50-140	%	17-DEC-18	18-DEC-18	R4399356
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	17-DEC-18	18-DEC-18	R4399356
F1-BTEX	<5.0		5.0	ug/g		18-DEC-18	
F2 (C10-C16)	<10		10	ug/g	16-DEC-18	17-DEC-18	R4399775
F2-Naphth	<10		10	ug/g		18-DEC-18	
F3 (C16-C34)	<50		50	ug/g	16-DEC-18	17-DEC-18	R4399775
F3-PAH	<50		50	ug/g		18-DEC-18	
F4 (C34-C50)	<50		50	ug/g	16-DEC-18	17-DEC-18	R4399775
Total Hydrocarbons (C6-C50)	<72		72	ug/g		18-DEC-18	
Chrom. to baseline at nC50	YES				16-DEC-18	17-DEC-18	R4399775
Surrogate: 2-Bromobenzotrifluoride	90.2		60-140	%	16-DEC-18	17-DEC-18	R4399775
Surrogate: 3,4-Dichlorotoluene	81.2		60-140	%	17-DEC-18	18-DEC-18	R4399356
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Acenaphthylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(b)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Chrysene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluorene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		18-DEC-18	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
2-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
Naphthalene	<0.013		0.013	ug/g	15-DEC-18	18-DEC-18	R4399050

* 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
L2211036-4 BH99 Sampled By: CLIENT on 13-DEC-18 @ 15:30 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Phenanthrene	<0.046		0.046	ug/g	15-DEC-18	18-DEC-18	R4399050
Pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Surrogate: 2-Fluorobiphenyl	102.9		50-140	%	15-DEC-18	18-DEC-18	R4399050
Surrogate: p-Terphenyl d14	102.3		50-140	%	15-DEC-18	18-DEC-18	R4399050

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

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

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.

Reference Information

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).

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

Reference Information

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: L2211036 Report Date: 20-DEC-18

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4396954								
WG2955152-4 DUP		**L2211036-4**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	17-DEC-18
WG2955152-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			109.1		%		70-130	17-DEC-18
WG2955152-3 LCS								
Boron (B), Hot Water Ext.			93.4		%		70-130	17-DEC-18
WG2955152-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	17-DEC-18
CN-WAD-R511-WT	**Soil**							
Batch R4400394								
WG2955163-3 DUP		**L2211036-2**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	18-DEC-18
WG2955163-2 LCS								
Cyanide, Weak Acid Diss			99.1		%		80-120	18-DEC-18
WG2955163-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	18-DEC-18
WG2955163-4 MS		**L2211036-2**						
Cyanide, Weak Acid Diss			101.5		%		70-130	18-DEC-18
CR-CR6-IC-WT	**Soil**							
Batch R4400151								
WG2955171-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			86.5		%		70-130	18-DEC-18
WG2955171-3 DUP		**L2210938-1**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	18-DEC-18
WG2955171-2 LCS								
Chromium, Hexavalent			82.9		%		80-120	18-DEC-18
WG2955171-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	18-DEC-18
EC-WT	**Soil**							
Batch R4397413								
WG2955149-4 DUP		**WG2955149-3**						
Conductivity		0.408	0.401		mS/cm	1.7	20	17-DEC-18
WG2955149-2 IRM		**WT SAR2**						
Conductivity			102.6		%		70-130	17-DEC-18
WG2955223-1 LCS								
Conductivity			104.1		%		90-110	17-DEC-18
WG2955149-1 MB								

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4397413								
WG2955149-1 MB								
Conductivity			<0.0040		mS/cm		0.004	17-DEC-18
F1-HS-511-WT	**Soil**							
Batch R4399356								
WG2955352-4 DUP		**WG2955352-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	18-DEC-18
WG2955352-2 LCS								
F1 (C6-C10)			98.3		%		80-120	18-DEC-18
WG2955352-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	18-DEC-18
Surrogate: 3,4-Dichlorotoluene			84.7		%		60-140	18-DEC-18
WG2955352-6 MS		**L2211036-3**						
F1 (C6-C10)			87.5		%		60-140	18-DEC-18
F2-F4-511-WT	**Soil**							
Batch R4398472								
WG2954750-3 DUP		**WG2954750-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	17-DEC-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	17-DEC-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	17-DEC-18
WG2954750-2 LCS								
F2 (C10-C16)			115.0		%		80-120	18-DEC-18
F3 (C16-C34)			117.0		%		80-120	18-DEC-18
F4 (C34-C50)			119.2		%		80-120	18-DEC-18
WG2954750-1 MB								
F2 (C10-C16)			<10		ug/g		10	17-DEC-18
F3 (C16-C34)			<50		ug/g		50	17-DEC-18
F4 (C34-C50)			<50		ug/g		50	17-DEC-18
Surrogate: 2-Bromobenzotrifluoride			102.1		%		60-140	17-DEC-18
WG2954750-4 MS		**WG2954750-5**						
F2 (C10-C16)			107.8		%		60-140	17-DEC-18
F3 (C16-C34)			112.7		%		60-140	17-DEC-18
F4 (C34-C50)			116.1		%		60-140	17-DEC-18
Batch R4399775								
WG2955142-3 DUP		**WG2955142-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4399775								
WG2955142-3 DUP		**WG2955142-5**						
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	17-DEC-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	17-DEC-18
WG2955142-2 LCS								
F2 (C10-C16)			105.6		%		80-120	17-DEC-18
F3 (C16-C34)			112.9		%		80-120	17-DEC-18
F4 (C34-C50)			116.7		%		80-120	17-DEC-18
WG2955142-1 MB								
F2 (C10-C16)			<10		ug/g		10	17-DEC-18
F3 (C16-C34)			<50		ug/g		50	17-DEC-18
F4 (C34-C50)			<50		ug/g		50	17-DEC-18
Surrogate: 2-Bromobenzotrifluoride			87.3		%		60-140	17-DEC-18
WG2955142-4 MS		**WG2955142-5**						
F2 (C10-C16)			116.2		%		60-140	17-DEC-18
F3 (C16-C34)			118.0		%		60-140	17-DEC-18
F4 (C34-C50)			118.9		%		60-140	17-DEC-18
HG-200.2-CVAA-WT	**Soil**							
Batch R4397072								
WG2955145-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			99.4		%		70-130	17-DEC-18
WG2955145-6 DUP		**WG2955145-5**						
Mercury (Hg)		<0.0050	<0.0050	RPD-NA	ug/g	N/A	40	17-DEC-18
WG2955145-3 LCS								
Mercury (Hg)			106.0		%		80-120	17-DEC-18
WG2955145-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	17-DEC-18
MET-200.2-CCMS-WT	**Soil**							
Batch R4399967								
WG2955145-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			106.7		%		70-130	17-DEC-18
Arsenic (As)			102.6		%		70-130	17-DEC-18
Barium (Ba)			100.8		%		70-130	17-DEC-18
Beryllium (Be)			104.8		%		70-130	17-DEC-18
Boron (B)			3.0		mg/kg		0-8.2	17-DEC-18
Cadmium (Cd)			95.2		%		70-130	17-DEC-18
Chromium (Cr)			99.8		%		70-130	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4399967								
WG2955145-2 CRM		**WT-CANMET-TILL1**						
Cobalt (Co)			97.4		%		70-130	17-DEC-18
Copper (Cu)			100.4		%		70-130	17-DEC-18
Lead (Pb)			101.8		%		70-130	17-DEC-18
Molybdenum (Mo)			98.2		%		70-130	17-DEC-18
Nickel (Ni)			99.7		%		70-130	17-DEC-18
Selenium (Se)			0.29		mg/kg		0.11-0.51	17-DEC-18
Silver (Ag)			0.23		mg/kg		0.13-0.33	17-DEC-18
Thallium (Tl)			0.121		mg/kg		0.077-0.18	17-DEC-18
Uranium (U)			101.0		%		70-130	17-DEC-18
Vanadium (V)			99.5		%		70-130	17-DEC-18
Zinc (Zn)			99.4		%		70-130	17-DEC-18
WG2955145-6 DUP		**WG2955145-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	17-DEC-18
Arsenic (As)		1.71	1.65		ug/g	3.2	30	17-DEC-18
Barium (Ba)		26.0	25.9		ug/g	0.3	40	17-DEC-18
Beryllium (Be)		0.15	0.13		ug/g	14	30	17-DEC-18
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	17-DEC-18
Cadmium (Cd)		0.038	0.041		ug/g	8.9	30	17-DEC-18
Chromium (Cr)		8.20	8.15		ug/g	0.7	30	17-DEC-18
Cobalt (Co)		2.97	2.87		ug/g	3.3	30	17-DEC-18
Copper (Cu)		6.33	6.18		ug/g	2.4	30	17-DEC-18
Lead (Pb)		2.98	2.86		ug/g	4.1	40	17-DEC-18
Molybdenum (Mo)		0.38	0.37		ug/g	1.8	40	17-DEC-18
Nickel (Ni)		6.71	6.48		ug/g	3.4	30	17-DEC-18
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	17-DEC-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	17-DEC-18
Thallium (Tl)		0.062	0.059		ug/g	5.0	30	17-DEC-18
Uranium (U)		0.230	0.232		ug/g	0.8	30	17-DEC-18
Vanadium (V)		17.0	18.0		ug/g	6.0	30	17-DEC-18
Zinc (Zn)		15.8	16.1		ug/g	1.5	30	17-DEC-18
WG2955145-4 LCS								
Antimony (Sb)			106.2		%		80-120	17-DEC-18
Arsenic (As)			101.4		%		80-120	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4399967								
WG2955145-4 LCS								
Barium (Ba)			102.5		%		80-120	17-DEC-18
Beryllium (Be)			103.1		%		80-120	17-DEC-18
Boron (B)			103.2		%		80-120	17-DEC-18
Cadmium (Cd)			98.2		%		80-120	17-DEC-18
Chromium (Cr)			97.8		%		80-120	17-DEC-18
Cobalt (Co)			94.0		%		80-120	17-DEC-18
Copper (Cu)			94.4		%		80-120	17-DEC-18
Lead (Pb)			100.3		%		80-120	17-DEC-18
Molybdenum (Mo)			100.4		%		80-120	17-DEC-18
Nickel (Ni)			95.9		%		80-120	17-DEC-18
Selenium (Se)			94.8		%		80-120	17-DEC-18
Silver (Ag)			99.2		%		80-120	17-DEC-18
Thallium (Tl)			98.4		%		80-120	17-DEC-18
Uranium (U)			99.4		%		80-120	17-DEC-18
Vanadium (V)			100.3		%		80-120	17-DEC-18
Zinc (Zn)			95.9		%		80-120	17-DEC-18
WG2955145-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	17-DEC-18
Arsenic (As)			<0.10		mg/kg		0.1	17-DEC-18
Barium (Ba)			<0.50		mg/kg		0.5	17-DEC-18
Beryllium (Be)			<0.10		mg/kg		0.1	17-DEC-18
Boron (B)			<5.0		mg/kg		5	17-DEC-18
Cadmium (Cd)			<0.020		mg/kg		0.02	17-DEC-18
Chromium (Cr)			<0.50		mg/kg		0.5	17-DEC-18
Cobalt (Co)			<0.10		mg/kg		0.1	17-DEC-18
Copper (Cu)			<0.50		mg/kg		0.5	17-DEC-18
Lead (Pb)			<0.50		mg/kg		0.5	17-DEC-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	17-DEC-18
Nickel (Ni)			<0.50		mg/kg		0.5	17-DEC-18
Selenium (Se)			<0.20		mg/kg		0.2	17-DEC-18
Silver (Ag)			<0.10		mg/kg		0.1	17-DEC-18
Thallium (Tl)			<0.050		mg/kg		0.05	17-DEC-18
Uranium (U)			<0.050		mg/kg		0.05	17-DEC-18
Vanadium (V)			<0.20		mg/kg		0.2	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4399967								
WG2955145-1 MB								
Zinc (Zn)			<2.0		mg/kg		2	17-DEC-18
MOISTURE-WT	**Soil**							
Batch R4396792								
WG2955165-3 DUP		**L2210949-8**						
% Moisture		5.55	5.52		%	0.6	20	18-DEC-18
WG2955165-2 LCS								
% Moisture			99.3		%		90-110	18-DEC-18
WG2955165-1 MB								
% Moisture			<0.10		%		0.1	18-DEC-18
PAH-511-WT	**Soil**							
Batch R4399050								
WG2954671-3 DUP		**WG2954671-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	18-DEC-18
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	18-DEC-18
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
WG2954671-2 LCS								
1-Methylnaphthalene			98.2		%		50-140	18-DEC-18
2-Methylnaphthalene			94.7		%		50-140	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4399050								
WG2954671-2 LCS								
Acenaphthene			104.0		%		50-140	18-DEC-18
Acenaphthylene			103.6		%		50-140	18-DEC-18
Anthracene			108.0		%		50-140	18-DEC-18
Benzo(a)anthracene			109.4		%		50-140	18-DEC-18
Benzo(a)pyrene			97.2		%		50-140	18-DEC-18
Benzo(b)fluoranthene			99.1		%		50-140	18-DEC-18
Benzo(g,h,i)perylene			96.7		%		50-140	18-DEC-18
Benzo(k)fluoranthene			94.5		%		50-140	18-DEC-18
Chrysene			104.5		%		50-140	18-DEC-18
Dibenzo(ah)anthracene			90.8		%		50-140	18-DEC-18
Fluoranthene			99.9		%		50-140	18-DEC-18
Fluorene			97.2		%		50-140	18-DEC-18
Indeno(1,2,3-cd)pyrene			91.8		%		50-140	18-DEC-18
Naphthalene			96.9		%		50-140	18-DEC-18
Phenanthrene			103.4		%		50-140	18-DEC-18
Pyrene			99.4		%		50-140	18-DEC-18
WG2954671-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	18-DEC-18
2-Methylnaphthalene			<0.030		ug/g		0.03	18-DEC-18
Acenaphthene			<0.050		ug/g		0.05	18-DEC-18
Acenaphthylene			<0.050		ug/g		0.05	18-DEC-18
Anthracene			<0.050		ug/g		0.05	18-DEC-18
Benzo(a)anthracene			<0.050		ug/g		0.05	18-DEC-18
Benzo(a)pyrene			<0.050		ug/g		0.05	18-DEC-18
Benzo(b)fluoranthene			<0.050		ug/g		0.05	18-DEC-18
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	18-DEC-18
Benzo(k)fluoranthene			<0.050		ug/g		0.05	18-DEC-18
Chrysene			<0.050		ug/g		0.05	18-DEC-18
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	18-DEC-18
Fluoranthene			<0.050		ug/g		0.05	18-DEC-18
Fluorene			<0.050		ug/g		0.05	18-DEC-18
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	18-DEC-18
Naphthalene			<0.013		ug/g		0.013	18-DEC-18
Phenanthrene			<0.046		ug/g		0.046	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4399050								
WG2954671-1 MB								
Pyrene			<0.050		ug/g		0.05	18-DEC-18
Surrogate: 2-Fluorobiphenyl			107.2		%		50-140	18-DEC-18
Surrogate: p-Terphenyl d14			110.4		%		50-140	18-DEC-18
WG2954671-4 MS		**WG2954671-5**						
1-Methylnaphthalene			99.4		%		50-140	18-DEC-18
2-Methylnaphthalene			95.9		%		50-140	18-DEC-18
Acenaphthene			105.8		%		50-140	18-DEC-18
Acenaphthylene			102.1		%		50-140	18-DEC-18
Anthracene			105.4		%		50-140	18-DEC-18
Benzo(a)anthracene			108.3		%		50-140	18-DEC-18
Benzo(a)pyrene			101.2		%		50-140	18-DEC-18
Benzo(b)fluoranthene			100.8		%		50-140	18-DEC-18
Benzo(g,h,i)perylene			99.9		%		50-140	18-DEC-18
Benzo(k)fluoranthene			99.6		%		50-140	18-DEC-18
Chrysene			108.4		%		50-140	18-DEC-18
Dibenzo(ah)anthracene			97.4		%		50-140	18-DEC-18
Fluoranthene			97.5		%		50-140	18-DEC-18
Fluorene			98.3		%		50-140	18-DEC-18
Indeno(1,2,3-cd)pyrene			95.7		%		50-140	18-DEC-18
Naphthalene			98.3		%		50-140	18-DEC-18
Phenanthrene			104.6		%		50-140	18-DEC-18
Pyrene			99.0		%		50-140	18-DEC-18
PH-WT	**Soil**							
Batch R4397016								
WG2954789-1 DUP		**L2210947-1**						
pH		9.93	10.02	J	pH units	0.09	0.3	17-DEC-18
WG2955217-1 LCS								
pH			7.00		pH units		6.9-7.1	17-DEC-18
SAR-R511-WT	**Soil**							
Batch R4400088								
WG2955149-4 DUP		**WG2955149-3**						
Calcium (Ca)		17.0	15.6		mg/L	9.1	30	17-DEC-18
Sodium (Na)		93.3	92.9		mg/L	0.4	30	17-DEC-18
Magnesium (Mg)		1.3	1.2		mg/L	12	30	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4400088								
WG2955149-2 IRM		**WT SAR2**						
Calcium (Ca)			103.6		%		70-130	17-DEC-18
Sodium (Na)			94.7		%		70-130	17-DEC-18
Magnesium (Mg)			101.7		%		70-130	17-DEC-18
WG2955149-1 MB								
Calcium (Ca)			<1.0		mg/L		1	17-DEC-18
Sodium (Na)			<1.0		mg/L		1	17-DEC-18
Magnesium (Mg)			<1.0		mg/L		1	17-DEC-18
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-4 DUP		**WG2955352-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	18-DEC-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-4 DUP		**WG2955352-3**						
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	18-DEC-18
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	18-DEC-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	18-DEC-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	18-DEC-18
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	18-DEC-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	18-DEC-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	18-DEC-18
WG2955352-2 LCS								
1,1,1,2-Tetrachloroethane			107.3		%		60-130	18-DEC-18
1,1,2,2-Tetrachloroethane			119.0		%		60-130	18-DEC-18
1,1,1-Trichloroethane			108.1		%		60-130	18-DEC-18
1,1,2-Trichloroethane			113.5		%		60-130	18-DEC-18
1,1-Dichloroethane			106.1		%		60-130	18-DEC-18
1,1-Dichloroethylene			105.8		%		60-130	18-DEC-18
1,2-Dibromoethane			113.3		%		70-130	18-DEC-18
1,2-Dichlorobenzene			111.8		%		70-130	18-DEC-18
1,2-Dichloroethane			120.9		%		60-130	18-DEC-18
1,2-Dichloropropane			113.6		%		70-130	18-DEC-18
1,3-Dichlorobenzene			109.7		%		70-130	18-DEC-18
1,4-Dichlorobenzene			109.3		%		70-130	18-DEC-18
Acetone			110.5		%		60-140	18-DEC-18
Benzene			112.4		%		70-130	18-DEC-18
Bromodichloromethane			117.4		%		50-140	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-2 LCS								
Bromoform			114.9		%		70-130	18-DEC-18
Bromomethane			113.2		%		50-140	18-DEC-18
Carbon tetrachloride			109.8		%		70-130	18-DEC-18
Chlorobenzene			109.9		%		70-130	18-DEC-18
Chloroform			113.8		%		70-130	18-DEC-18
cis-1,2-Dichloroethylene			113.3		%		70-130	18-DEC-18
cis-1,3-Dichloropropene			116.8		%		70-130	18-DEC-18
Dibromochloromethane			112.4		%		60-130	18-DEC-18
Dichlorodifluoromethane			73.9		%		50-140	18-DEC-18
Ethylbenzene			98.8		%		70-130	18-DEC-18
n-Hexane			93.3		%		70-130	18-DEC-18
Methylene Chloride			120.0		%		70-130	18-DEC-18
MTBE			106.5		%		70-130	18-DEC-18
m+p-Xylenes			103.1		%		70-130	18-DEC-18
Methyl Ethyl Ketone			101.4		%		60-140	18-DEC-18
Methyl Isobutyl Ketone			91.7		%		60-140	18-DEC-18
o-Xylene			100.1		%		70-130	18-DEC-18
Styrene			102.5		%		70-130	18-DEC-18
Tetrachloroethylene			108.1		%		60-130	18-DEC-18
Toluene			103.7		%		70-130	18-DEC-18
trans-1,2-Dichloroethylene			112.2		%		60-130	18-DEC-18
trans-1,3-Dichloropropene			105.9		%		70-130	18-DEC-18
Trichloroethylene			114.2		%		60-130	18-DEC-18
Trichlorofluoromethane			103.3		%		50-140	18-DEC-18
Vinyl chloride			80.6		%		60-140	18-DEC-18
WG2955352-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1-Dichloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	18-DEC-18
1,2-Dibromoethane			<0.050		ug/g		0.05	18-DEC-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-1 MB								
1,2-Dichloroethane			<0.050		ug/g		0.05	18-DEC-18
1,2-Dichloropropane			<0.050		ug/g		0.05	18-DEC-18
1,3-Dichlorobenzene			<0.050		ug/g		0.05	18-DEC-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	18-DEC-18
Acetone			<0.50		ug/g		0.5	18-DEC-18
Benzene			<0.0068		ug/g		0.0068	18-DEC-18
Bromodichloromethane			<0.050		ug/g		0.05	18-DEC-18
Bromoform			<0.050		ug/g		0.05	18-DEC-18
Bromomethane			<0.050		ug/g		0.05	18-DEC-18
Carbon tetrachloride			<0.050		ug/g		0.05	18-DEC-18
Chlorobenzene			<0.050		ug/g		0.05	18-DEC-18
Chloroform			<0.050		ug/g		0.05	18-DEC-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	18-DEC-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	18-DEC-18
Dibromochloromethane			<0.050		ug/g		0.05	18-DEC-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	18-DEC-18
Ethylbenzene			<0.018		ug/g		0.018	18-DEC-18
n-Hexane			<0.050		ug/g		0.05	18-DEC-18
Methylene Chloride			<0.050		ug/g		0.05	18-DEC-18
MTBE			<0.050		ug/g		0.05	18-DEC-18
m+p-Xylenes			<0.030		ug/g		0.03	18-DEC-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	18-DEC-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	18-DEC-18
o-Xylene			<0.020		ug/g		0.02	18-DEC-18
Styrene			<0.050		ug/g		0.05	18-DEC-18
Tetrachloroethylene			<0.050		ug/g		0.05	18-DEC-18
Toluene			<0.080		ug/g		0.08	18-DEC-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	18-DEC-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	18-DEC-18
Trichloroethylene			<0.010		ug/g		0.01	18-DEC-18
Trichlorofluoromethane			<0.050		ug/g		0.05	18-DEC-18
Vinyl chloride			<0.020		ug/g		0.02	18-DEC-18
Surrogate: 1,4-Difluorobenzene			121.8		%		50-140	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-1 MB								
Surrogate: 4-Bromofluorobenzene			107.6		%		50-140	18-DEC-18
WG2955352-5 MS		**L2211036-2**						
1,1,1,2-Tetrachloroethane			115.8		%		50-140	18-DEC-18
1,1,2,2-Tetrachloroethane			128.7		%		50-140	18-DEC-18
1,1,1-Trichloroethane			120.3		%		50-140	18-DEC-18
1,1,2-Trichloroethane			123.4		%		50-140	18-DEC-18
1,1-Dichloroethane			120.5		%		50-140	18-DEC-18
1,1-Dichloroethylene			113.9		%		50-140	18-DEC-18
1,2-Dibromoethane			124.1		%		50-140	18-DEC-18
1,2-Dichlorobenzene			120.2		%		50-140	18-DEC-18
1,2-Dichloroethane			131.7		%		50-140	18-DEC-18
1,2-Dichloropropane			122.8		%		50-140	18-DEC-18
1,3-Dichlorobenzene			117.7		%		50-140	18-DEC-18
1,4-Dichlorobenzene			117.9		%		50-140	18-DEC-18
Acetone			122.3		%		50-140	18-DEC-18
Benzene			121.6		%		50-140	18-DEC-18
Bromodichloromethane			127.6		%		50-140	18-DEC-18
Bromoform			124.7		%		50-140	18-DEC-18
Bromomethane			119.2		%		50-140	18-DEC-18
Carbon tetrachloride			118.0		%		50-140	18-DEC-18
Chlorobenzene			118.1		%		50-140	18-DEC-18
Chloroform			123.1		%		50-140	18-DEC-18
cis-1,2-Dichloroethylene			121.9		%		50-140	18-DEC-18
cis-1,3-Dichloropropene			120.8		%		50-140	18-DEC-18
Dibromochloromethane			121.7		%		50-140	18-DEC-18
Dichlorodifluoromethane			70.4		%		50-140	18-DEC-18
Ethylbenzene			105.6		%		50-140	18-DEC-18
n-Hexane			99.7		%		50-140	18-DEC-18
Methylene Chloride			130.3		%		50-140	18-DEC-18
MTBE			114.1		%		50-140	18-DEC-18
m+p-Xylenes			110.2		%		50-140	18-DEC-18
Methyl Ethyl Ketone			104.3		%		50-140	18-DEC-18
Methyl Isobutyl Ketone			101.3		%		50-140	18-DEC-18
o-Xylene			107.3		%		50-140	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-5 MS		**L2211036-2**						
Styrene			109.8		%		50-140	18-DEC-18
Tetrachloroethylene			115.9		%		50-140	18-DEC-18
Toluene			111.4		%		50-140	18-DEC-18
trans-1,2-Dichloroethylene			120.9		%		50-140	18-DEC-18
trans-1,3-Dichloropropene			109.0		%		50-140	18-DEC-18
Trichloroethylene			122.9		%		50-140	18-DEC-18
Trichlorofluoromethane			110.4		%		50-140	18-DEC-18
Vinyl chloride			86.0		%		50-140	18-DEC-18

Quality Control Report

Workorder: L2211036 Report Date: 20-DEC-18

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

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.

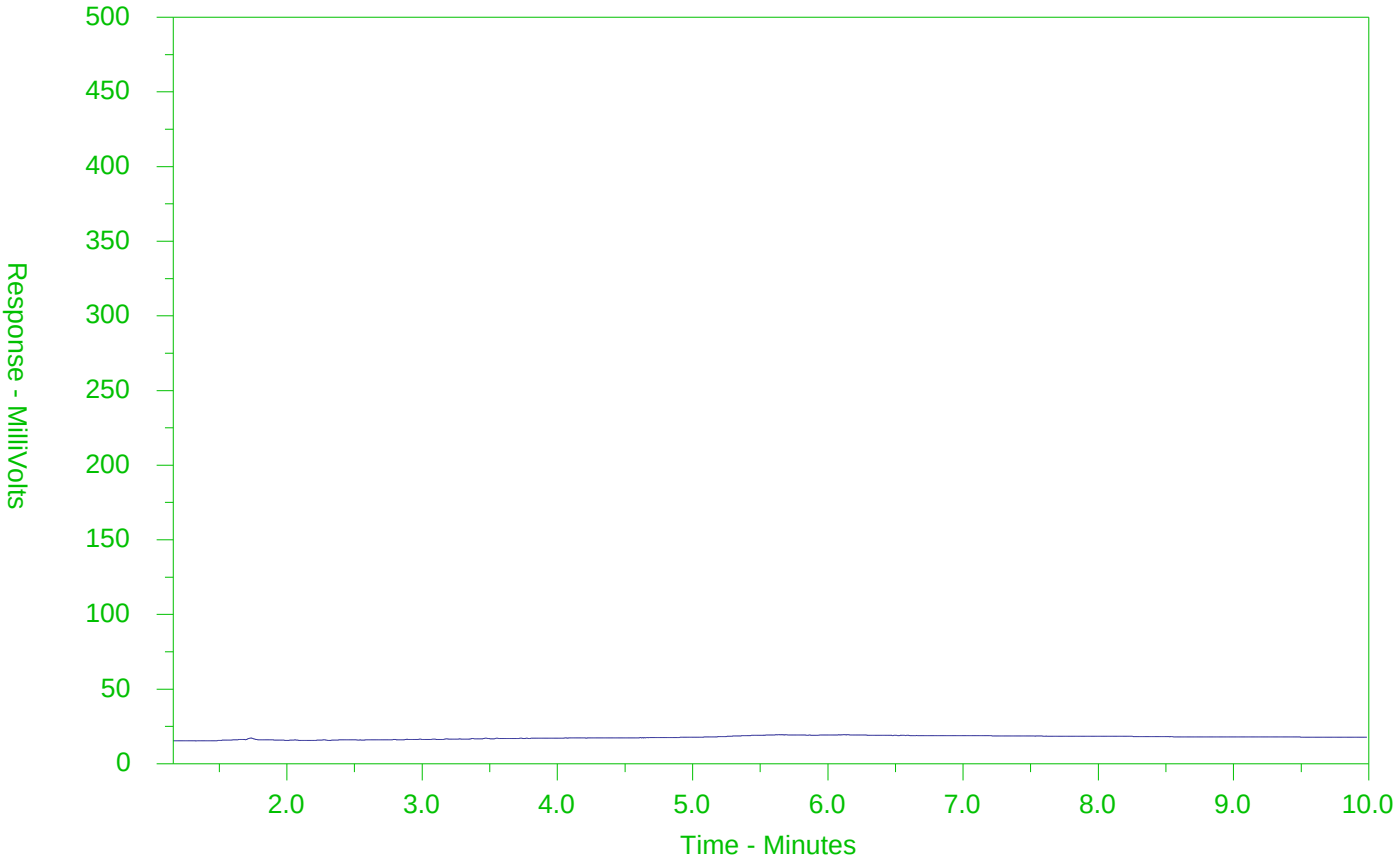
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2211036-4
Client Sample ID: BH99



←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

L2211036-COFC

COC Number: 17 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	McIntosh Perry - 23229
Contact:	Bradley Sutherland
Phone:	613-836-2184
	Company address below will appear on the final report
Street:	115 Walgreen Road RR3
City/Province:	Carp, ON
Postal Code:	K0A 1L0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
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	b.sutherland@mcintoshperry.com
Email 2	
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	b.sutherland@mcintoshperry.com
Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q71138	AFE/Cost Center:	PO#
Job #:	CP-17-0635	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2211036 ISA

ALS Contact: Melanie M. Sampler:

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

NUMBER OF CONTAINERS

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	VOC / BTEX / F1-F4 (VOC-R511, F1-F4-P-WT)	Reg.153 Metals & Inorganics (R511-INORGANICS-P-WT)	PAHs (PAH-511-WT)	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
1	BH1	13-Dec-18	10:00am	Soil	X	X	X		
2	BH2	↓	1:00pm		X	X	X		
3	BH3		3:00 pm		X	X	X		
4	BH99		3:30pm	↓	X	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? ☐ 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			
7.4				8.7°C	7.5		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by: Tammy Andrew	Date: DEC 14th 2018	Time: 1:30	Received by:	Date: 14/Dec/2018	Time: 10:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 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**.

McIntosh Perry Engineering Consultants (Ottawa)
ATTN: Bradley Sutherland
115 Walgreen Road RR3
Carp ON K0A 1L0

Date Received: 17-DEC-18
Report Date: 24-DEC-18 09:45 (MT)
Version: FINAL

Client Phone: 613-836-2184

Certificate of Analysis

Lab Work Order #: L2211815

Project P.O. #: NOT SUBMITTED
Job Reference: CP-17-0635
C of C Numbers:
Legal Site Desc:

Melanie Moshi
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211815-1 MW-18-2 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:30 Matrix: WATER							
Physical Tests							
Conductivity	0.516		0.0030	mS/cm		19-DEC-18	R4405188
pH	7.95		0.10	pH units		19-DEC-18	R4405188
Anions and Nutrients							
Chloride (Cl)	60.7		0.50	mg/L		19-DEC-18	R4406767
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L		21-DEC-18	R4406810
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD					19-DEC-18	R4402078
Dissolved Metals Filtration Location	FIELD					19-DEC-18	R4401709
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Arsenic (As)-Dissolved	0.49		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Barium (Ba)-Dissolved	129		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Boron (B)-Dissolved	73		10	ug/L	19-DEC-18	19-DEC-18	R4404611
Cadmium (Cd)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Cobalt (Co)-Dissolved	0.21		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Copper (Cu)-Dissolved	<0.20		0.20	ug/L	19-DEC-18	19-DEC-18	R4404611
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Mercury (Hg)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4402771
Molybdenum (Mo)-Dissolved	1.80		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Nickel (Ni)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Selenium (Se)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Sodium (Na)-Dissolved	14900		500	ug/L	19-DEC-18	19-DEC-18	R4404611
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Uranium (U)-Dissolved	0.369		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Vanadium (V)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Zinc (Zn)-Dissolved	<1.0		1.0	ug/L	19-DEC-18	19-DEC-18	R4404611
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L		19-DEC-18	R4403350
Volatile Organic Compounds							
Acetone	<30	OWP	30	ug/L		19-DEC-18	R4402010
Benzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Bromodichloromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Bromoform	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
Bromomethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Carbon tetrachloride	<0.20	OWP	0.20	ug/L		19-DEC-18	R4402010
Chlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Dibromochloromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Chloroform	<1.0	OWP	1.0	ug/L		19-DEC-18	R4402010
1,2-Dibromoethane	<0.20	OWP	0.20	ug/L		19-DEC-18	R4402010

* 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
L2211815-1 MW-18-2 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:30 Matrix: WATER							
Volatile Organic Compounds							
1,2-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,3-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,4-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Dichlorodifluoromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
1,1-Dichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,2-Dichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
cis-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
trans-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Methylene Chloride	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
1,2-Dichloropropane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
cis-1,3-Dichloropropene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
trans-1,3-Dichloropropene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		19-DEC-18	
Ethylbenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
n-Hexane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Methyl Ethyl Ketone	<20	OWP	20	ug/L		19-DEC-18	R4402010
Methyl Isobutyl Ketone	<20	OWP	20	ug/L		19-DEC-18	R4402010
MTBE	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Styrene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,1,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,2,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Tetrachloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Toluene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,1-Trichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,2-Trichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Trichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Trichlorofluoromethane	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
Vinyl chloride	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
o-Xylene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
m+p-Xylenes	<0.40	OWP	0.40	ug/L		19-DEC-18	R4402010
Xylenes (Total)	<0.50		0.50	ug/L		19-DEC-18	
Surrogate: 4-Bromofluorobenzene	95.9		70-130	%		19-DEC-18	R4402010
Surrogate: 1,4-Difluorobenzene	98.6		70-130	%		19-DEC-18	R4402010
Hydrocarbons							
F1 (C6-C10)	<25	OWP	25	ug/L		19-DEC-18	R4402010
F1-BTEX	<25		25	ug/L		20-DEC-18	
F2 (C10-C16)	610		100	ug/L	18-DEC-18	19-DEC-18	R4404448
F2-Naphth	610		100	ug/L		20-DEC-18	
F3 (C16-C34)	870		250	ug/L	18-DEC-18	19-DEC-18	R4404448
F3-PAH	870		250	ug/L		20-DEC-18	

* 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
L2211815-1 MW-18-2 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:30 Matrix: WATER							
Hydrocarbons							
F4 (C34-C50)	<250		250	ug/L	18-DEC-18	19-DEC-18	R4404448
Total Hydrocarbons (C6-C50)	1480		370	ug/L		20-DEC-18	
Chrom. to baseline at nC50	YES				18-DEC-18	19-DEC-18	R4404448
Surrogate: 2-Bromobenzotrifluoride	106.8		60-140	%	18-DEC-18	19-DEC-18	R4404448
Surrogate: 3,4-Dichlorotoluene	75.7		60-140	%		19-DEC-18	R4402010
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	0.182		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Acenaphthylene	0.070		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Anthracene	0.123		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(a)anthracene	0.048		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(a)pyrene	0.039		0.010	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(b)fluoranthene	0.060		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(g,h,i)perylene	0.091		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(k)fluoranthene	<0.020		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Chrysene	0.069		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Fluoranthene	0.251		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Fluorene	0.420		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Indeno(1,2,3-cd)pyrene	0.035		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
1+2-Methylnaphthalenes	2.88		0.028	ug/L		20-DEC-18	
1-Methylnaphthalene	1.65		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
2-Methylnaphthalene	1.22		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Naphthalene	0.187	R	0.050	ug/L	18-DEC-18	20-DEC-18	R4406969
Phenanthrene	1.50		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Pyrene	0.363		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Surrogate: d10-Acenaphthene	112.1		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d12-Chrysene	102.5		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d8-Naphthalene	101.2		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d10-Phenanthrene	121.5		60-140	%	18-DEC-18	20-DEC-18	R4406969
L2211815-2 MW-18-3 Sampled By: JUSTIN C. on 17-DEC-18 @ 13:00 Matrix: WATER							
Physical Tests							
Conductivity	1.77		0.0030	mS/cm		19-DEC-18	R4405188
pH	7.18		0.10	pH units		19-DEC-18	R4405188
Anions and Nutrients							
Chloride (Cl)	376		0.50	mg/L		19-DEC-18	R4406767
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L		21-DEC-18	R4406810
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD					19-DEC-18	R4402078
Dissolved Metals Filtration Location	FIELD					19-DEC-18	R4401709

* 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
L2211815-2 MW-18-3 Sampled By: JUSTIN C. on 17-DEC-18 @ 13:00 Matrix: WATER							
Dissolved Metals							
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Arsenic (As)-Dissolved	0.19		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Barium (Ba)-Dissolved	125		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Boron (B)-Dissolved	20		10	ug/L	19-DEC-18	19-DEC-18	R4404611
Cadmium (Cd)-Dissolved	0.026		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Cobalt (Co)-Dissolved	0.75		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Copper (Cu)-Dissolved	0.71		0.20	ug/L	19-DEC-18	19-DEC-18	R4404611
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Mercury (Hg)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4402771
Molybdenum (Mo)-Dissolved	0.370		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Nickel (Ni)-Dissolved	1.59		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Selenium (Se)-Dissolved	0.092		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Sodium (Na)-Dissolved	166000	DLHC	500	ug/L	19-DEC-18	19-DEC-18	R4404611
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Uranium (U)-Dissolved	1.17		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Vanadium (V)-Dissolved	1.15		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Zinc (Zn)-Dissolved	<1.0		1.0	ug/L	19-DEC-18	19-DEC-18	R4404611
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L		19-DEC-18	R4403350
Volatile Organic Compounds							
Acetone	<30	OWP	30	ug/L		19-DEC-18	R4402010
Benzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Bromodichloromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Bromoform	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
Bromomethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Carbon tetrachloride	<0.20	OWP	0.20	ug/L		19-DEC-18	R4402010
Chlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Dibromochloromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Chloroform	<1.0	OWP	1.0	ug/L		19-DEC-18	R4402010
1,2-Dibromoethane	<0.20	OWP	0.20	ug/L		19-DEC-18	R4402010
1,2-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,3-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,4-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Dichlorodifluoromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
1,1-Dichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,2-Dichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
cis-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010

* 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
L2211815-2 MW-18-3 Sampled By: JUSTIN C. on 17-DEC-18 @ 13:00 Matrix: WATER							
Volatile Organic Compounds							
trans-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Methylene Chloride	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
1,2-Dichloropropane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
cis-1,3-Dichloropropene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
trans-1,3-Dichloropropene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		19-DEC-18	
Ethylbenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
n-Hexane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Methyl Ethyl Ketone	<20	OWP	20	ug/L		19-DEC-18	R4402010
Methyl Isobutyl Ketone	<20	OWP	20	ug/L		19-DEC-18	R4402010
MTBE	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Styrene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,1,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,2,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Tetrachloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Toluene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,1-Trichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,2-Trichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Trichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Trichlorofluoromethane	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
Vinyl chloride	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
o-Xylene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
m+p-Xylenes	<0.40	OWP	0.40	ug/L		19-DEC-18	R4402010
Xylenes (Total)	<0.50		0.50	ug/L		19-DEC-18	
Surrogate: 4-Bromofluorobenzene	96.1		70-130	%		19-DEC-18	R4402010
Surrogate: 1,4-Difluorobenzene	98.5		70-130	%		19-DEC-18	R4402010
Hydrocarbons							
F1 (C6-C10)	<25	OWP	25	ug/L		19-DEC-18	R4402010
F1-BTEX	<25		25	ug/L		21-DEC-18	
F2 (C10-C16)	<100		100	ug/L	18-DEC-18	19-DEC-18	R4404448
F2-Naphth	<100		100	ug/L		21-DEC-18	
F3 (C16-C34)	280		250	ug/L	18-DEC-18	19-DEC-18	R4404448
F3-PAH	280		250	ug/L		21-DEC-18	
F4 (C34-C50)	<250		250	ug/L	18-DEC-18	19-DEC-18	R4404448
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-DEC-18	
Chrom. to baseline at nC50	YES				18-DEC-18	19-DEC-18	R4404448
Surrogate: 2-Bromobenzotrifluoride	102.3		60-140	%	18-DEC-18	19-DEC-18	R4404448
Surrogate: 3,4-Dichlorotoluene	85.7		60-140	%		19-DEC-18	R4402010
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	0.043		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Acenaphthylene	<0.020		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969

* 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
L2211815-2 MW-18-3 Sampled By: JUSTIN C. on 17-DEC-18 @ 13:00 Matrix: WATER							
Polycyclic Aromatic Hydrocarbons							
Anthracene	0.022		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(a)anthracene	0.023		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(a)pyrene	0.021		0.010	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(b)fluoranthene	0.032		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(g,h,i)perylene	0.054		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(k)fluoranthene	<0.020		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Chrysene	0.032		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Fluoranthene	0.089		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Fluorene	0.067		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
1+2-Methylnaphthalenes	0.397		0.028	ug/L		21-DEC-18	
1-Methylnaphthalene	0.215		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
2-Methylnaphthalene	0.183		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Naphthalene	<0.050		0.050	ug/L	18-DEC-18	21-DEC-18	R4406969
Phenanthrene	0.233		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Pyrene	0.137		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Surrogate: d10-Acenaphthene	105.6		60-140	%	18-DEC-18	21-DEC-18	R4406969
Surrogate: d12-Chrysene	109.8		60-140	%	18-DEC-18	21-DEC-18	R4406969
Surrogate: d8-Naphthalene	103.4		60-140	%	18-DEC-18	21-DEC-18	R4406969
Surrogate: d10-Phenanthrene	112.0		60-140	%	18-DEC-18	21-DEC-18	R4406969
L2211815-3 MW-18-1 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:40 Matrix: WATER							
Physical Tests							
Conductivity	2.34		0.0030	mS/cm		19-DEC-18	R4405188
pH	7.22		0.10	pH units		19-DEC-18	R4405188
Anions and Nutrients							
Chloride (Cl)	566		0.50	mg/L		19-DEC-18	R4406767
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L		21-DEC-18	R4406810
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD					19-DEC-18	R4402078
Dissolved Metals Filtration Location	FIELD					19-DEC-18	R4401709
Antimony (Sb)-Dissolved	0.24		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Arsenic (As)-Dissolved	0.14		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Barium (Ba)-Dissolved	339		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Boron (B)-Dissolved	17		10	ug/L	19-DEC-18	19-DEC-18	R4404611
Cadmium (Cd)-Dissolved	0.023		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Cobalt (Co)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611

* 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
L2211815-3 MW-18-1 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:40 Matrix: WATER							
Dissolved Metals							
Copper (Cu)-Dissolved	1.01		0.20	ug/L	19-DEC-18	19-DEC-18	R4404611
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Mercury (Hg)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4402771
Molybdenum (Mo)-Dissolved	0.364		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Nickel (Ni)-Dissolved	0.91		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Selenium (Se)-Dissolved	0.363		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Sodium (Na)-Dissolved	182000	DLHC	500	ug/L	19-DEC-18	19-DEC-18	R4404611
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Uranium (U)-Dissolved	1.24		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Vanadium (V)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Zinc (Zn)-Dissolved	4.9		1.0	ug/L	19-DEC-18	19-DEC-18	R4404611
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L		19-DEC-18	R4403350
Volatile Organic Compounds							
Acetone	<30		30	ug/L		19-DEC-18	R4402010
Benzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Bromodichloromethane	<2.0		2.0	ug/L		19-DEC-18	R4402010
Bromoform	<5.0		5.0	ug/L		19-DEC-18	R4402010
Bromomethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
Carbon tetrachloride	<0.20		0.20	ug/L		19-DEC-18	R4402010
Chlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Dibromochloromethane	<2.0		2.0	ug/L		19-DEC-18	R4402010
Chloroform	<1.0		1.0	ug/L		19-DEC-18	R4402010
1,2-Dibromoethane	<0.20		0.20	ug/L		19-DEC-18	R4402010
1,2-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,3-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,4-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Dichlorodifluoromethane	<2.0		2.0	ug/L		19-DEC-18	R4402010
1,1-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,2-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Methylene Chloride	<5.0		5.0	ug/L		19-DEC-18	R4402010
1,2-Dichloropropane	<0.50		0.50	ug/L		19-DEC-18	R4402010
cis-1,3-Dichloropropene	<0.30		0.30	ug/L		19-DEC-18	R4402010
trans-1,3-Dichloropropene	<0.30		0.30	ug/L		19-DEC-18	R4402010
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		19-DEC-18	
Ethylbenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
n-Hexane	<0.50		0.50	ug/L		19-DEC-18	R4402010

* 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
L2211815-3 MW-18-1 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:40 Matrix: WATER							
Volatile Organic Compounds							
Methyl Ethyl Ketone	<20		20	ug/L		19-DEC-18	R4402010
Methyl Isobutyl Ketone	<20		20	ug/L		19-DEC-18	R4402010
MTBE	<2.0		2.0	ug/L		19-DEC-18	R4402010
Styrene	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
Tetrachloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Toluene	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1,1-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1,2-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
Trichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Trichlorofluoromethane	<5.0		5.0	ug/L		19-DEC-18	R4402010
Vinyl chloride	<0.50		0.50	ug/L		19-DEC-18	R4402010
o-Xylene	<0.30		0.30	ug/L		19-DEC-18	R4402010
m+p-Xylenes	<0.40		0.40	ug/L		19-DEC-18	R4402010
Xylenes (Total)	<0.50		0.50	ug/L		19-DEC-18	
Surrogate: 4-Bromofluorobenzene	96.7		70-130	%		19-DEC-18	R4402010
Surrogate: 1,4-Difluorobenzene	97.8		70-130	%		19-DEC-18	R4402010
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L		19-DEC-18	R4402010
F1-BTEX	<25		25	ug/L		20-DEC-18	
F2 (C10-C16)	270		100	ug/L	19-DEC-18	20-DEC-18	R4407171
F2-Naphth	270		100	ug/L		20-DEC-18	
F3 (C16-C34)	460		250	ug/L	19-DEC-18	20-DEC-18	R4407171
F3-PAH	450		250	ug/L		20-DEC-18	
F4 (C34-C50)	370		250	ug/L	19-DEC-18	20-DEC-18	R4407171
Total Hydrocarbons (C6-C50)	1090		370	ug/L		20-DEC-18	
Chrom. to baseline at nC50	YES				19-DEC-18	20-DEC-18	R4407171
Surrogate: 2-Bromobenzotrifluoride	100.3		60-140	%	19-DEC-18	20-DEC-18	R4407171
Surrogate: 3,4-Dichlorotoluene	87.3		60-140	%		19-DEC-18	R4402010
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	0.117	R	0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Acenaphthylene	0.054		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Anthracene	0.099		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(a)anthracene	0.216		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(a)pyrene	0.196		0.010	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(b)fluoranthene	0.280		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(g,h,i)perylene	0.186		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(k)fluoranthene	0.089		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Chrysene	0.185		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Dibenzo(ah)anthracene	0.039		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969

* 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
L2211815-3 MW-18-1 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:40 Matrix: WATER							
Polycyclic Aromatic Hydrocarbons							
Fluoranthene	0.376		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Fluorene	0.164		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Indeno(1,2,3-cd)pyrene	0.185		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
1+2-Methylnaphthalenes	3.10		0.028	ug/L		20-DEC-18	
1-Methylnaphthalene	1.68		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
2-Methylnaphthalene	1.42		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Naphthalene	0.804		0.050	ug/L	18-DEC-18	20-DEC-18	R4406969
Phenanthrene	0.483		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Pyrene	0.435		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Surrogate: d10-Acenaphthene	111.2		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d12-Chrysene	103.4		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d8-Naphthalene	99.8		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d10-Phenanthrene	117.2		60-140	%	18-DEC-18	20-DEC-18	R4406969

* 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	L2211815-1, -2, -3
Matrix Spike	Boron (B)-Dissolved	MS-B	L2211815-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2211815-1, -2, -3

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.
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.
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**
CL-IC-N-WT	Water	Chloride by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

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

CN-WAD-R511-WT	Water	Cyanide (WAD)-O.Reg 153/04	APHA 4500CN I-Weak acid Dist Colorimet

Weak acid dissociable cyanide (WAD) is determined by undergoing a distillation procedure. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

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

CR-CR6-IC-R511-WT	Water	Hex Chrom-O.Reg 153/04 (July 2011)	EPA 7199

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

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

EC-R511-WT	Water	Conductivity-O.Reg 153/04 (July 2011)	APHA 2510 B

Water samples can be measured directly by immersing the conductivity cell into the sample.

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

F1-F4-511-CALC-WT	Water	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-L

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

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

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

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
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).

Reference Information

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.

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:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid 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: L2211815 Report Date: 24-DEC-18

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R4406767								
WG2957443-20 DUP		**WG2957443-18**						
Chloride (Cl)		60.0	60.6		mg/L	1.1	20	19-DEC-18
WG2957443-17 LCS								
Chloride (Cl)			101.7		%		90-110	19-DEC-18
WG2957443-16 MB								
Chloride (Cl)			<0.50		mg/L		0.5	19-DEC-18
WG2957443-19 MS		**WG2957443-18**						
Chloride (Cl)			96.7		%		75-125	19-DEC-18
CN-WAD-R511-WT	**Water**							
Batch R4406810								
WG2957270-3 DUP		**L2211815-1**						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	21-DEC-18
WG2957270-2 LCS								
Cyanide, Weak Acid Diss			106.9		%		80-120	21-DEC-18
WG2957270-1 MB								
Cyanide, Weak Acid Diss			<2.0		ug/L		2	21-DEC-18
WG2957270-4 MS		**L2211815-1**						
Cyanide, Weak Acid Diss			80.0		%		75-125	21-DEC-18
CR-CR6-IC-R511-WT	**Water**							
Batch R4403350								
WG2957306-4 DUP		**WG2957306-3**						
Chromium, Hexavalent		18.7	18.3		ug/L	1.9	20	19-DEC-18
WG2957306-2 LCS								
Chromium, Hexavalent			94.4		%		80-120	19-DEC-18
WG2957306-1 MB								
Chromium, Hexavalent			<0.50		ug/L		0.5	19-DEC-18
WG2957306-5 MS		**WG2957306-3**						
Chromium, Hexavalent			91.3		%		70-130	19-DEC-18
EC-R511-WT	**Water**							
Batch R4405188								
WG2956997-8 DUP		**WG2956997-7**						
Conductivity		1.77	1.76		mS/cm	0.6	10	19-DEC-18
WG2956997-6 LCS								
Conductivity			97.0		%		90-110	19-DEC-18
WG2956997-5 MB								
Conductivity			<0.0030		mS/cm		0.003	19-DEC-18
F1-HS-511-WT	**Water**							

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Water**							
Batch R4402010								
WG2956099-4 DUP		**WG2956099-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	19-DEC-18
WG2956099-1 LCS								
F1 (C6-C10)			115.8		%		80-120	19-DEC-18
WG2956099-2 MB								
F1 (C6-C10)			<25		ug/L		25	19-DEC-18
Surrogate: 3,4-Dichlorotoluene			94.0		%		60-140	19-DEC-18
WG2956099-5 MS		**WG2956099-3**						
F1 (C6-C10)			91.2		%		60-140	19-DEC-18
F2-F4-511-WT	**Water**							
Batch R4404448								
WG2956871-2 LCS								
F2 (C10-C16)			111.5		%		70-130	19-DEC-18
F3 (C16-C34)			118.2		%		70-130	19-DEC-18
F4 (C34-C50)			120.1		%		70-130	19-DEC-18
WG2956871-3 LCSD		**WG2956871-2**						
F2 (C10-C16)		111.5	111.8		%	0.2	50	19-DEC-18
F3 (C16-C34)		118.2	114.3		%	3.4	50	19-DEC-18
F4 (C34-C50)		120.1	115.6		%	3.9	50	19-DEC-18
WG2956871-1 MB								
F2 (C10-C16)			<100		ug/L		100	19-DEC-18
F3 (C16-C34)			<250		ug/L		250	19-DEC-18
F4 (C34-C50)			<250		ug/L		250	19-DEC-18
Surrogate: 2-Bromobenzotrifluoride			103.6		%		60-140	19-DEC-18
Batch R4407171								
WG2957781-2 LCS								
F2 (C10-C16)			93.3		%		70-130	20-DEC-18
F3 (C16-C34)			95.2		%		70-130	20-DEC-18
F4 (C34-C50)			99.1		%		70-130	20-DEC-18
WG2957781-1 MB								
F2 (C10-C16)			<100		ug/L		100	20-DEC-18
F3 (C16-C34)			<250		ug/L		250	20-DEC-18
F4 (C34-C50)			<250		ug/L		250	20-DEC-18
Surrogate: 2-Bromobenzotrifluoride			99.0		%		60-140	20-DEC-18
HG-D-UG/L-CVAA-WT	**Water**							

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-D-UG/L-CVAA-WT	**Water**							
Batch R4402771								
WG2957104-3 DUP		**L2211936-1**						
Mercury (Hg)-Dissolved		<0.010	<0.010	RPD-NA	ug/L	N/A	20	19-DEC-18
WG2957104-2 LCS								
Mercury (Hg)-Dissolved			101.0		%		80-120	19-DEC-18
WG2957104-1 MB								
Mercury (Hg)-Dissolved			<0.010		ug/L		0.01	19-DEC-18
WG2957104-4 MS		**L2211936-2**						
Mercury (Hg)-Dissolved			91.1		%		70-130	19-DEC-18
MET-D-UG/L-MS-WT	**Water**							
Batch R4404611								
WG2956908-4 DUP		**WG2956908-3**						
Antimony (Sb)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Arsenic (As)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Barium (Ba)-Dissolved		147	149		ug/L	1.8	20	19-DEC-18
Beryllium (Be)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Boron (B)-Dissolved		140	140		ug/L	0.5	20	19-DEC-18
Cadmium (Cd)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	19-DEC-18
Chromium (Cr)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Cobalt (Co)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Copper (Cu)-Dissolved		2.8	2.3	J	ug/L	0.6	4	19-DEC-18
Lead (Pb)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	19-DEC-18
Molybdenum (Mo)-Dissolved		2.00	2.12		ug/L	6.2	20	19-DEC-18
Nickel (Ni)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Selenium (Se)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	19-DEC-18
Silver (Ag)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	19-DEC-18
Sodium (Na)-Dissolved		754000	756000		ug/L	0.2	20	19-DEC-18
Thallium (Tl)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	19-DEC-18
Uranium (U)-Dissolved		1.83	1.82		ug/L	0.3	20	19-DEC-18
Vanadium (V)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Zinc (Zn)-Dissolved		<10	<10	RPD-NA	ug/L	N/A	20	19-DEC-18
WG2956908-2 LCS								
Antimony (Sb)-Dissolved			101.6		%		80-120	19-DEC-18
Arsenic (As)-Dissolved			102.1		%		80-120	19-DEC-18
Barium (Ba)-Dissolved			103.1		%		80-120	19-DEC-18
Beryllium (Be)-Dissolved			95.8		%		80-120	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch	**R4404611**							
WG2956908-2	**LCS**							
Boron (B)-Dissolved			98.5		%		80-120	19-DEC-18
Cadmium (Cd)-Dissolved			101.3		%		80-120	19-DEC-18
Chromium (Cr)-Dissolved			98.5		%		80-120	19-DEC-18
Cobalt (Co)-Dissolved			97.6		%		80-120	19-DEC-18
Copper (Cu)-Dissolved			96.9		%		80-120	19-DEC-18
Lead (Pb)-Dissolved			99.8		%		80-120	19-DEC-18
Molybdenum (Mo)-Dissolved			101.9		%		80-120	19-DEC-18
Nickel (Ni)-Dissolved			97.8		%		80-120	19-DEC-18
Selenium (Se)-Dissolved			101.0		%		80-120	19-DEC-18
Silver (Ag)-Dissolved			102.1		%		80-120	19-DEC-18
Sodium (Na)-Dissolved			100.3		%		80-120	19-DEC-18
Thallium (Tl)-Dissolved			99.1		%		80-120	19-DEC-18
Uranium (U)-Dissolved			98.2		%		80-120	19-DEC-18
Vanadium (V)-Dissolved			101.0		%		80-120	19-DEC-18
Zinc (Zn)-Dissolved			97.8		%		80-120	19-DEC-18
WG2956908-1	**MB**							
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Boron (B)-Dissolved			<10		ug/L		10	19-DEC-18
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	19-DEC-18
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	19-DEC-18
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	19-DEC-18
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	19-DEC-18
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	19-DEC-18
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	19-DEC-18
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	19-DEC-18
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	19-DEC-18
Sodium (Na)-Dissolved			<50		ug/L		50	19-DEC-18
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	19-DEC-18
Uranium (U)-Dissolved			<0.010		ug/L		0.01	19-DEC-18
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4404611								
WG2956908-1 MB								
Zinc (Zn)-Dissolved			<1.0		ug/L		1	19-DEC-18
WG2956908-5 MS		**WG2956908-6**						
Antimony (Sb)-Dissolved			97.5		%		70-130	19-DEC-18
Arsenic (As)-Dissolved			101.3		%		70-130	19-DEC-18
Barium (Ba)-Dissolved			N/A	MS-B	%		-	19-DEC-18
Beryllium (Be)-Dissolved			97.9		%		70-130	19-DEC-18
Boron (B)-Dissolved			N/A	MS-B	%		-	19-DEC-18
Cadmium (Cd)-Dissolved			95.7		%		70-130	19-DEC-18
Chromium (Cr)-Dissolved			97.7		%		70-130	19-DEC-18
Cobalt (Co)-Dissolved			93.9		%		70-130	19-DEC-18
Copper (Cu)-Dissolved			89.3		%		70-130	19-DEC-18
Lead (Pb)-Dissolved			93.2		%		70-130	19-DEC-18
Molybdenum (Mo)-Dissolved			99.3		%		70-130	19-DEC-18
Nickel (Ni)-Dissolved			94.4		%		70-130	19-DEC-18
Selenium (Se)-Dissolved			90.3		%		70-130	19-DEC-18
Silver (Ag)-Dissolved			77.7		%		70-130	19-DEC-18
Sodium (Na)-Dissolved			N/A	MS-B	%		-	19-DEC-18
Thallium (Tl)-Dissolved			93.8		%		70-130	19-DEC-18
Uranium (U)-Dissolved			99.9		%		70-130	19-DEC-18
Vanadium (V)-Dissolved			102.5		%		70-130	19-DEC-18
Zinc (Zn)-Dissolved			89.4		%		70-130	19-DEC-18
PAH-511-WT	**Water**							
Batch R4406969								
WG2956871-2 LCS								
1-Methylnaphthalene			91.4		%		50-140	20-DEC-18
2-Methylnaphthalene			90.9		%		50-140	20-DEC-18
Acenaphthene			95.2		%		50-140	20-DEC-18
Acenaphthylene			98.9		%		50-140	20-DEC-18
Anthracene			97.7		%		50-140	20-DEC-18
Benzo(a)anthracene			106.3		%		50-140	20-DEC-18
Benzo(a)pyrene			89.4		%		50-140	20-DEC-18
Benzo(b)fluoranthene			87.6		%		50-140	20-DEC-18
Benzo(g,h,i)perylene			97.9		%		50-140	20-DEC-18
Benzo(k)fluoranthene			88.3		%		50-140	20-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4406969								
WG2956871-2 LCS								
Chrysene			94.6		%		50-140	20-DEC-18
Dibenzo(ah)anthracene			98.8		%		50-140	20-DEC-18
Fluoranthene			103.4		%		50-140	20-DEC-18
Fluorene			99.3		%		50-140	20-DEC-18
Indeno(1,2,3-cd)pyrene			110.2		%		50-140	20-DEC-18
Naphthalene			90.0		%		50-140	20-DEC-18
Phenanthrene			102.2		%		50-140	20-DEC-18
Pyrene			101.3		%		50-140	20-DEC-18
WG2956871-3 LCSD		**WG2956871-2**						
1-Methylnaphthalene		91.4	98.5		%	7.4	50	20-DEC-18
2-Methylnaphthalene		90.9	96.4		%	5.9	50	20-DEC-18
Acenaphthene		95.2	100.9		%	5.8	50	20-DEC-18
Acenaphthylene		98.9	103.8		%	4.9	50	20-DEC-18
Anthracene		97.7	98.6		%	0.9	50	20-DEC-18
Benzo(a)anthracene		106.3	112.0		%	5.2	50	20-DEC-18
Benzo(a)pyrene		89.4	99.0		%	10	50	20-DEC-18
Benzo(b)fluoranthene		87.6	93.4		%	6.5	50	20-DEC-18
Benzo(g,h,i)perylene		97.9	104.8		%	6.8	50	20-DEC-18
Benzo(k)fluoranthene		88.3	95.6		%	7.9	50	20-DEC-18
Chrysene		94.6	99.8		%	5.3	50	20-DEC-18
Dibenzo(ah)anthracene		98.8	104.8		%	5.9	50	20-DEC-18
Fluoranthene		103.4	108.8		%	5.1	50	20-DEC-18
Fluorene		99.3	104.4		%	5.0	50	20-DEC-18
Indeno(1,2,3-cd)pyrene		110.2	116.2		%	5.2	50	20-DEC-18
Naphthalene		90.0	95.5		%	6.0	50	20-DEC-18
Phenanthrene		102.2	106.9		%	4.5	50	20-DEC-18
Pyrene		101.3	106.2		%	4.8	50	20-DEC-18
WG2956871-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	20-DEC-18
2-Methylnaphthalene			<0.020		ug/L		0.02	20-DEC-18
Acenaphthene			<0.020		ug/L		0.02	20-DEC-18
Acenaphthylene			<0.020		ug/L		0.02	20-DEC-18
Anthracene			<0.020		ug/L		0.02	20-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4406969								
WG2956871-1 MB								
Benzo(a)anthracene			<0.020		ug/L		0.02	20-DEC-18
Benzo(a)pyrene			<0.010		ug/L		0.01	20-DEC-18
Benzo(b)fluoranthene			<0.020		ug/L		0.02	20-DEC-18
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	20-DEC-18
Benzo(k)fluoranthene			<0.020		ug/L		0.02	20-DEC-18
Chrysene			<0.020		ug/L		0.02	20-DEC-18
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	20-DEC-18
Fluoranthene			<0.020		ug/L		0.02	20-DEC-18
Fluorene			<0.020		ug/L		0.02	20-DEC-18
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	20-DEC-18
Naphthalene			<0.050		ug/L		0.05	20-DEC-18
Phenanthrene			<0.020		ug/L		0.02	20-DEC-18
Pyrene			<0.020		ug/L		0.02	20-DEC-18
Surrogate: d8-Naphthalene			104.8		%		60-140	20-DEC-18
Surrogate: d10-Phenanthrene			113.6		%		60-140	20-DEC-18
Surrogate: d12-Chrysene			107.8		%		60-140	20-DEC-18
Surrogate: d10-Acenaphthene			108.4		%		60-140	20-DEC-18
PH-WT	**Water**							
Batch R4405188								
WG2956997-8 DUP		**WG2956997-7**						
pH		7.18	7.18	J	pH units	0.00	0.2	19-DEC-18
WG2956997-6 LCS								
pH			7.00		pH units		6.9-7.1	19-DEC-18
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-4 DUP		**WG2956099-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-4 DUP		**WG2956099-3**						
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	19-DEC-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	19-DEC-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	19-DEC-18
cis-1,2-Dichloroethylene		3.17	3.10		ug/L	2.2	30	19-DEC-18
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	19-DEC-18
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	19-DEC-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	19-DEC-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	19-DEC-18
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	19-DEC-18
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	19-DEC-18
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	19-DEC-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	19-DEC-18
Trichloroethylene		5.85	5.85		ug/L	0.0	30	19-DEC-18
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
WG2956099-1 LCS								

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-1 LCS								
1,1,1,2-Tetrachloroethane			105.7		%		70-130	19-DEC-18
1,1,2,2-Tetrachloroethane			114.8		%		70-130	19-DEC-18
1,1,1-Trichloroethane			105.3		%		70-130	19-DEC-18
1,1,2-Trichloroethane			109.9		%		70-130	19-DEC-18
1,1-Dichloroethane			110.4		%		70-130	19-DEC-18
1,1-Dichloroethylene			105.5		%		70-130	19-DEC-18
1,2-Dibromoethane			109.4		%		70-130	19-DEC-18
1,2-Dichlorobenzene			110.6		%		70-130	19-DEC-18
1,2-Dichloroethane			111.0		%		70-130	19-DEC-18
1,2-Dichloropropane			109.2		%		70-130	19-DEC-18
1,3-Dichlorobenzene			109.0		%		70-130	19-DEC-18
1,4-Dichlorobenzene			109.8		%		70-130	19-DEC-18
Acetone			124.1		%		60-140	19-DEC-18
Benzene			113.3		%		70-130	19-DEC-18
Bromodichloromethane			109.6		%		70-130	19-DEC-18
Bromoform			106.1		%		70-130	19-DEC-18
Bromomethane			102.2		%		60-140	19-DEC-18
Carbon tetrachloride			105.9		%		70-130	19-DEC-18
Chlorobenzene			107.4		%		70-130	19-DEC-18
Chloroform			108.4		%		70-130	19-DEC-18
cis-1,2-Dichloroethylene			109.6		%		70-130	19-DEC-18
cis-1,3-Dichloropropene			109.1		%		70-130	19-DEC-18
Dibromochloromethane			107.2		%		70-130	19-DEC-18
Dichlorodifluoromethane			128.2		%		50-140	19-DEC-18
Ethylbenzene			97.6		%		70-130	19-DEC-18
n-Hexane			100.9		%		70-130	19-DEC-18
m+p-Xylenes			100.6		%		70-130	19-DEC-18
Methyl Ethyl Ketone			131.2		%		60-140	19-DEC-18
Methyl Isobutyl Ketone			134.5		%		60-140	19-DEC-18
Methylene Chloride			116.2		%		70-130	19-DEC-18
MTBE			110.8		%		70-130	19-DEC-18
o-Xylene			97.5		%		70-130	19-DEC-18
Styrene			100.3		%		70-130	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch	**R4402010**							
WG2956099-1	**LCS**							
Tetrachloroethylene			105.4		%		70-130	19-DEC-18
Toluene			101.0		%		70-130	19-DEC-18
trans-1,2-Dichloroethylene			108.0		%		70-130	19-DEC-18
trans-1,3-Dichloropropene			103.0		%		70-130	19-DEC-18
Trichloroethylene			111.1		%		70-130	19-DEC-18
Trichlorofluoromethane			107.5		%		60-140	19-DEC-18
Vinyl chloride			83.0		%		60-140	19-DEC-18
WG2956099-2	**MB**							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1-Dichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	19-DEC-18
1,2-Dibromoethane			<0.20		ug/L		0.2	19-DEC-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	19-DEC-18
1,2-Dichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,2-Dichloropropane			<0.50		ug/L		0.5	19-DEC-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	19-DEC-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	19-DEC-18
Acetone			<30		ug/L		30	19-DEC-18
Benzene			<0.50		ug/L		0.5	19-DEC-18
Bromodichloromethane			<2.0		ug/L		2	19-DEC-18
Bromoform			<5.0		ug/L		5	19-DEC-18
Bromomethane			<0.50		ug/L		0.5	19-DEC-18
Carbon tetrachloride			<0.20		ug/L		0.2	19-DEC-18
Chlorobenzene			<0.50		ug/L		0.5	19-DEC-18
Chloroform			<1.0		ug/L		1	19-DEC-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	19-DEC-18
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	19-DEC-18
Dibromochloromethane			<2.0		ug/L		2	19-DEC-18
Dichlorodifluoromethane			<2.0		ug/L		2	19-DEC-18
Ethylbenzene			<0.50		ug/L		0.5	19-DEC-18
n-Hexane			<0.50		ug/L		0.5	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-2 MB								
m+p-Xylenes			<0.40		ug/L		0.4	19-DEC-18
Methyl Ethyl Ketone			<20		ug/L		20	19-DEC-18
Methyl Isobutyl Ketone			<20		ug/L		20	19-DEC-18
Methylene Chloride			<5.0		ug/L		5	19-DEC-18
MTBE			<2.0		ug/L		2	19-DEC-18
o-Xylene			<0.30		ug/L		0.3	19-DEC-18
Styrene			<0.50		ug/L		0.5	19-DEC-18
Tetrachloroethylene			<0.50		ug/L		0.5	19-DEC-18
Toluene			<0.50		ug/L		0.5	19-DEC-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	19-DEC-18
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	19-DEC-18
Trichloroethylene			<0.50		ug/L		0.5	19-DEC-18
Trichlorofluoromethane			<5.0		ug/L		5	19-DEC-18
Vinyl chloride			<0.50		ug/L		0.5	19-DEC-18
Surrogate: 1,4-Difluorobenzene			98.8		%		70-130	19-DEC-18
Surrogate: 4-Bromofluorobenzene			96.9		%		70-130	19-DEC-18
WG2956099-5 MS		**WG2956099-3**						
1,1,1,2-Tetrachloroethane			104.6		%		50-140	19-DEC-18
1,1,2,2-Tetrachloroethane			109.7		%		50-140	19-DEC-18
1,1,1-Trichloroethane			106.1		%		50-140	19-DEC-18
1,1,2-Trichloroethane			104.9		%		50-140	19-DEC-18
1,1-Dichloroethane			109.2		%		50-140	19-DEC-18
1,1-Dichloroethylene			103.1		%		50-140	19-DEC-18
1,2-Dibromoethane			102.4		%		50-140	19-DEC-18
1,2-Dichlorobenzene			108.6		%		50-140	19-DEC-18
1,2-Dichloroethane			105.9		%		50-140	19-DEC-18
1,2-Dichloropropane			107.1		%		50-140	19-DEC-18
1,3-Dichlorobenzene			109.7		%		50-140	19-DEC-18
1,4-Dichlorobenzene			110.5		%		50-140	19-DEC-18
Acetone			112.6		%		50-140	19-DEC-18
Benzene			112.4		%		50-140	19-DEC-18
Bromodichloromethane			107.6		%		50-140	19-DEC-18
Bromoform			100.2		%		50-140	19-DEC-18
Bromomethane			95.3		%		50-140	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-5 MS		**WG2956099-3**						
Carbon tetrachloride			107.0		%		50-140	19-DEC-18
Chlorobenzene			107.5		%		50-140	19-DEC-18
Chloroform			108.2		%		50-140	19-DEC-18
cis-1,2-Dichloroethylene			108.5		%		50-140	19-DEC-18
cis-1,3-Dichloropropene			108.6		%		50-140	19-DEC-18
Dibromochloromethane			102.9		%		50-140	19-DEC-18
Dichlorodifluoromethane			102.6		%		50-140	19-DEC-18
Ethylbenzene			98.6		%		50-140	19-DEC-18
n-Hexane			96.5		%		50-140	19-DEC-18
m+p-Xylenes			102.3		%		50-140	19-DEC-18
Methyl Ethyl Ketone			108.6		%		50-140	19-DEC-18
Methyl Isobutyl Ketone			121.5		%		50-140	19-DEC-18
Methylene Chloride			112.8		%		50-140	19-DEC-18
MTBE			111.3		%		50-140	19-DEC-18
o-Xylene			97.8		%		50-140	19-DEC-18
Styrene			98.8		%		50-140	19-DEC-18
Tetrachloroethylene			109.2		%		50-140	19-DEC-18
Toluene			100.9		%		50-140	19-DEC-18
trans-1,2-Dichloroethylene			108.7		%		50-140	19-DEC-18
trans-1,3-Dichloropropene			101.2		%		50-140	19-DEC-18
Trichloroethylene			113.0		%		50-140	19-DEC-18
Trichlorofluoromethane			102.2		%		50-140	19-DEC-18
Vinyl chloride			75.1		%		50-140	19-DEC-18

Quality Control Report

Workorder: L2211815 Report Date: 24-DEC-18

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

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.

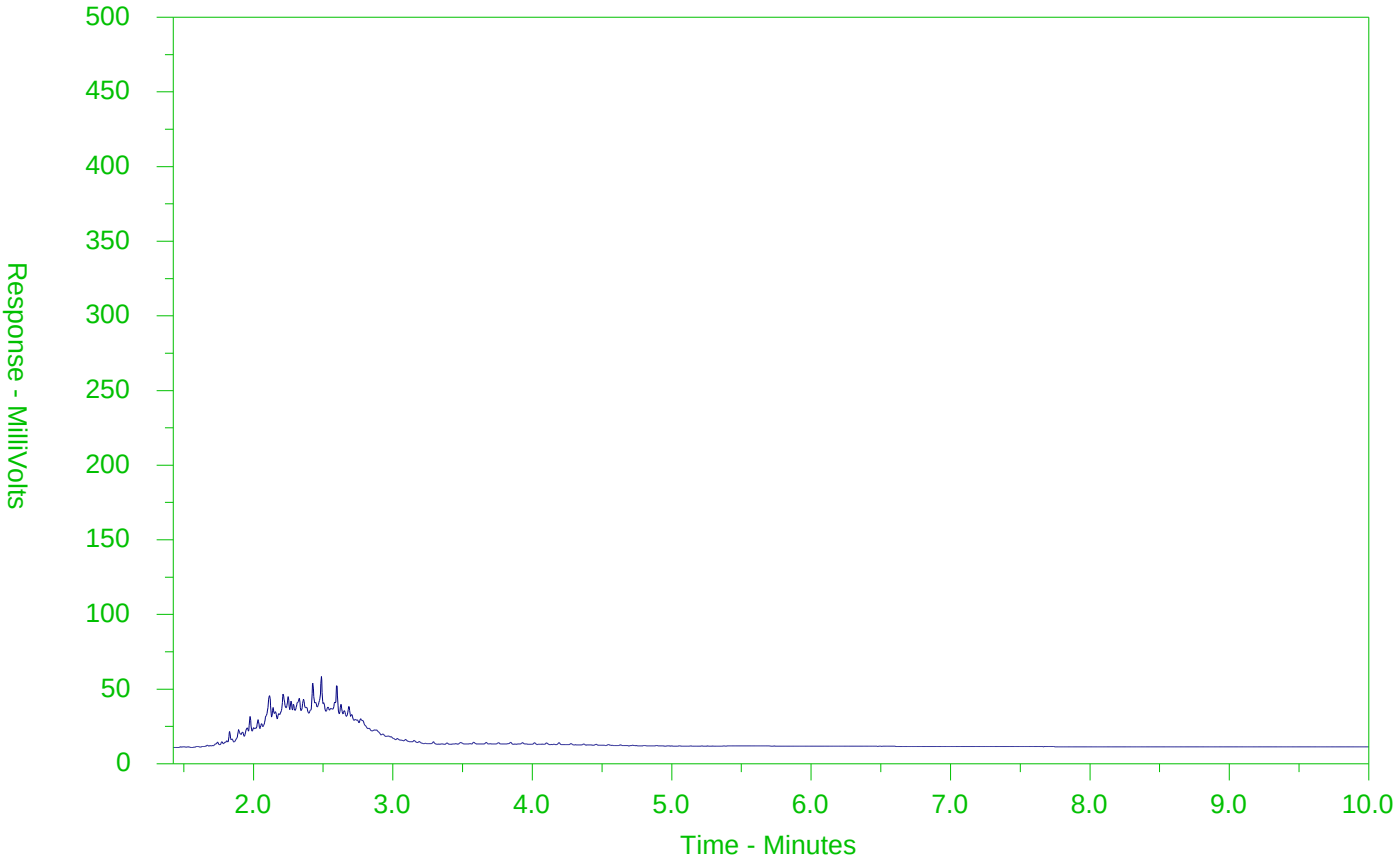
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2211815-1
Client Sample ID: MW-18-2



←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.

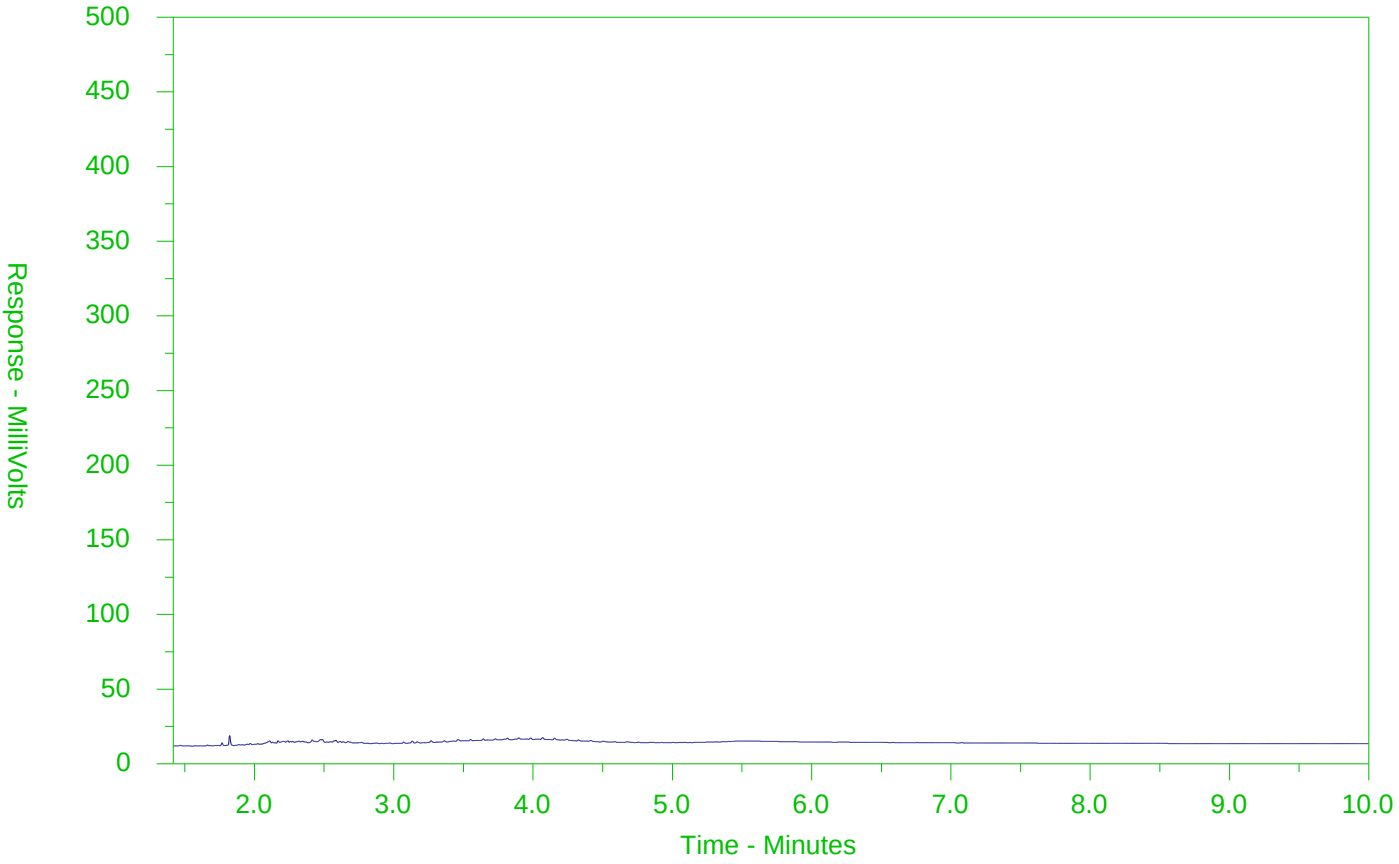
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2211815-2
Client Sample ID: MW-18-3



←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.

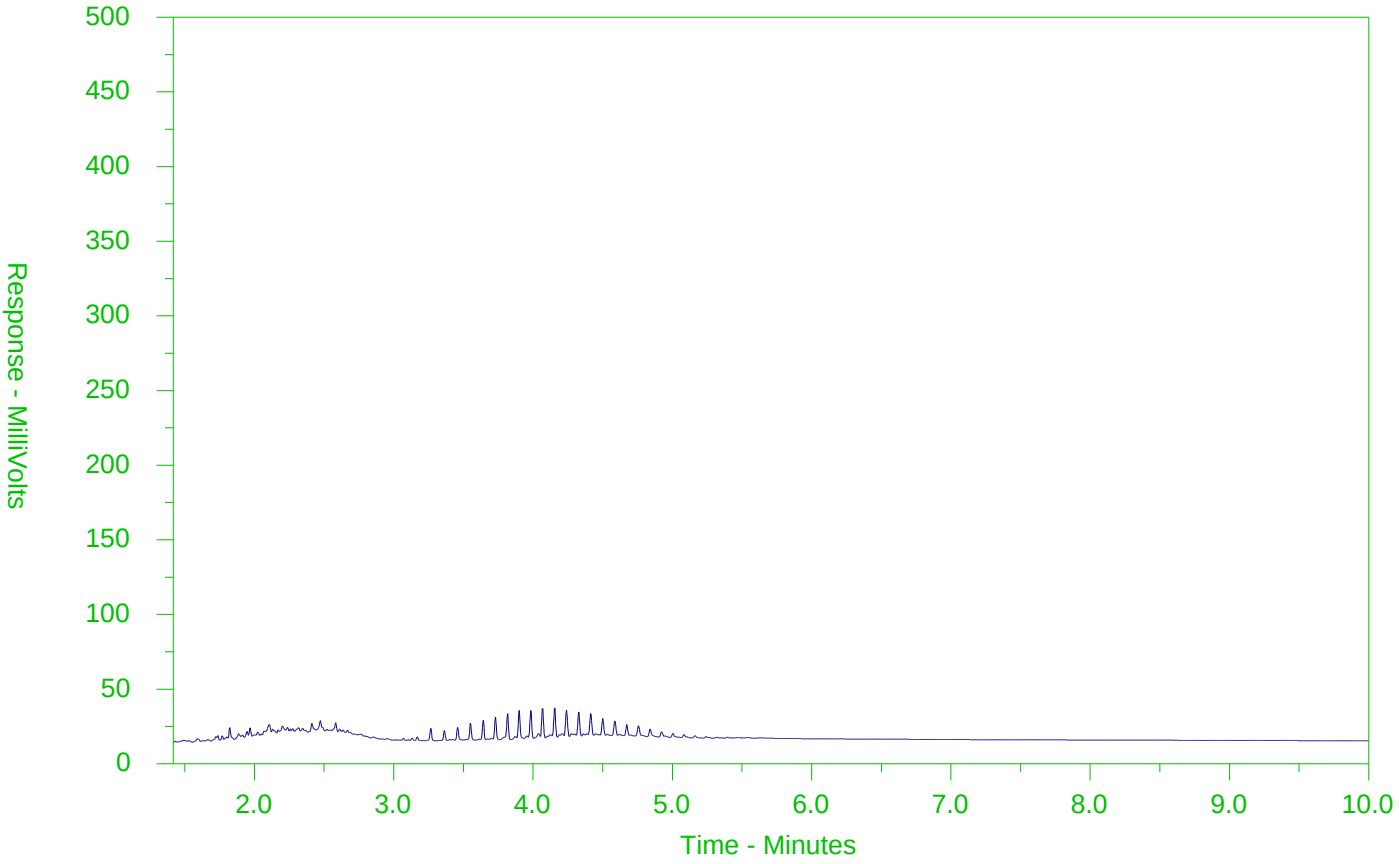
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2211815-3
Client Sample ID: MW-18-1



←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

L2211815-COFC

COC Number: 17 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	McIntosh Perry - 23229
Contact:	Bradley Sutherland
Phone:	613-836-2184
	Company address below will appear on the final report
Street:	115 Walgreen Road RR3
City/Province:	Carp, ON
Postal Code:	K0A 1L0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
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 b.sutherland@mcintoshperry.com
Email 2
Email 3

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax b.sutherland@mcintoshperry.com
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 [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.

Project Information

ALS Account # / Quote #:	Q71138
Job #:	CP-17-0635
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): L2211815

ALS Contact: Melanie M.

Sampler: Justin C.

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	VOC / BTEX / F1-F4 (VOC-R511_F1-F4-P-WT)	Reg.153 Metals & Inorganics (R511-INORGANICS-P-WT)	PAHs (PAH-511-WT)	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	~~MW-B1~~ BS	17-Dec-18 BS		Grab BS		X	X	X BS		
	MW-B2	17-Dec-18	12:30	GW		X	X	X		
	MW-B3	17-Dec-18	1:00	GW		X	X	X		
	MW-19-1	17-Dec-18	12:40	GW		X	X	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)

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			
9.4				2.8			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	Dec. 17 2018	1:58

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
Tammy Andrews	DEC 17th 2018	2:20

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
	Dec 18/2018	11:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 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.

McIntosh Perry Engineering Consultants (Ottawa)
ATTN: Bradley Sutherland
115 Walgreen Road RR3
Carp ON K0A 1L0

Date Received: 07-JAN-19
Report Date: 10-JAN-19 13:14 (MT)
Version: FINAL

Client Phone: 613-836-2184

Certificate of Analysis

Lab Work Order #: L2217373

Project P.O. #: NOT SUBMITTED
Job Reference: CP-17-0635
C of C Numbers:
Legal Site Desc:

Melanie Moshi
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2217373-1 MW18-1 Sampled By: CLIENT on 07-JAN-19 @ 14:00 Matrix: WATER							
Anions and Nutrients							
Chloride (Cl)	590	DLHC	2.5	mg/L		09-JAN-19	R4438367
Hydrocarbons							
F2 (C10-C16)	<100		100	ug/L	08-JAN-19	08-JAN-19	R4434207
F3 (C16-C34)	<250		250	ug/L	08-JAN-19	08-JAN-19	R4434207
F4 (C34-C50)	<250		250	ug/L	08-JAN-19	08-JAN-19	R4434207
Chrom. to baseline at nC50	YES				08-JAN-19	08-JAN-19	R4434207
Surrogate: 2-Bromobenzotrifluoride	78.7		60-140	%	08-JAN-19	08-JAN-19	R4434207
L2217373-2 MW18-2 Sampled By: CLIENT on 07-JAN-19 @ 14:15 Matrix: WATER							
Hydrocarbons							
F2 (C10-C16)	<100		100	ug/L	08-JAN-19	08-JAN-19	R4434207
F3 (C16-C34)	<250		250	ug/L	08-JAN-19	08-JAN-19	R4434207
F4 (C34-C50)	<250		250	ug/L	08-JAN-19	08-JAN-19	R4434207
Chrom. to baseline at nC50	YES				08-JAN-19	08-JAN-19	R4434207
Surrogate: 2-Bromobenzotrifluoride	83.9		60-140	%	08-JAN-19	08-JAN-19	R4434207
L2217373-3 MW18-3 Sampled By: CLIENT on 07-JAN-19 @ 15:00 Matrix: WATER							
Anions and Nutrients							
Chloride (Cl)	394	DLHC	2.5	mg/L		09-JAN-19	R4438367

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

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).

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.

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).

** 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: L2217373 Report Date: 10-JAN-19

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R4438367								
WG2966551-10 DUP		**L2217352-1**						
Chloride (Cl)		1.65	1.63		mg/L	1.4	20	09-JAN-19
WG2966551-7 LCS								
Chloride (Cl)			101.7		%		90-110	09-JAN-19
WG2966551-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	09-JAN-19
WG2966551-9 MS		**L2217352-1**						
Chloride (Cl)			106.3		%		75-125	09-JAN-19
F2-F4-511-WT	**Water**							
Batch R4434207								
WG2965658-2 LCS								
F2 (C10-C16)			102.0		%		70-130	08-JAN-19
F3 (C16-C34)			102.5		%		70-130	08-JAN-19
F4 (C34-C50)			105.1		%		70-130	08-JAN-19
WG2965658-3 LCSD		**WG2965658-2**						
F2 (C10-C16)		102.0	104.3		%	2.2	50	08-JAN-19
F3 (C16-C34)		102.5	103.9		%	1.3	50	08-JAN-19
F4 (C34-C50)		105.1	106.9		%	1.7	50	08-JAN-19
WG2965658-1 MB								
F2 (C10-C16)			<100		ug/L		100	08-JAN-19
F3 (C16-C34)			<250		ug/L		250	08-JAN-19
F4 (C34-C50)			<250		ug/L		250	08-JAN-19
Surrogate: 2-Bromobenzotrifluoride			81.1		%		60-140	08-JAN-19

Quality Control Report

Workorder: L2217373 Report Date: 10-JAN-19

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

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

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

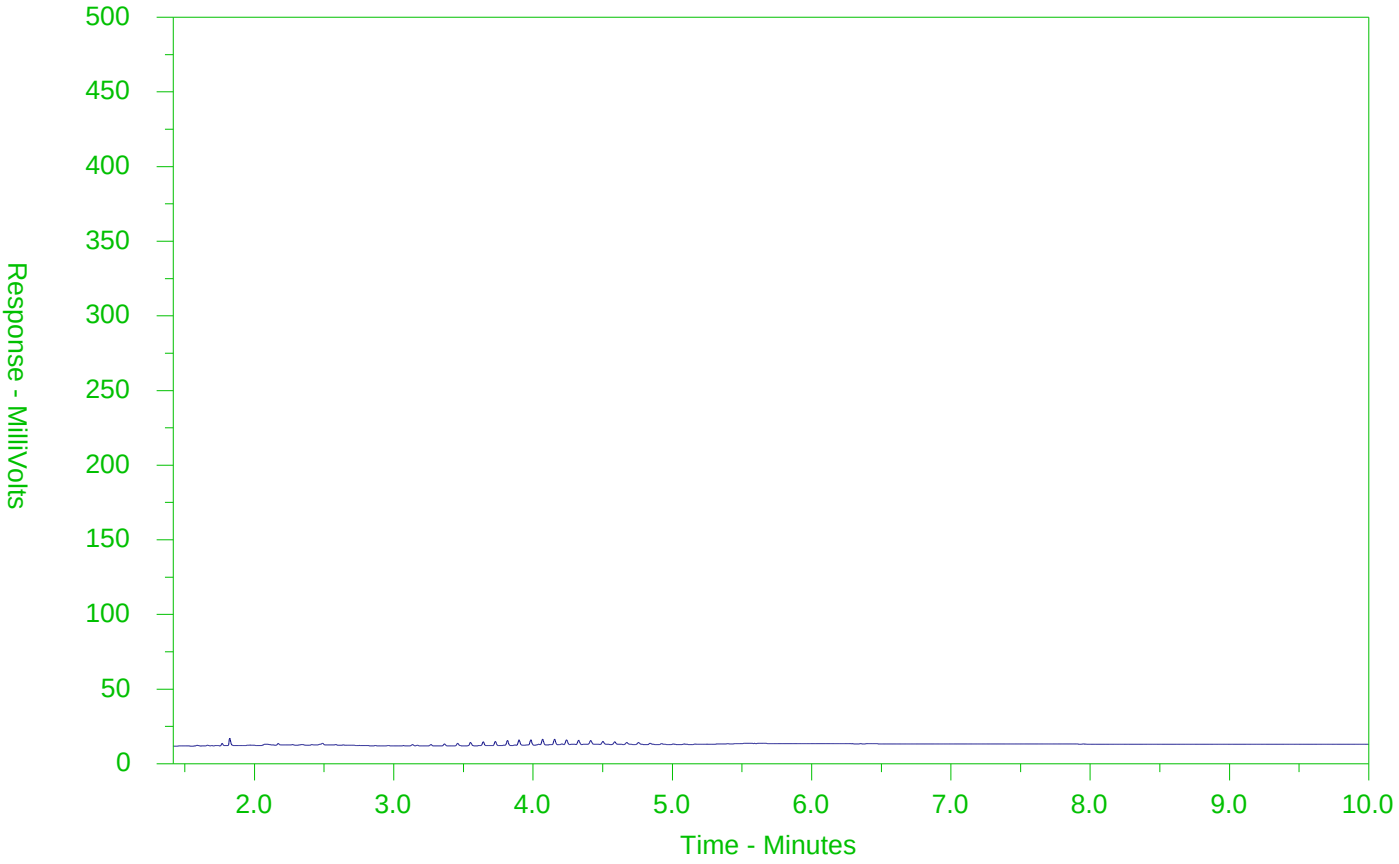
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2217373-1
Client Sample ID: MW18-1



←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.

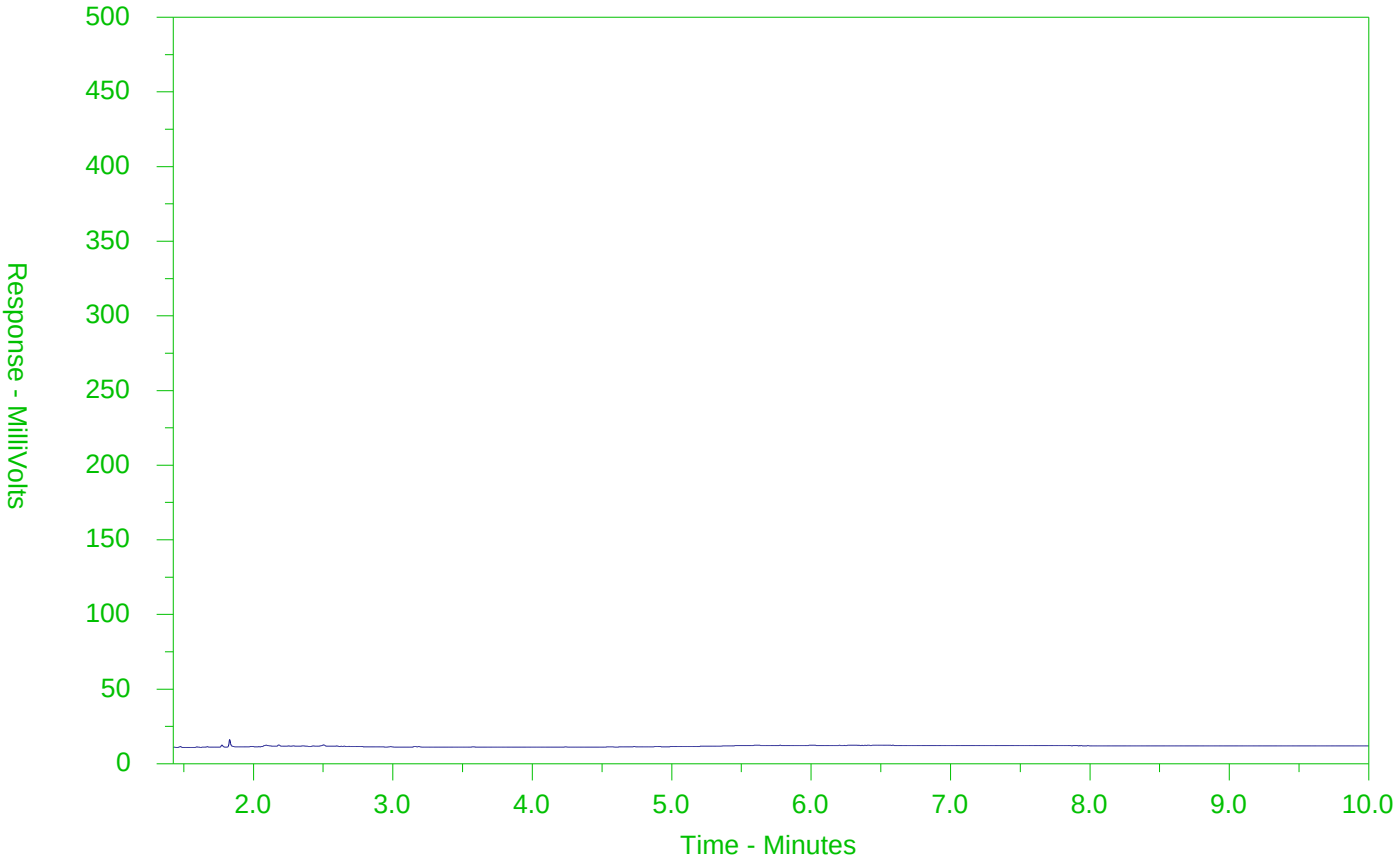
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2217373-2
Client Sample ID: MW18-2



←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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2217373-COFC

COC Number: 17 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	McIntosh Perry - 23229
Contact:	Bradley Sutherland
Phone:	613-836-2184
	Company address below will appear on the final report
Street:	115 Walgreen Road RR3
City/Province:	Carp, ON
Postal Code:	K0A 1L0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
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 b.sutherland@mcintoshperry.com

Email 2

Email 3

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax b.sutherland@mcintoshperry.com

Email 2

Project Information

ALS Account # / Quote #:	Q71138
Job #:	CP-17-0635
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): L2217373

ALS Contact: Melanie M. Sampler:

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

NUMBER OF CONTAINERS

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	VOC / BTEX / F1-F4 (VOC-R511, F1-F4-P-WT)	Reg.153 Metals & Inorganics (R511-INORGANICS-P-WT)	PAHs (PAH-511-WT)	F2-F4	Chloride	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW19-1	07-Jan-19	2:00	GW				X	X		
	MW19-2	↓	2:15	GW				X			
	MW19-3	↓	3:06	GW					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)

Need by Thursday Pease

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			
1.1				5.6			

SHIPMENT RELEASE (client use)

Released by: Date: 07-01-19 Time: 3:45pm

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Jan/07/19 Time: 3:40

FINAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Jan 8/2019 Time: 9:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 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.**

McIntosh Perry Engineering Consultants (Ottawa)
ATTN: Bradley Sutherland
115 Walgreen Road, R.R. 3
Carp ON K0A1L0

Date Received: 20-MAY-21
Report Date: 31-MAY-21 07:51 (MT)
Version: FINAL

Client Phone: 613-903-5785

Certificate of Analysis

Lab Work Order #: L2590710

Project P.O. #: NOT SUBMITTED
Job Reference: CCO-22-0244
C of C Numbers:
Legal Site Desc:

Emily Smith
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-1 MW1							
Sampled By: CLIENT on 20-MAY-21 @ 10:30							
Matrix: WATER							
Physical Tests							
Conductivity	0.561		0.0030	mS/cm	22-MAY-21		
pH	8.22		0.10	pH units	22-MAY-21		
Anions and Nutrients							
Chloride (Cl)	65.2		0.50	mg/L	24-MAY-21	2300	2300
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	25-MAY-21	66	66
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD			No Unit	25-MAY-21		
Dissolved Metals Filtration Location	FIELD			No Unit	21-MAY-21		
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	20000	20000
Arsenic (As)-Dissolved	0.28		0.10	ug/L	25-MAY-21	1900	1900
Barium (Ba)-Dissolved	146		0.10	ug/L	25-MAY-21	29000	29000
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	67	67
Boron (B)-Dissolved	67		10	ug/L	25-MAY-21	45000	45000
Cadmium (Cd)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	2.7	2.7
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	810	810
Cobalt (Co)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	66	66
Copper (Cu)-Dissolved	1.09		0.20	ug/L	25-MAY-21	87	87
Lead (Pb)-Dissolved	0.087		0.050	ug/L	25-MAY-21	25	25
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	26-MAY-21	0.29	2.8
Molybdenum (Mo)-Dissolved	1.31		0.050	ug/L	25-MAY-21	9200	9200
Nickel (Ni)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	490	490
Selenium (Se)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	63	63
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	1.5	1.5
Sodium (Na)-Dissolved	14900		500	ug/L	25-MAY-21	2300000	2300000
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	510	510
Uranium (U)-Dissolved	0.097		0.010	ug/L	25-MAY-21	420	420
Vanadium (V)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	250	250
Zinc (Zn)-Dissolved	1.3		1.0	ug/L	25-MAY-21	1100	1100
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L	22-MAY-21	140	140
Volatile Organic Compounds							
Acetone	<30		30	ug/L	31-MAY-21	130000	130000
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-1 MW1							
Sampled By: CLIENT on 20-MAY-21 @ 10:30							
Matrix: WATER							
Volatile Organic Compounds							
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7
o-Xylene	<0.30		0.30	ug/L	31-MAY-21		
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21		
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200
Surrogate: 4-Bromofluorobenzene	98.4		70-130	%	31-MAY-21		
Surrogate: 1,4-Difluorobenzene	99.8		70-130	%	31-MAY-21		
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750
F2 (C10-C16)	<100		100	ug/L	26-MAY-21	150	150
F2-Naphth	<100		100	ug/L	31-MAY-21		
F3 (C16-C34)	<250		250	ug/L	26-MAY-21	500	500
F3-PAH	<250		250	ug/L	31-MAY-21		
F4 (C34-C50)	<250		250	ug/L	26-MAY-21	500	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	31-MAY-21		
Chrom. to baseline at nC50	YES			No Unit	26-MAY-21		
Surrogate: 2-Bromobenzotrifluoride	89.0		60-140	%	26-MAY-21		
Surrogate: 3,4-Dichlorotoluene	76.8		60-140	%	31-MAY-21		
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.020		0.020	ug/L	28-MAY-21	600	1700
Acenaphthylene	<0.020		0.020	ug/L	28-MAY-21	1.8	1.8

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2590710-1 MW1									
Sampled By: CLIENT on 20-MAY-21 @ 10:30									
Matrix: WATER									
Polycyclic Aromatic Hydrocarbons									
Anthracene	<0.020		0.020	ug/L	28-MAY-21	2.4	2.4		
Benzo(a)anthracene	<0.020		0.020	ug/L	28-MAY-21	4.7	4.7		
Benzo(a)pyrene	<0.010		0.010	ug/L	28-MAY-21	0.81	0.81		
Benzo(b&j)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.75	0.75		
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
Benzo(k)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.4	0.4		
Chrysene	<0.020		0.020	ug/L	28-MAY-21	1	1		
Dibenz(a,h)anthracene	<0.020		0.020	ug/L	28-MAY-21	0.52	0.52		
Fluoranthene	<0.020		0.020	ug/L	28-MAY-21	130	130		
Fluorene	<0.020		0.020	ug/L	28-MAY-21	400	400		
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	28-MAY-21	1800	1800		
1-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
2-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
Naphthalene	<0.050		0.050	ug/L	28-MAY-21	1400	6400		
Phenanthrene	<0.020		0.020	ug/L	28-MAY-21	580	580		
Pyrene	<0.020		0.020	ug/L	28-MAY-21	68	68		
Surrogate: Naphthalene d8	91.8		60-140	%	28-MAY-21				
Surrogate: Phenanthrene d10	102.6		60-140	%	28-MAY-21				
L2590710-2 MW2									
Sampled By: CLIENT on 20-MAY-21 @ 11:30									
Matrix: WATER									
Physical Tests									
Conductivity	1.48		0.0030	mS/cm	22-MAY-21				
pH	7.75		0.10	pH units	22-MAY-21				
Anions and Nutrients									
Chloride (Cl)	245		2.5	mg/L	24-MAY-21	2300	2300		
Cyanides									
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	25-MAY-21	66	66		
Dissolved Metals									
Dissolved Mercury Filtration Location	FIELD			No Unit	25-MAY-21				
Dissolved Metals Filtration Location	FIELD			No Unit	21-MAY-21				
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	20000	20000		
Arsenic (As)-Dissolved	0.10		0.10	ug/L	25-MAY-21	1900	1900		
Barium (Ba)-Dissolved	176		0.10	ug/L	25-MAY-21	29000	29000		
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	67	67		
Boron (B)-Dissolved	15		10	ug/L	25-MAY-21	45000	45000		
Cadmium (Cd)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	2.7	2.7		
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	810	810		
Cobalt (Co)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	66	66		
Copper (Cu)-Dissolved	0.77		0.20	ug/L	25-MAY-21	87	87		
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	25	25		
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	26-MAY-21	0.29	2.8		
Molybdenum (Mo)-Dissolved	0.304		0.050	ug/L	25-MAY-21	9200	9200		

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-2 MW2							
Sampled By: CLIENT on 20-MAY-21 @ 11:30							
Matrix: WATER							
Dissolved Metals							
Nickel (Ni)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	490	490
Selenium (Se)-Dissolved	0.428		0.050	ug/L	25-MAY-21	63	63
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	1.5	1.5
Sodium (Na)-Dissolved	162000	DLHC	500	ug/L	25-MAY-21	2300000	2300000
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	510	510
Uranium (U)-Dissolved	1.15		0.010	ug/L	25-MAY-21	420	420
Vanadium (V)-Dissolved	0.69		0.50	ug/L	25-MAY-21	250	250
Zinc (Zn)-Dissolved	<1.0		1.0	ug/L	25-MAY-21	1100	1100
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L	22-MAY-21	140	140
Volatile Organic Compounds							
Acetone	<30		30	ug/L	31-MAY-21	130000	130000
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-2 MW2							
Sampled By: CLIENT on 20-MAY-21 @ 11:30							
Matrix: WATER							
Volatile Organic Compounds							
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7
o-Xylene	<0.30		0.30	ug/L	31-MAY-21		
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21		
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200
Surrogate: 4-Bromofluorobenzene	98.6		70-130	%	31-MAY-21		
Surrogate: 1,4-Difluorobenzene	99.3		70-130	%	31-MAY-21		
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750
F2 (C10-C16)	<100		100	ug/L	26-MAY-21	150	150
F2-Naphth	<100		100	ug/L	31-MAY-21		
F3 (C16-C34)	<250		250	ug/L	26-MAY-21	500	500
F3-PAH	<250		250	ug/L	31-MAY-21		
F4 (C34-C50)	<250		250	ug/L	26-MAY-21	500	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	31-MAY-21		
Chrom. to baseline at nC50	YES			No Unit	26-MAY-21		
Surrogate: 2-Bromobenzotrifluoride	86.4		60-140	%	26-MAY-21		
Surrogate: 3,4-Dichlorotoluene	78.5		60-140	%	31-MAY-21		
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.020		0.020	ug/L	28-MAY-21	600	1700
Acenaphthylene	<0.020		0.020	ug/L	28-MAY-21	1.8	1.8
Anthracene	<0.020		0.020	ug/L	28-MAY-21	2.4	2.4
Benzo(a)anthracene	<0.020		0.020	ug/L	28-MAY-21	4.7	4.7
Benzo(a)pyrene	<0.010		0.010	ug/L	28-MAY-21	0.81	0.81
Benzo(b&j)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.75	0.75
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.4	0.4
Chrysene	<0.020		0.020	ug/L	28-MAY-21	1	1
Dibenz(a,h)anthracene	<0.020		0.020	ug/L	28-MAY-21	0.52	0.52
Fluoranthene	<0.020		0.020	ug/L	28-MAY-21	130	130
Fluorene	<0.020		0.020	ug/L	28-MAY-21	400	400
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	28-MAY-21	1800	1800
1-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800
2-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800
Naphthalene	<0.050		0.050	ug/L	28-MAY-21	1400	6400
Phenanthrene	<0.020		0.020	ug/L	28-MAY-21	580	580
Pyrene	<0.020		0.020	ug/L	28-MAY-21	68	68
Surrogate: Naphthalene d8	85.9		60-140	%	28-MAY-21		
Surrogate: Phenanthrene d10	96.1		60-140	%	28-MAY-21		

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-3 MW2-DUP							
Sampled By: CLIENT on 20-MAY-21 @ 11:30							
Matrix: WATER							
Volatile Organic Compounds							
Acetone	<30		30	ug/L	31-MAY-21	130000	130000
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7
o-Xylene	<0.30		0.30	ug/L	31-MAY-21		
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21		
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200
Surrogate: 4-Bromofluorobenzene	96.5		70-130	%	31-MAY-21		
Surrogate: 1,4-Difluorobenzene	99.8		70-130	%	31-MAY-21		
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2		
L2590710-3 MW2-DUP Sampled By: CLIENT on 20-MAY-21 @ 11:30 Matrix: WATER									
Hydrocarbons									
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750		
F2 (C10-C16)	<100		100	ug/L	26-MAY-21	150	150		
F2-Naphth	<100		100	ug/L	31-MAY-21				
F3 (C16-C34)	<250		250	ug/L	26-MAY-21	500	500		
F3-PAH	<250		250	ug/L	31-MAY-21				
F4 (C34-C50)	<250		250	ug/L	26-MAY-21	500	500		
Total Hydrocarbons (C6-C50)	<370		370	ug/L	31-MAY-21				
Chrom. to baseline at nC50	YES			No Unit	26-MAY-21				
Surrogate: 2-Bromobenzotrifluoride	90.7		60-140	%	26-MAY-21				
Surrogate: 3,4-Dichlorotoluene	77.1		60-140	%	31-MAY-21				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.020		0.020	ug/L	28-MAY-21	600	1700		
Acenaphthylene	<0.020		0.020	ug/L	28-MAY-21	1.8	1.8		
Anthracene	<0.020		0.020	ug/L	28-MAY-21	2.4	2.4		
Benzo(a)anthracene	<0.020		0.020	ug/L	28-MAY-21	4.7	4.7		
Benzo(a)pyrene	<0.010		0.010	ug/L	28-MAY-21	0.81	0.81		
Benzo(b&j)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.75	0.75		
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
Benzo(k)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.4	0.4		
Chrysene	<0.020		0.020	ug/L	28-MAY-21	1	1		
Dibenz(a,h)anthracene	<0.020		0.020	ug/L	28-MAY-21	0.52	0.52		
Fluoranthene	<0.020		0.020	ug/L	28-MAY-21	130	130		
Fluorene	<0.020		0.020	ug/L	28-MAY-21	400	400		
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	28-MAY-21	1800	1800		
1-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
2-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
Naphthalene	<0.050		0.050	ug/L	28-MAY-21	1400	6400		
Phenanthrene	<0.020		0.020	ug/L	28-MAY-21	580	580		
Pyrene	<0.020		0.020	ug/L	28-MAY-21	68	68		
Surrogate: Chrysene d12	116.0		50-150	%	28-MAY-21				
Surrogate: Naphthalene d8	113.3		60-140	%	28-MAY-21				
Surrogate: Phenanthrene d10	110.4		60-140	%	28-MAY-21				
L2590710-4 MW3 Sampled By: CLIENT on 20-MAY-21 @ 12:30 Matrix: WATER									
Physical Tests									
Conductivity	1.60		0.0030	mS/cm	22-MAY-21				
pH	7.86		0.10	pH units	22-MAY-21				
Anions and Nutrients									
Chloride (Cl)	290		2.5	mg/L	24-MAY-21	2300	2300		
Cyanides									
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	25-MAY-21	66	66		
Dissolved Metals									
Dissolved Mercury Filtration Location	FIELD			No Unit	25-MAY-21				

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-4 MW3							
Sampled By: CLIENT on 20-MAY-21 @ 12:30							
Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD			No Unit	21-MAY-21		
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	20000	20000
Arsenic (As)-Dissolved	0.13		0.10	ug/L	25-MAY-21	1900	1900
Barium (Ba)-Dissolved	101		0.10	ug/L	25-MAY-21	29000	29000
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	67	67
Boron (B)-Dissolved	17		10	ug/L	25-MAY-21	45000	45000
Cadmium (Cd)-Dissolved	0.018		0.010	ug/L	25-MAY-21	2.7	2.7
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	810	810
Cobalt (Co)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	66	66
Copper (Cu)-Dissolved	1.07		0.20	ug/L	25-MAY-21	87	87
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	25	25
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	26-MAY-21	0.29	2.8
Molybdenum (Mo)-Dissolved	0.266		0.050	ug/L	25-MAY-21	9200	9200
Nickel (Ni)-Dissolved	0.54		0.50	ug/L	25-MAY-21	490	490
Selenium (Se)-Dissolved	0.156		0.050	ug/L	25-MAY-21	63	63
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	1.5	1.5
Sodium (Na)-Dissolved	156000	DLHC	500	ug/L	25-MAY-21	2300000	2300000
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	510	510
Uranium (U)-Dissolved	1.11		0.010	ug/L	25-MAY-21	420	420
Vanadium (V)-Dissolved	1.38		0.50	ug/L	25-MAY-21	250	250
Zinc (Zn)-Dissolved	<1.0		1.0	ug/L	25-MAY-21	1100	1100
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L	22-MAY-21	140	140
Volatile Organic Compounds							
Acetone	<30		30	ug/L	31-MAY-21	130000	130000
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-4 MW3							
Sampled By: CLIENT on 20-MAY-21 @ 12:30							
Matrix: WATER							
Volatile Organic Compounds							
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7
o-Xylene	<0.30		0.30	ug/L	31-MAY-21		
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21		
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200
Surrogate: 4-Bromofluorobenzene	96.7		70-130	%	31-MAY-21		
Surrogate: 1,4-Difluorobenzene	99.3		70-130	%	31-MAY-21		
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750
F2 (C10-C16)	<100		100	ug/L	26-MAY-21	150	150
F2-Naphth	<100		100	ug/L	31-MAY-21		
F3 (C16-C34)	<250		250	ug/L	26-MAY-21	500	500
F3-PAH	<250		250	ug/L	31-MAY-21		
F4 (C34-C50)	<250		250	ug/L	26-MAY-21	500	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	31-MAY-21		
Chrom. to baseline at nC50	YES			No Unit	26-MAY-21		
Surrogate: 2-Bromobenzotrifluoride	85.8		60-140	%	26-MAY-21		
Surrogate: 3,4-Dichlorotoluene	79.8		60-140	%	31-MAY-21		
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.020		0.020	ug/L	28-MAY-21	600	1700
Acenaphthylene	<0.020		0.020	ug/L	28-MAY-21	1.8	1.8
Anthracene	<0.020		0.020	ug/L	28-MAY-21	2.4	2.4
Benzo(a)anthracene	<0.020		0.020	ug/L	28-MAY-21	4.7	4.7
Benzo(a)pyrene	<0.010		0.010	ug/L	28-MAY-21	0.81	0.81
Benzo(b&j)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.75	0.75
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2
Benzo(k)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.4	0.4
Chrysene	<0.020		0.020	ug/L	28-MAY-21	1	1
Dibenz(a,h)anthracene	<0.020		0.020	ug/L	28-MAY-21	0.52	0.52

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2		
L2590710-4 MW3 Sampled By: CLIENT on 20-MAY-21 @ 12:30 Matrix: WATER									
Polycyclic Aromatic Hydrocarbons									
Fluoranthene	<0.020		0.020	ug/L	28-MAY-21	130	130		
Fluorene	<0.020		0.020	ug/L	28-MAY-21	400	400		
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	28-MAY-21	1800	1800		
1-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
2-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
Naphthalene	<0.050		0.050	ug/L	28-MAY-21	1400	6400		
Phenanthrene	<0.020		0.020	ug/L	28-MAY-21	580	580		
Pyrene	<0.020		0.020	ug/L	28-MAY-21	68	68		
Surrogate: Naphthalene d8	88.9		60-140	%	28-MAY-21				
Surrogate: Phenanthrene d10	100.4		60-140	%	28-MAY-21				
L2590710-5 TRIP BLANK Sampled By: CLIENT on 20-MAY-21 Matrix: WATER									
Volatile Organic Compounds									
Acetone	<30		30	ug/L	31-MAY-21	130000	130000		
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430		
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000		
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770		
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56		
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4		
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630		
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000		
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22		
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83		
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600		
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600		
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67		
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400		
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100		
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12		
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500		
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140		
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45		
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300		
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520		
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000		
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000		
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400		
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100		

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2		
L2590710-5 TRIP BLANK Sampled By: CLIENT on 20-MAY-21 Matrix: WATER									
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28		
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15		
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000		
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700		
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30		
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500		
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7		
o-Xylene	<0.30		0.30	ug/L	31-MAY-21				
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21				
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200		
Surrogate: 4-Bromofluorobenzene	96.6		70-130	%	31-MAY-21				
Surrogate: 1,4-Difluorobenzene	99.4		70-130	%	31-MAY-21				
Hydrocarbons									
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750		
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750		
Surrogate: 3,4-Dichlorotoluene	85.8		60-140	%	31-MAY-21				

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

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***
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.
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).

Reference Information

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:

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		

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2590710 Report Date: 31-MAY-21

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R5467616								
WG3540264-9 DUP		**L2590710-1**						
Chloride (Cl)		65.2	65.3		mg/L	0.1	20	24-MAY-21
WG3540264-7 LCS								
Chloride (Cl)			102.3		%		90-110	24-MAY-21
WG3540264-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	24-MAY-21
WG3540264-10 MS		**L2590710-1**						
Chloride (Cl)			102.1		%		75-125	24-MAY-21
CN-WAD-R511-WT	**Water**							
Batch R5466558								
WG3540437-9 DUP		**WG3540437-8**						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	25-MAY-21
WG3540437-7 LCS								
Cyanide, Weak Acid Diss			96.1		%		80-120	25-MAY-21
WG3540437-6 MB								
Cyanide, Weak Acid Diss			<2.0		ug/L		2	25-MAY-21
WG3540437-10 MS		**WG3540437-8**						
Cyanide, Weak Acid Diss			101.3		%		75-125	25-MAY-21
CR-CR6-IC-R511-WT	**Water**							
Batch R5466576								
WG3539907-4 DUP		**WG3539907-3**						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	22-MAY-21
WG3539907-2 LCS								
Chromium, Hexavalent			101.1		%		80-120	22-MAY-21
WG3539907-1 MB								
Chromium, Hexavalent			<0.50		ug/L		0.5	22-MAY-21
WG3539907-5 MS		**WG3539907-3**						
Chromium, Hexavalent			102.5		%		70-130	22-MAY-21
EC-R511-WT	**Water**							
Batch R5465465								
WG3539939-4 DUP		**WG3539939-3**						
Conductivity		0.522	0.521		mS/cm	0.2	10	22-MAY-21
WG3539939-2 LCS								
Conductivity			102.3		%		90-110	22-MAY-21
WG3539939-1 MB								
Conductivity			<0.0030		mS/cm		0.003	22-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-R511-WT	**Water**							
Batch R5465466								
WG3539940-4 DUP		**WG3539940-3**						
Conductivity		1.37	1.36		mS/cm	0.3	10	22-MAY-21
WG3539940-2 LCS								
Conductivity			103.1		%		90-110	22-MAY-21
WG3539940-1 MB								
Conductivity			<0.0030		mS/cm		0.003	22-MAY-21
Batch R5465476								
WG3539941-4 DUP		**WG3539941-3**						
Conductivity		1.26	1.27		mS/cm	1.0	10	22-MAY-21
WG3539941-2 LCS								
Conductivity			102.8		%		90-110	22-MAY-21
WG3539941-1 MB								
Conductivity			<0.0030		mS/cm		0.003	22-MAY-21
F1-HS-511-WT	**Water**							
Batch R5475461								
WG3543076-4 DUP		**WG3543076-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	31-MAY-21
WG3543076-1 LCS								
F1 (C6-C10)			93.8		%		80-120	31-MAY-21
WG3543076-2 MB								
F1 (C6-C10)			<25		ug/L		25	31-MAY-21
Surrogate: 3,4-Dichlorotoluene			92.4		%		60-140	31-MAY-21
WG3543076-5 MS		**WG3543076-3**						
F1 (C6-C10)			91.2		%		60-140	31-MAY-21
F2-F4-511-WT	**Water**							
Batch R5468698								
WG3540369-2 LCS								
F2 (C10-C16)			111.3		%		70-130	26-MAY-21
F3 (C16-C34)			106.4		%		70-130	26-MAY-21
F4 (C34-C50)			99.6		%		70-130	26-MAY-21
WG3540369-1 MB								
F2 (C10-C16)			<100		ug/L		100	26-MAY-21
F3 (C16-C34)			<250		ug/L		250	26-MAY-21
F4 (C34-C50)			<250		ug/L		250	26-MAY-21
Surrogate: 2-Bromobenzotrifluoride			85.4		%		60-140	26-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Water**							
Batch R5469476								
WG3540802-2 LCS								
F2 (C10-C16)			108.6		%		70-130	26-MAY-21
F3 (C16-C34)			108.3		%		70-130	26-MAY-21
F4 (C34-C50)			104.9		%		70-130	26-MAY-21
WG3540802-1 MB								
F2 (C10-C16)			<100		ug/L		100	26-MAY-21
F3 (C16-C34)			<250		ug/L		250	26-MAY-21
F4 (C34-C50)			<250		ug/L		250	26-MAY-21
Surrogate: 2-Bromobenzotrifluoride			85.5		%		60-140	26-MAY-21
HG-D-UG/L-CVAA-WT	**Water**							
Batch R5468683								
WG3540464-4 DUP		**WG3540464-3**						
Mercury (Hg)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	26-MAY-21
WG3540464-2 LCS								
Mercury (Hg)-Dissolved			103.0		%		80-120	26-MAY-21
WG3540464-1 MB								
Mercury (Hg)-Dissolved			<0.0050		ug/L		0.005	26-MAY-21
WG3540464-6 MS		**WG3540464-5**						
Mercury (Hg)-Dissolved			99.1		%		70-130	26-MAY-21
MET-D-UG/L-MS-WT	**Water**							
Batch R5468236								
WG3539642-4 DUP		**WG3539642-3**						
Antimony (Sb)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	25-MAY-21
Arsenic (As)-Dissolved		0.28	0.26		ug/L	8.9	20	25-MAY-21
Barium (Ba)-Dissolved		146	144		ug/L	1.3	20	25-MAY-21
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	25-MAY-21
Boron (B)-Dissolved		67	65		ug/L	2.9	20	25-MAY-21
Cadmium (Cd)-Dissolved		0.0095	0.0069	J	ug/L	0.0026	0.01	25-MAY-21
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	25-MAY-21
Cobalt (Co)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	25-MAY-21
Copper (Cu)-Dissolved		1.09	1.08		ug/L	1.2	20	25-MAY-21
Lead (Pb)-Dissolved		0.087	0.084		ug/L	3.5	20	25-MAY-21
Molybdenum (Mo)-Dissolved		1.31	1.30		ug/L	1.1	20	25-MAY-21
Nickel (Ni)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	25-MAY-21
Selenium (Se)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	25-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5468236								
WG3539642-4 DUP		**WG3539642-3**						
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	25-MAY-21
Sodium (Na)-Dissolved		14900	14700		ug/L	1.3	20	25-MAY-21
Thallium (Tl)-Dissolved		<0.010	<0.010	RPD-NA	ug/L	N/A	20	25-MAY-21
Uranium (U)-Dissolved		0.097	0.094		ug/L	2.6	20	25-MAY-21
Vanadium (V)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	25-MAY-21
Zinc (Zn)-Dissolved		1.3	1.2		ug/L	6.5	20	25-MAY-21
WG3539642-2 LCS								
Antimony (Sb)-Dissolved			100.5		%		80-120	25-MAY-21
Arsenic (As)-Dissolved			104.2		%		80-120	25-MAY-21
Barium (Ba)-Dissolved			103.1		%		80-120	25-MAY-21
Beryllium (Be)-Dissolved			99.96		%		80-120	25-MAY-21
Boron (B)-Dissolved			100.7		%		80-120	25-MAY-21
Cadmium (Cd)-Dissolved			102.2		%		80-120	25-MAY-21
Chromium (Cr)-Dissolved			102.0		%		80-120	25-MAY-21
Cobalt (Co)-Dissolved			103.0		%		80-120	25-MAY-21
Copper (Cu)-Dissolved			103.8		%		80-120	25-MAY-21
Lead (Pb)-Dissolved			108.3		%		80-120	25-MAY-21
Molybdenum (Mo)-Dissolved			100.5		%		80-120	25-MAY-21
Nickel (Ni)-Dissolved			102.6		%		80-120	25-MAY-21
Selenium (Se)-Dissolved			100.5		%		80-120	25-MAY-21
Silver (Ag)-Dissolved			108.2		%		80-120	25-MAY-21
Sodium (Na)-Dissolved			111.3		%		80-120	25-MAY-21
Thallium (Tl)-Dissolved			108.0		%		80-120	25-MAY-21
Uranium (U)-Dissolved			109.9		%		80-120	25-MAY-21
Vanadium (V)-Dissolved			104.9		%		80-120	25-MAY-21
Zinc (Zn)-Dissolved			103.3		%		80-120	25-MAY-21
WG3539642-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Boron (B)-Dissolved			<10		ug/L		10	25-MAY-21
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	25-MAY-21
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	25-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5468236								
WG3539642-1 MB								
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	25-MAY-21
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	25-MAY-21
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	25-MAY-21
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	25-MAY-21
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	25-MAY-21
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	25-MAY-21
Sodium (Na)-Dissolved			<50		ug/L		50	25-MAY-21
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	25-MAY-21
Uranium (U)-Dissolved			<0.010		ug/L		0.01	25-MAY-21
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	25-MAY-21
Zinc (Zn)-Dissolved			<1.0		ug/L		1	25-MAY-21
WG3539642-5 MS		**WG3539642-6**						
Antimony (Sb)-Dissolved			99.0		%		70-130	25-MAY-21
Arsenic (As)-Dissolved			108.7		%		70-130	25-MAY-21
Barium (Ba)-Dissolved			N/A	MS-B	%		-	25-MAY-21
Beryllium (Be)-Dissolved			102.0		%		70-130	25-MAY-21
Boron (B)-Dissolved			96.3		%		70-130	25-MAY-21
Cadmium (Cd)-Dissolved			96.6		%		70-130	25-MAY-21
Chromium (Cr)-Dissolved			100.2		%		70-130	25-MAY-21
Cobalt (Co)-Dissolved			97.6		%		70-130	25-MAY-21
Copper (Cu)-Dissolved			91.6		%		70-130	25-MAY-21
Lead (Pb)-Dissolved			96.4		%		70-130	25-MAY-21
Molybdenum (Mo)-Dissolved			105.0		%		70-130	25-MAY-21
Nickel (Ni)-Dissolved			93.3		%		70-130	25-MAY-21
Selenium (Se)-Dissolved			113.0		%		70-130	25-MAY-21
Silver (Ag)-Dissolved			99.0		%		70-130	25-MAY-21
Sodium (Na)-Dissolved			N/A	MS-B	%		-	25-MAY-21
Thallium (Tl)-Dissolved			97.6		%		70-130	25-MAY-21
Uranium (U)-Dissolved			N/A	MS-B	%		-	25-MAY-21
Vanadium (V)-Dissolved			106.6		%		70-130	25-MAY-21
Zinc (Zn)-Dissolved			98.9		%		70-130	25-MAY-21
PAH-511-WT	**Water**							

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R5473422								
WG3540369-2 LCS								
1-Methylnaphthalene			105.0		%		50-140	27-MAY-21
2-Methylnaphthalene			100.5		%		50-140	27-MAY-21
Acenaphthene			108.2		%		50-140	27-MAY-21
Acenaphthylene			101.4		%		50-140	27-MAY-21
Anthracene			105.4		%		50-140	27-MAY-21
Benzo(a)anthracene			108.9		%		50-140	27-MAY-21
Benzo(a)pyrene			107.8		%		50-140	27-MAY-21
Benzo(b&j)fluoranthene			118.6		%		50-140	27-MAY-21
Benzo(g,h,i)perylene			125.3		%		50-140	27-MAY-21
Benzo(k)fluoranthene			118.8		%		50-140	27-MAY-21
Chrysene			112.2		%		50-140	27-MAY-21
Dibenz(a,h)anthracene			113.9		%		50-140	27-MAY-21
Fluoranthene			114.6		%		50-140	27-MAY-21
Fluorene			107.3		%		50-140	27-MAY-21
Indeno(1,2,3-cd)pyrene			124.0		%		50-140	27-MAY-21
Naphthalene			94.0		%		50-140	27-MAY-21
Phenanthrene			118.3		%		50-140	27-MAY-21
Pyrene			114.6		%		50-140	27-MAY-21
WG3540369-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	27-MAY-21
2-Methylnaphthalene			<0.020		ug/L		0.02	27-MAY-21
Acenaphthene			<0.020		ug/L		0.02	27-MAY-21
Acenaphthylene			<0.020		ug/L		0.02	27-MAY-21
Anthracene			<0.020		ug/L		0.02	27-MAY-21
Benzo(a)anthracene			<0.020		ug/L		0.02	27-MAY-21
Benzo(a)pyrene			<0.010		ug/L		0.01	27-MAY-21
Benzo(b&j)fluoranthene			<0.020		ug/L		0.02	27-MAY-21
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	27-MAY-21
Benzo(k)fluoranthene			<0.020		ug/L		0.02	27-MAY-21
Chrysene			<0.020		ug/L		0.02	27-MAY-21
Dibenz(a,h)anthracene			<0.020		ug/L		0.02	27-MAY-21
Fluoranthene			<0.020		ug/L		0.02	27-MAY-21
Fluorene			<0.020		ug/L		0.02	27-MAY-21
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	27-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R5473422								
WG3540369-1 MB								
Naphthalene			<0.050		ug/L		0.05	27-MAY-21
Phenanthrene			<0.020		ug/L		0.02	27-MAY-21
Pyrene			<0.020		ug/L		0.02	27-MAY-21
Surrogate: Naphthalene d8			98.3		%		60-140	27-MAY-21
Surrogate: Phenanthrene d10			111.4		%		60-140	27-MAY-21
Batch R5474752								
WG3540802-2 LCS								
1-Methylnaphthalene			95.8		%		50-140	28-MAY-21
2-Methylnaphthalene			93.7		%		50-140	28-MAY-21
Acenaphthene			102.6		%		50-140	28-MAY-21
Acenaphthylene			101.7		%		50-140	28-MAY-21
Anthracene			109.6		%		50-140	28-MAY-21
Benzo(a)anthracene			132.5		%		50-140	28-MAY-21
Benzo(a)pyrene			109.2		%		50-140	28-MAY-21
Benzo(b&j)fluoranthene			109.6		%		50-140	28-MAY-21
Benzo(g,h,i)perylene			123.6		%		50-140	28-MAY-21
Benzo(k)fluoranthene			111.4		%		50-140	28-MAY-21
Chrysene			131.1		%		50-140	28-MAY-21
Dibenz(a,h)anthracene			125.5		%		50-140	28-MAY-21
Fluoranthene			116.7		%		50-140	28-MAY-21
Fluorene			106.7		%		50-140	28-MAY-21
Indeno(1,2,3-cd)pyrene			138.2		%		50-140	28-MAY-21
Naphthalene			91.1		%		50-140	28-MAY-21
Phenanthrene			116.0		%		50-140	28-MAY-21
Pyrene			114.2		%		50-140	28-MAY-21
WG3540802-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	28-MAY-21
2-Methylnaphthalene			<0.020		ug/L		0.02	28-MAY-21
Acenaphthene			<0.020		ug/L		0.02	28-MAY-21
Acenaphthylene			<0.020		ug/L		0.02	28-MAY-21
Anthracene			<0.020		ug/L		0.02	28-MAY-21
Benzo(a)anthracene			<0.020		ug/L		0.02	28-MAY-21
Benzo(a)pyrene			<0.010		ug/L		0.01	28-MAY-21
Benzo(b&j)fluoranthene			<0.020		ug/L		0.02	28-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R5474752								
WG3540802-1 MB								
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	28-MAY-21
Benzo(k)fluoranthene			<0.020		ug/L		0.02	28-MAY-21
Chrysene			<0.020		ug/L		0.02	28-MAY-21
Dibenz(a,h)anthracene			<0.020		ug/L		0.02	28-MAY-21
Fluoranthene			<0.020		ug/L		0.02	28-MAY-21
Fluorene			<0.020		ug/L		0.02	28-MAY-21
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	28-MAY-21
Naphthalene			<0.050		ug/L		0.05	28-MAY-21
Phenanthrene			<0.020		ug/L		0.02	28-MAY-21
Pyrene			<0.020		ug/L		0.02	28-MAY-21
Surrogate: Naphthalene d8			95.1		%		60-140	28-MAY-21
Surrogate: Phenanthrene d10			99.9		%		60-140	28-MAY-21
Surrogate: Chrysene d12			114.4		%		50-150	28-MAY-21
PH-WT	**Water**							
Batch R5465465								
WG3539939-4 DUP		**WG3539939-3**						
pH		8.34	8.32	J	pH units	0.02	0.2	22-MAY-21
WG3539939-2 LCS								
pH			7.00		pH units		6.9-7.1	22-MAY-21
Batch R5465466								
WG3539940-4 DUP		**WG3539940-3**						
pH		7.67	7.66	J	pH units	0.01	0.2	22-MAY-21
WG3539940-2 LCS								
pH			7.00		pH units		6.9-7.1	22-MAY-21
Batch R5465476								
WG3539941-4 DUP		**WG3539941-3**						
pH		8.37	8.43	J	pH units	0.06	0.2	22-MAY-21
WG3539941-2 LCS								
pH			7.01		pH units		6.9-7.1	22-MAY-21
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-4 DUP		**WG3543076-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-4 DUP		**WG3543076-3**						
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	31-MAY-21
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	31-MAY-21
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	31-MAY-21
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	31-MAY-21
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	31-MAY-21
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	31-MAY-21
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	31-MAY-21
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	31-MAY-21
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	31-MAY-21
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	31-MAY-21
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	31-MAY-21
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
trans-1,2-Dichloroethylene		<0.50	<0.50		ug/L			31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-4 DUP		**WG3543076-3**						
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	31-MAY-21
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
WG3543076-1 LCS								
1,1,1,2-Tetrachloroethane			102.1		%		70-130	31-MAY-21
1,1,2,2-Tetrachloroethane			108.3		%		70-130	31-MAY-21
1,1,1-Trichloroethane			96.7		%		70-130	31-MAY-21
1,1,2-Trichloroethane			103.5		%		70-130	31-MAY-21
1,1-Dichloroethane			100.7		%		70-130	31-MAY-21
1,1-Dichloroethylene			98.7		%		70-130	31-MAY-21
1,2-Dibromoethane			108.2		%		70-130	31-MAY-21
1,2-Dichlorobenzene			102.2		%		70-130	31-MAY-21
1,2-Dichloroethane			106.5		%		70-130	31-MAY-21
1,2-Dichloropropane			106.1		%		70-130	31-MAY-21
1,3-Dichlorobenzene			97.6		%		70-130	31-MAY-21
1,4-Dichlorobenzene			97.7		%		70-130	31-MAY-21
Acetone			119.6		%		60-140	31-MAY-21
Benzene			98.3		%		70-130	31-MAY-21
Bromodichloromethane			104.4		%		70-130	31-MAY-21
Bromoform			112.2		%		70-130	31-MAY-21
Bromomethane			95.8		%		60-140	31-MAY-21
Carbon tetrachloride			98.0		%		70-130	31-MAY-21
Chlorobenzene			100.5		%		70-130	31-MAY-21
Chloroform			103.6		%		70-130	31-MAY-21
cis-1,2-Dichloroethylene			103.5		%		70-130	31-MAY-21
cis-1,3-Dichloropropene			96.0		%		70-130	31-MAY-21
Dibromochloromethane			102.9		%		70-130	31-MAY-21
Dichlorodifluoromethane			89.1		%		50-140	31-MAY-21
Ethylbenzene			97.2		%		70-130	31-MAY-21
n-Hexane			95.3		%		70-130	31-MAY-21
m+p-Xylenes			99.1		%		70-130	31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-1 LCS								
Methyl Ethyl Ketone			105.6		%		60-140	31-MAY-21
Methyl Isobutyl Ketone			107.9		%		60-140	31-MAY-21
Methylene Chloride			106.0		%		70-130	31-MAY-21
MTBE			96.0		%		70-130	31-MAY-21
o-Xylene			109.5		%		70-130	31-MAY-21
Styrene			108.2		%		70-130	31-MAY-21
Tetrachloroethylene			94.0		%		70-130	31-MAY-21
Toluene			96.2		%		70-130	31-MAY-21
trans-1,2-Dichloroethylene			100.2		%		70-130	31-MAY-21
trans-1,3-Dichloropropene			99.4		%		70-130	31-MAY-21
Trichloroethylene			97.6		%		70-130	31-MAY-21
Trichlorofluoromethane			96.9		%		60-140	31-MAY-21
Vinyl chloride			103.1		%		60-140	31-MAY-21
WG3543076-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1,1-Trichloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1,2-Trichloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1-Dichloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1-Dichloroethylene			<0.50		ug/L		0.5	31-MAY-21
1,2-Dibromoethane			<0.20		ug/L		0.2	31-MAY-21
1,2-Dichlorobenzene			<0.50		ug/L		0.5	31-MAY-21
1,2-Dichloroethane			<0.50		ug/L		0.5	31-MAY-21
1,2-Dichloropropane			<0.50		ug/L		0.5	31-MAY-21
1,3-Dichlorobenzene			<0.50		ug/L		0.5	31-MAY-21
1,4-Dichlorobenzene			<0.50		ug/L		0.5	31-MAY-21
Acetone			<30		ug/L		30	31-MAY-21
Benzene			<0.50		ug/L		0.5	31-MAY-21
Bromodichloromethane			<2.0		ug/L		2	31-MAY-21
Bromoform			<5.0		ug/L		5	31-MAY-21
Bromomethane			<0.50		ug/L		0.5	31-MAY-21
Carbon tetrachloride			<0.20		ug/L		0.2	31-MAY-21
Chlorobenzene			<0.50		ug/L		0.5	31-MAY-21
Chloroform			<1.0		ug/L		1	31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-2 MB								
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	31-MAY-21
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	31-MAY-21
Dibromochloromethane			<2.0		ug/L		2	31-MAY-21
Dichlorodifluoromethane			<2.0		ug/L		2	31-MAY-21
Ethylbenzene			<0.50		ug/L		0.5	31-MAY-21
n-Hexane			<0.50		ug/L		0.5	31-MAY-21
m+p-Xylenes			<0.40		ug/L		0.4	31-MAY-21
Methyl Ethyl Ketone			<20		ug/L		20	31-MAY-21
Methyl Isobutyl Ketone			<20		ug/L		20	31-MAY-21
Methylene Chloride			<5.0		ug/L		5	31-MAY-21
MTBE			<2.0		ug/L		2	31-MAY-21
o-Xylene			<0.30		ug/L		0.3	31-MAY-21
Styrene			<0.50		ug/L		0.5	31-MAY-21
Tetrachloroethylene			<0.50		ug/L		0.5	31-MAY-21
Toluene			<0.50		ug/L		0.5	31-MAY-21
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	31-MAY-21
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	31-MAY-21
Trichloroethylene			<0.50		ug/L		0.5	31-MAY-21
Trichlorofluoromethane			<5.0		ug/L		5	31-MAY-21
Vinyl chloride			<0.50		ug/L		0.5	31-MAY-21
Surrogate: 1,4-Difluorobenzene			99.6		%		70-130	31-MAY-21
Surrogate: 4-Bromofluorobenzene			96.9		%		70-130	31-MAY-21
WG3543076-5 MS		**WG3543076-3**						
1,1,1,2-Tetrachloroethane			103.8		%		50-140	31-MAY-21
1,1,2,2-Tetrachloroethane			99.5		%		50-140	31-MAY-21
1,1,1-Trichloroethane			100.9		%		50-140	31-MAY-21
1,1,2-Trichloroethane			99.97		%		50-140	31-MAY-21
1,1-Dichloroethane			104.2		%		50-140	31-MAY-21
1,1-Dichloroethylene			104.9		%		50-140	31-MAY-21
1,2-Dibromoethane			100.5		%		50-140	31-MAY-21
1,2-Dichlorobenzene			104.3		%		50-140	31-MAY-21
1,2-Dichloroethane			101.4		%		50-140	31-MAY-21
1,2-Dichloropropane			108.0		%		50-140	31-MAY-21
1,3-Dichlorobenzene			102.3		%		50-140	31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-5 MS		**WG3543076-3**						
1,4-Dichlorobenzene			102.0		%		50-140	31-MAY-21
Acetone			104.8		%		50-140	31-MAY-21
Benzene			100.6		%		50-140	31-MAY-21
Bromodichloromethane			102.6		%		50-140	31-MAY-21
Bromoform			99.5		%		50-140	31-MAY-21
Bromomethane			92.9		%		50-140	31-MAY-21
Carbon tetrachloride			102.1		%		50-140	31-MAY-21
Chlorobenzene			102.5		%		50-140	31-MAY-21
Chloroform			104.7		%		50-140	31-MAY-21
cis-1,2-Dichloroethylene			103.6		%		50-140	31-MAY-21
cis-1,3-Dichloropropene			95.0		%		50-140	31-MAY-21
Dibromochloromethane			98.3		%		50-140	31-MAY-21
Dichlorodifluoromethane			89.7		%		50-140	31-MAY-21
Ethylbenzene			104.3		%		50-140	31-MAY-21
n-Hexane			104.8		%		50-140	31-MAY-21
m+p-Xylenes			105.6		%		50-140	31-MAY-21
Methyl Ethyl Ketone			90.8		%		50-140	31-MAY-21
Methyl Isobutyl Ketone			100.6		%		50-140	31-MAY-21
Methylene Chloride			101.3		%		50-140	31-MAY-21
MTBE			97.8		%		50-140	31-MAY-21
o-Xylene			116.1		%		50-140	31-MAY-21
Styrene			110.7		%		50-140	31-MAY-21
Tetrachloroethylene			96.4		%		50-140	31-MAY-21
Toluene			102.3		%		50-140	31-MAY-21
trans-1,2-Dichloroethylene			104.3		%		50-140	31-MAY-21
trans-1,3-Dichloropropene			99.3		%		50-140	31-MAY-21
Trichloroethylene			98.6		%		50-140	31-MAY-21
Trichlorofluoromethane			101.2		%		50-140	31-MAY-21
Vinyl chloride			107.1		%		50-140	31-MAY-21

Quality Control Report

Workorder: L2590710 Report Date: 31-MAY-21

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

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.

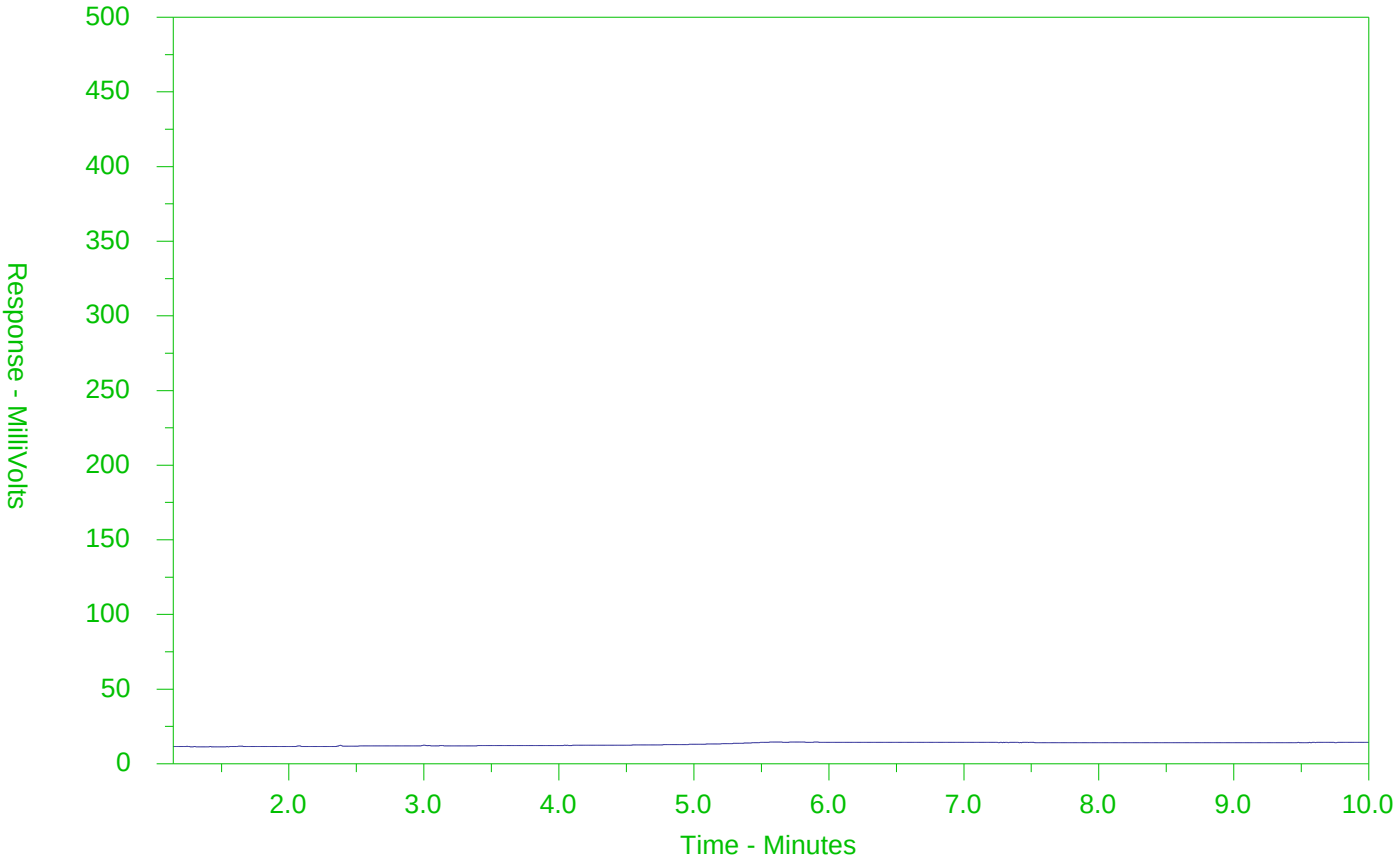
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2590710-1
Client Sample ID: MW1



←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.

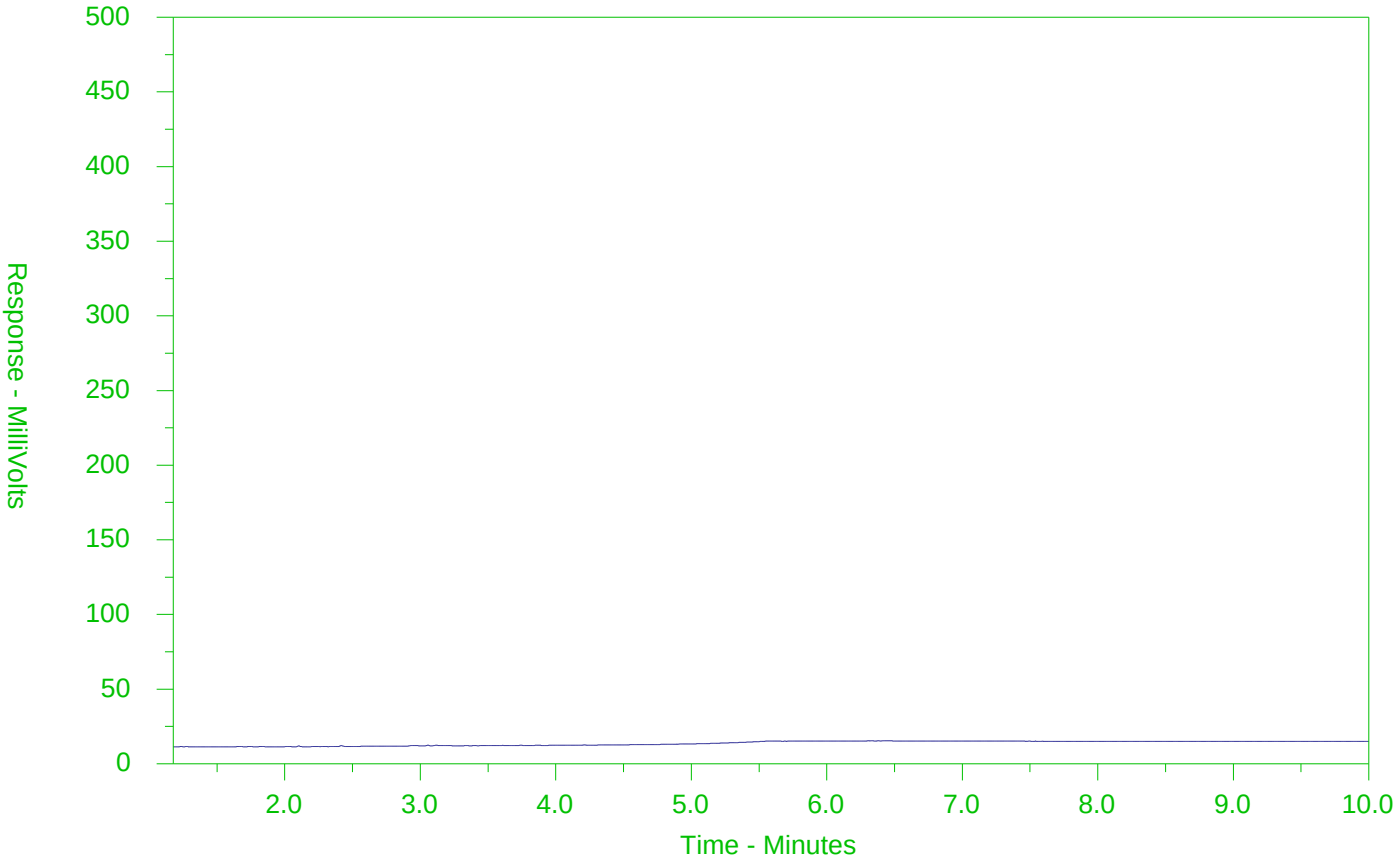
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2590710-2
Client Sample ID: MW2



←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.

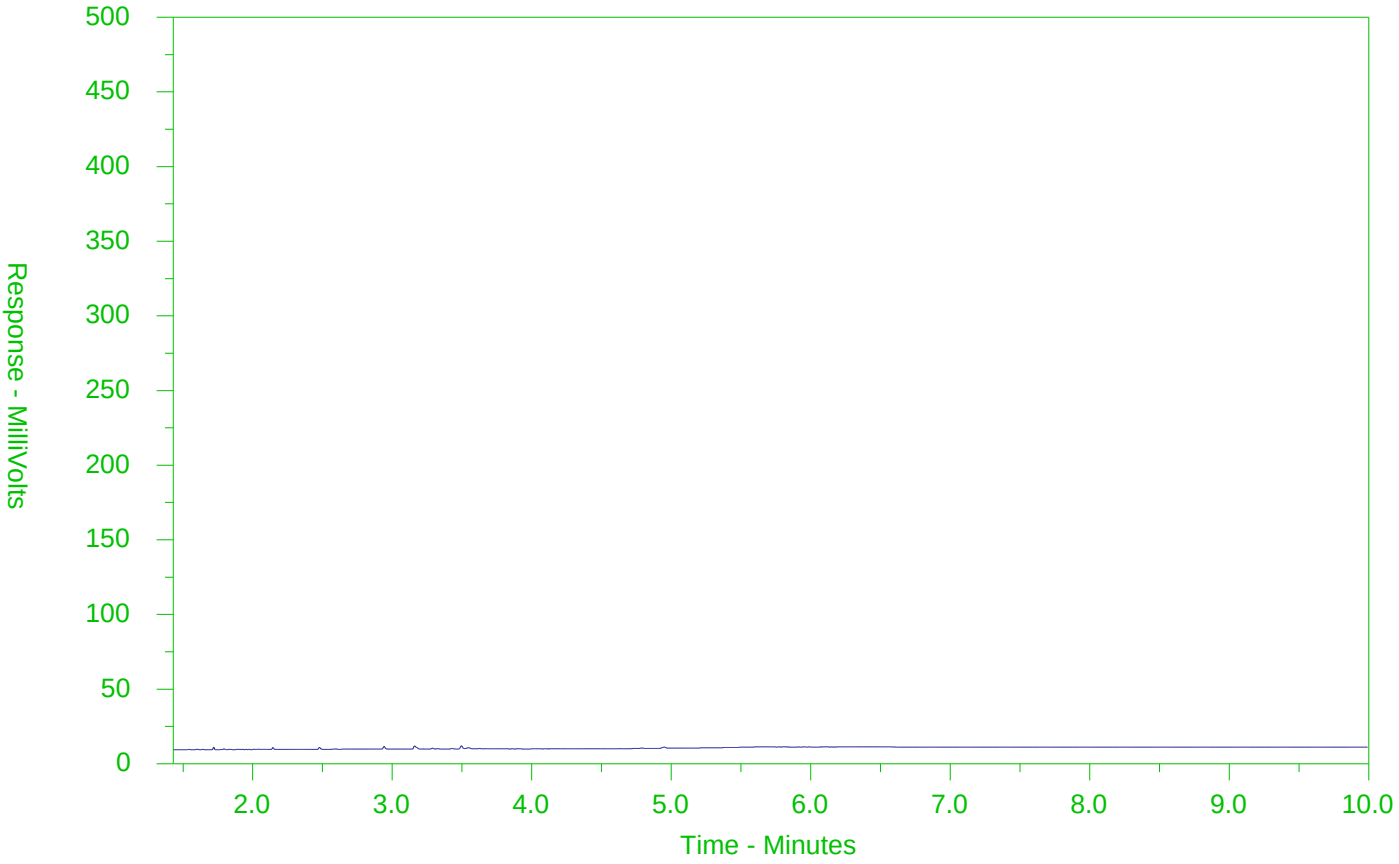
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2590710-3
Client Sample ID: MW2-DUP



←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.

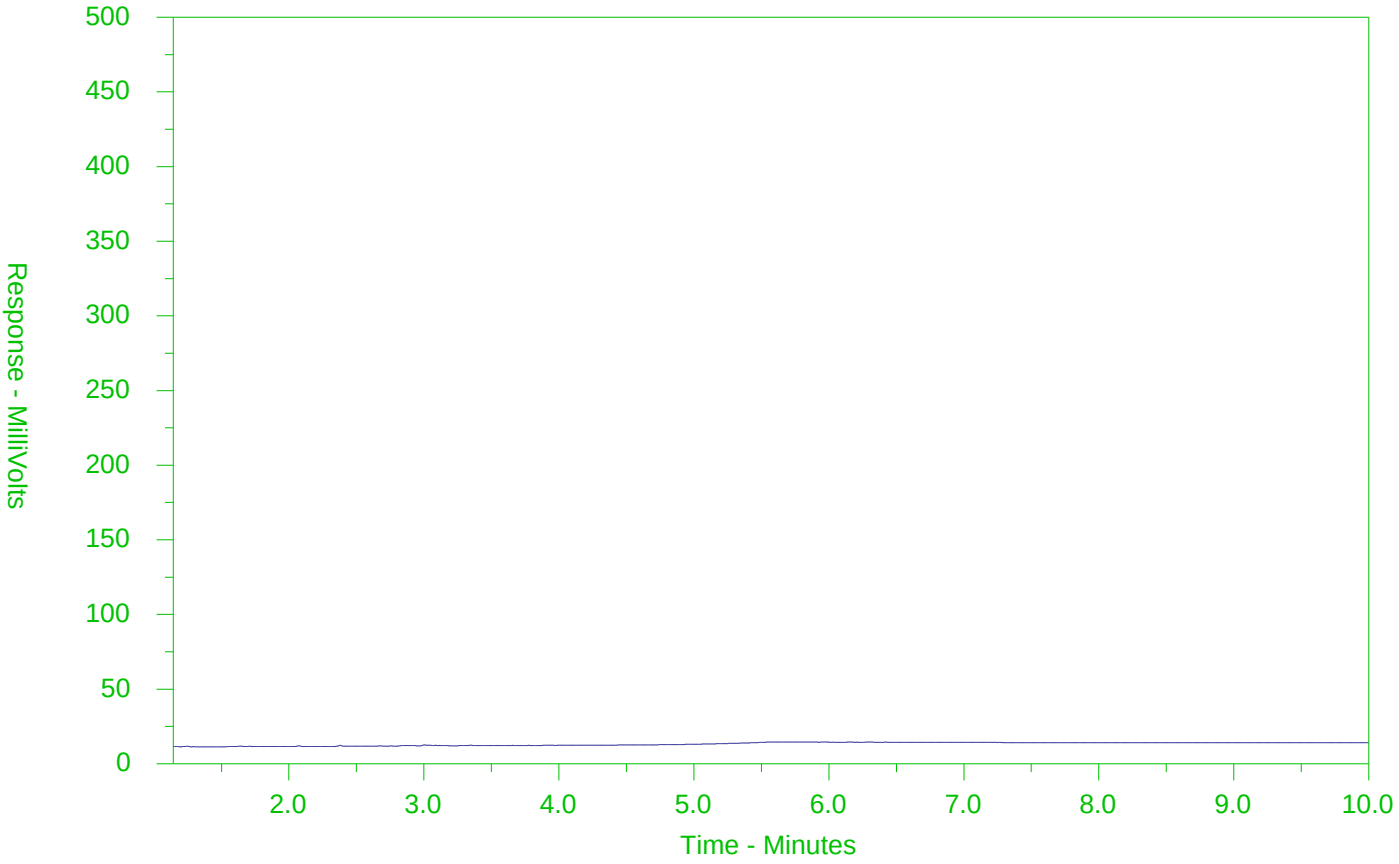
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2590710-4
Client Sample ID: MW3



←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 www.alsglobal.com

Chain of Cu L2590710-COFC

COC Number: 20 -

Page 1 of 2

Report To	Contact and company name below will appear on the final report
Company:	McIntosh Perry (Oakville) ACCT # 26017
Contact:	Bradley Sutherland
Phone:	613-903-5785
	Company address below will appear on the final report
Street:	115 Walgreen Road RR3
City/Province:	Carp, ON
Postal Code:	K0A 1L0
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☑ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax b.sutherland@mcintoshperry.com
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
b.sutherland@mcintoshperry.com
m.innes@mcintoshperry.com, AP@Mcintoshperry.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	Q78918 (2021 SOA)
Job #:	CCO-22-0244
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 # (ALS use only): L2590710

ALS Contact: Emily Smith Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS 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/PHCs (VOC-R511,F1-F4-P-WT)	M&I (R511-INORGANICS-P-WT)	PAHs (PAH-511-WT)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MW1	20-May-21	10:30am	GW	3	✓	✓	✓			
	MW2	20-May-21	11:00am	GW	3	✓	✓	✓			
	MW2-DUP	20-May-21	11:30am	GW	3	✓		✓			
	MW3	20-May-21	12:30pm	GW	3	✓	✓	✓			
	TRIP BLANK	20-May-21	N/A		2	✓					

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

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Compare to table 3 of O Reg. 153

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☑ YES ☐ NO
Cooler Custody Seals Intact: ☑ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
9.2	11.1

SHIPMENT RELEASE (client use)

Released by: Bradley Sutherland Date: May 20 2021 Time: 1:15pm

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: COLTAT F Date: 5/20/21 Time: 13:15

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: 05/21/21 Time: 9am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 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**.

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX E
GRAIN SIZE ANALYSIS

McINTOSH PERRY

McINTOSH PERRY

WATER CONTENT DETERMINATION

Test Method Utilized	☑ MTO LS-701		☐ ASTM D 2216		☐ AASHTO T-265		
Project No.: CP17-0635					Date Received: 01/07/19		
Project Name/Location: 6 Edgewater St. Ottawa					Date Tested: 01/09/19		
Material Type: Soils					Lab Sample No.: OL-19001		
Borehole No.	Depth Sample Taken (ft')	Sample Container I.D.	Wet Sample + Tare (A)	Dry Sample + Tare (B)	Tare (C)	Mass of Sample (D) (B-C)	% Moisture (A-B)/Dx100
BH18-01 SS4	6-8	Tr.152	829.69	644.65	127.91	516.74	**35.8**
BH18-03 SS4	10-12	Tr.199	788.50	590.56	128.64	461.92	**42.9**
BH18-03 SS5	15-17	Tr.114	787.02	570.55	152.69	417.86	**51.8**
BH18-04 SS3	7.5-9.5	Tr.2.18s	777.56	536.10	139.60	396.50	**60.9**
BH18-05 ST4	10-12	Tr.169	1143.86	758.21	133.26	624.95	**61.7**
BH18-05 SS5	15-17	Tr.163	885.08	652.54	136.53	516.01	**45.1**
BH18-05 SS6	20-22	Tr.118	982.72	879.30	133.02	746.28	**13.9**

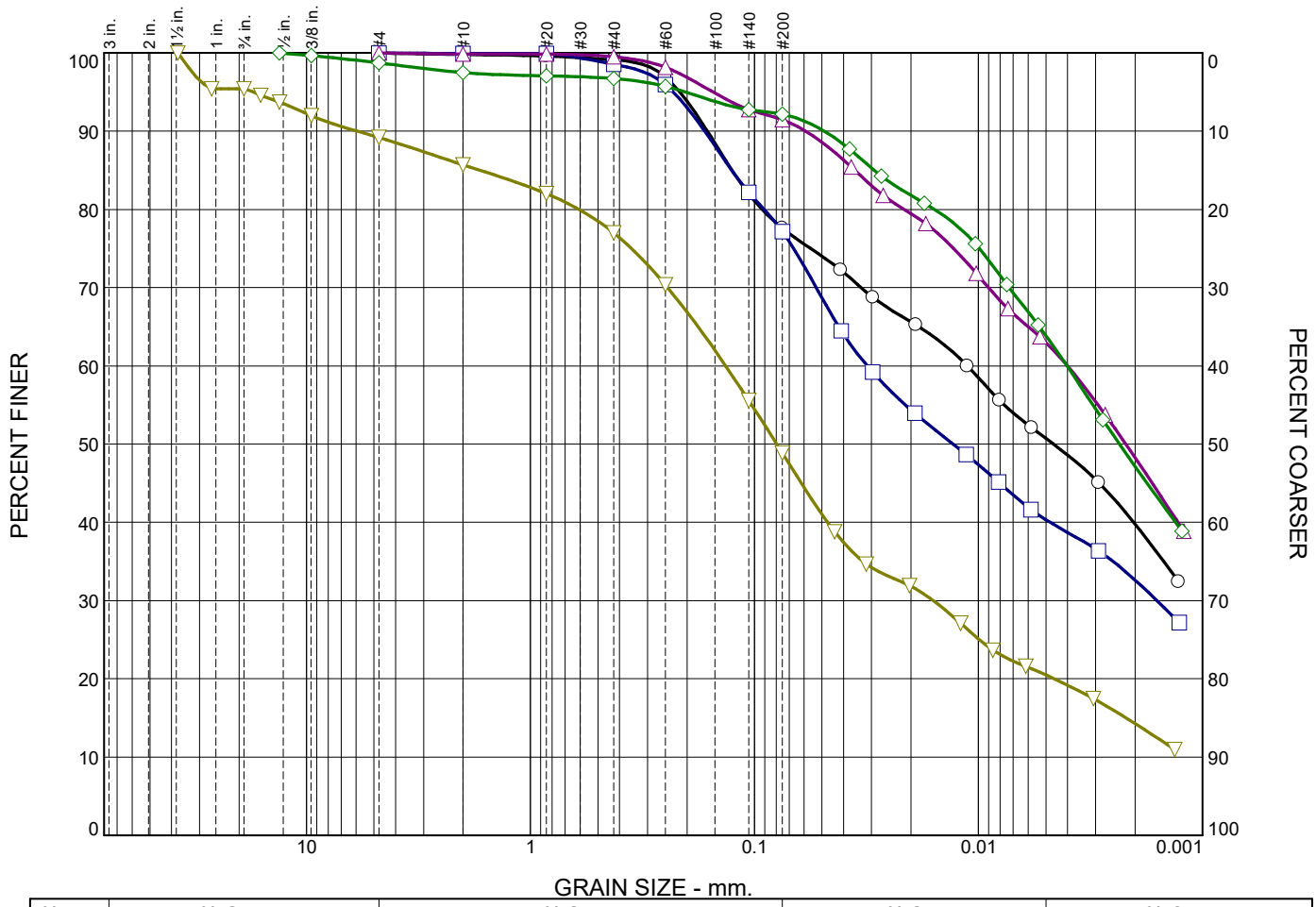
Non-Comformance's from Test Procedure: N/A

Comments:

Checked by: H.S.

Signature: H. Smith

Particle Size Distribution Report



	% +3"	% Gravel	% Sand	% Silt	% Clay
○	0.0	0.0	22.4	26.9	50.7
□	0.0	0.0	22.8	36.9	40.3
△	0.0	0.0	8.5	28.5	63.0
◇	0.0	1.3	6.5	28.3	63.9
▽	0.0	10.8	40.3	28.4	20.5

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	Edgewater St.	BH1801 SS4	6'-8'	Silty Sandy Clay	
□	Edgewater St.	BH1803 SS4	10'-12'	Sandy Clay and Silt	
△	Edgewater St.	BH1804 SS3	7.5'-9.5'	Silty Clay trace Sand	
◇	Edgewater St.	BH1805 ST4	10'-12'	Silty Clay trace Sand trace Gravel	CL
▽	Edgewater St.	BH1805 SS6	20'-22'	Silty Clayey Sand some Gravel	

McINTOSH PERRY

Client:

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON

Project No.: CP17-0635 **Figure**

Checked By: H.Smith

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 6'-8' **Sample Number:** BH1801 SS4
Material Description: Silty Sandy Clay
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
516.74	0.00	0.00	4.75mm	0.00	100.0	0.0
			2.00mm	1.02	99.8	0.2
55.66	0.00	0.00	0.850mm	0.11	99.6	0.4
			0.425mm	0.38	99.1	0.9
			0.250mm	1.60	96.9	3.1
			0.106mm	9.94	82.0	18.0
			0.075mm	12.39	77.6	22.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.8
Weight of hydrometer sample =55.66
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.750
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.7270 **-** 0.154 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	45.5	41.2	0.0131	44.5	9.9	0.0411	72.2	27.8
2.00	21.0	43.5	39.2	0.0131	42.5	10.2	0.0295	68.7	31.3
5.00	21.0	41.5	37.2	0.0131	40.5	10.5	0.0190	65.2	34.8
15.00	21.0	38.5	34.2	0.0131	37.5	11.0	0.0112	60.0	40.0
30.00	21.0	36.0	31.7	0.0131	35.0	11.3	0.0080	55.6	44.4
60.00	21.0	34.0	29.7	0.0131	33.0	11.6	0.0058	52.1	47.9
250.00	21.0	30.0	25.7	0.0131	29.0	12.3	0.0029	45.0	55.0
1440.00	20.0	23.0	18.5	0.0133	22.0	13.3	0.0013	32.4	67.6

Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	0.0	22.4	26.9	50.7

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0020	0.0046	0.0112	0.0925	0.1258	0.1624	0.2152

Fineness Modulus
0.14

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 10'-12' **Sample Number:** BH1803 SS4
Material Description: Sandy Clay and Silt
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
461.92	0.00	0.00	4.75mm	0.00	100.0	0.0
			2.00mm	0.22	100.0	0.0
55.81	0.00	0.00	0.850mm	0.00	100.0	0.0
			0.425mm	0.78	98.6	1.4
			0.250mm	2.23	96.0	4.0
			0.106mm	9.93	82.2	17.8
			0.075mm	12.72	77.2	22.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =55.81
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.734
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.1047 **-** 0.160 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	41.0	36.7	0.0131	40.0	9.7	0.0410	64.5	35.5
2.00	21.0	38.0	33.7	0.0131	37.0	10.2	0.0297	59.2	40.8
5.00	21.0	35.0	30.7	0.0131	34.0	10.7	0.0192	53.9	46.1
15.00	21.0	32.0	27.7	0.0131	31.0	11.1	0.0113	48.7	51.3
30.00	21.0	30.0	25.7	0.0131	29.0	11.5	0.0081	45.1	54.9
60.00	21.0	28.0	23.7	0.0131	27.0	11.8	0.0058	41.6	58.4
250.00	21.0	25.0	20.7	0.0131	24.0	12.3	0.0029	36.4	63.6
1440.00	20.0	20.0	15.5	0.0133	19.0	13.1	0.0013	27.2	72.8

Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	0.0	22.8	36.9	40.3

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0016	0.0048	0.0130	0.0314	0.0907	0.1262	0.1668	0.2298

Fineness Modulus
0.15

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 7.5'-9.5' **Sample Number:** BH1804 SS3
Material Description: Silty Clay trace Sand
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
396.50	0.00	0.00	4.75mm	0.00	100.0	0.0
			2.00mm	0.50	99.9	0.1
53.84	0.00	0.00	0.850mm	0.01	99.9	0.1
			0.425mm	0.20	99.5	0.5
			0.250mm	0.91	98.2	1.8
			0.106mm	3.83	92.8	7.2
			0.075mm	4.53	91.5	8.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =53.84
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.761
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.1047 **-** 0.160 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	51.5	47.2	0.0130	50.5	8.0	0.0370	85.4	14.6
2.00	21.0	49.5	45.2	0.0130	48.5	8.3	0.0266	81.8	18.2
5.00	21.0	47.5	43.2	0.0130	46.5	8.7	0.0172	78.2	21.8
15.00	21.0	44.0	39.7	0.0130	43.0	9.2	0.0102	71.8	28.2
30.00	21.0	41.5	37.2	0.0130	40.5	9.6	0.0074	67.3	32.7
60.00	21.0	39.5	35.2	0.0130	38.5	9.9	0.0053	63.7	36.3
250.00	21.0	34.0	29.7	0.0130	33.0	10.8	0.0027	53.7	46.3
1440.00	20.0	26.0	21.5	0.0132	25.0	12.1	0.0012	38.9	61.1

Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	0.0	8.5	28.5	63.0

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0013	0.0022	0.0040	0.0214	0.0356	0.0591	0.1531

Fineness Modulus
0.07

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 10'-12' **Sample Number:** BH1805 ST4
Material Description: Silty Clay trace Sand trace Gravel
USCS: CL
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
624.95	0.00	0.00	13.2mm	0.00	100.0	0.0
			9.5mm	2.12	99.7	0.3
			4.75mm	7.92	98.7	1.3
			2.00mm	15.66	97.5	2.5
54.78	0.00	0.00	0.850mm	0.24	97.1	2.9
			0.425mm	0.43	96.7	3.3
			0.250mm	0.99	95.7	4.3
			0.106mm	2.67	92.7	7.3
			0.075mm	2.99	92.2	7.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.5
Weight of hydrometer sample =54.78
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.779
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.7270 **-** 0.154 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	55.0	50.7	0.0130	54.0	8.4	0.0376	87.7	12.3
2.00	21.0	53.0	48.7	0.0130	52.0	8.7	0.0271	84.3	15.7
5.00	21.0	51.0	46.7	0.0130	50.0	9.0	0.0174	80.8	19.2
15.00	21.0	48.0	43.7	0.0130	47.0	9.5	0.0103	75.6	24.4
30.00	21.0	45.0	40.7	0.0130	44.0	10.0	0.0075	70.4	29.6
60.00	21.0	42.0	37.7	0.0130	41.0	10.4	0.0054	65.2	34.8
250.00	21.0	35.0	30.7	0.0130	34.0	11.5	0.0028	53.1	46.9
1440.00	20.0	27.0	22.5	0.0131	26.0	12.7	0.0012	38.9	61.1

Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	1.3	6.5	28.3	63.9

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0013	0.0023	0.0040	0.0157	0.0292	0.0487	0.2028

Fineness Modulus
0.20

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 20'-22' **Sample Number:** BH1805 SS6
Material Description: Silty Clayey Sand some Gravel
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
746.28	0.00	0.00	37.5mm	0.00	100.0	0.0
			26.5mm	34.22	95.4	4.6
			19.0mm	34.22	95.4	4.6
			16.0mm	40.36	94.6	5.4
			13.2mm	46.79	93.7	6.3
			9.5mm	59.88	92.0	8.0
			4.75mm	80.60	89.2	10.8
			2.00mm	106.79	85.7	14.3
61.20	0.00	0.00	0.850mm	2.62	82.0	18.0
			0.425mm	6.20	77.0	23.0
			0.250mm	10.95	70.4	29.6
			0.106mm	21.52	55.6	44.4
			0.075mm	26.30	48.9	51.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 85.7
Weight of hydrometer sample =61.20
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.725
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.1047 **-** 0.160 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	32.5	28.2	0.0132	31.5	11.1	0.0438	38.8	61.2
2.00	21.0	29.5	25.2	0.0132	28.5	11.5	0.0317	34.7	65.3
5.00	21.0	27.5	23.2	0.0132	26.5	11.9	0.0203	31.9	68.1
15.00	21.0	24.0	19.7	0.0132	23.0	12.4	0.0120	27.1	72.9
30.00	21.0	21.5	17.2	0.0132	20.5	12.8	0.0086	23.7	76.3
60.00	21.0	20.0	15.7	0.0132	19.0	13.1	0.0062	21.6	78.4
250.00	21.0	17.0	12.7	0.0132	16.0	13.5	0.0031	17.5	82.5
1440.00	20.0	12.5	8.0	0.0133	11.5	14.3	0.0013	11.0	89.0

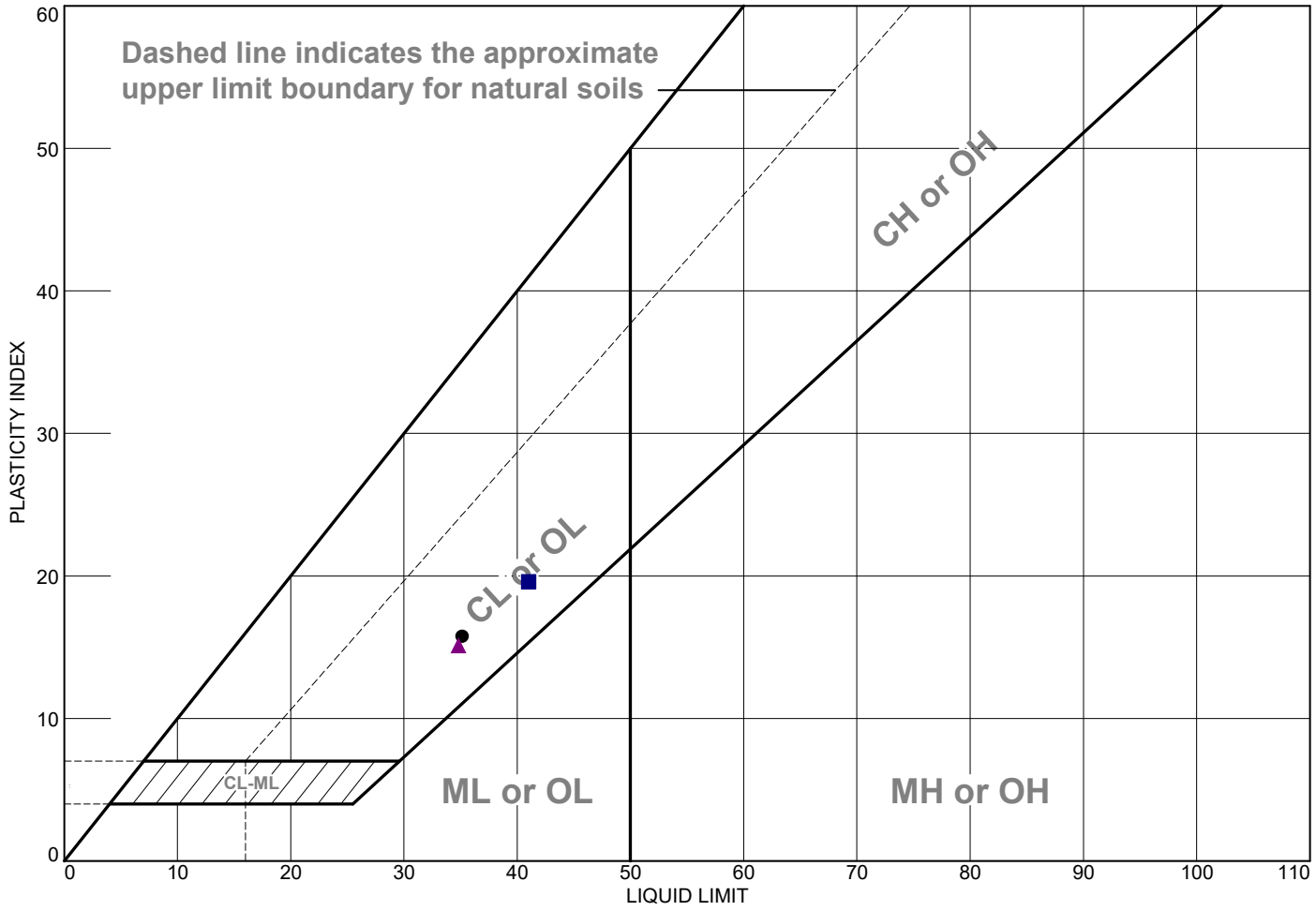
Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	10.8	40.3	28.4	20.5

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0022	0.0046	0.0159	0.0471	0.0794	0.1345	0.6066	1.6815	5.9332	17.2074

Fineness Modulus
1.39

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Clay Low Plasticity	35.2	19.5	15.7			
■	Silty Clay trace Sand trace Gravel	41.0	21.4	19.6	96.7	92.2	CL
▲	Clay Low Plasticity	34.8	19.7	15.1			

Project No. CP17-0635 **Client:**

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON

Remarks:

● **Source of Sample:** Edgewater St. **Depth:** 15'-17' **Sample Number:** BH1803 SS5

■ **Source of Sample:** Edgewater St. **Depth:** 10'-12' **Sample Number:** BH1805 ST4

▲ **Source of Sample:** Edgewater St. **Depth:** 15'-17' **Sample Number:** BH1805 SS6

McINTOSH PERRY

Figure

Checked By: H.Smith

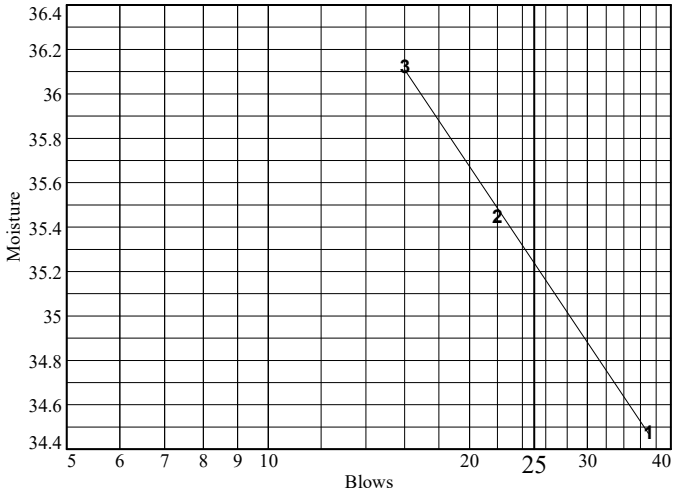
LIQUID AND PLASTIC LIMIT TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 15'-17'
Sample Number: BH1803 SS5
Material Description: Clay Low Plasticity
Checked by: H.Smith

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.73	30.32	31.01			
Dry+Tare	25.93	27.70	28.34			
Tare	20.71	20.31	20.95			
# Blows	37	22	16			
Moisture	34.5	35.5	36.1			



Liquid Limit= 35.2
Plastic Limit= 19.5
Plasticity Index= 15.7
Natural Moisture= 51.8
Liquidity Index= 2.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.90	22.82			
Dry+Tare	23.30	22.43			
Tare	20.25	20.42			
Moisture	19.7	19.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
787.02	570.55	152.69	51.8

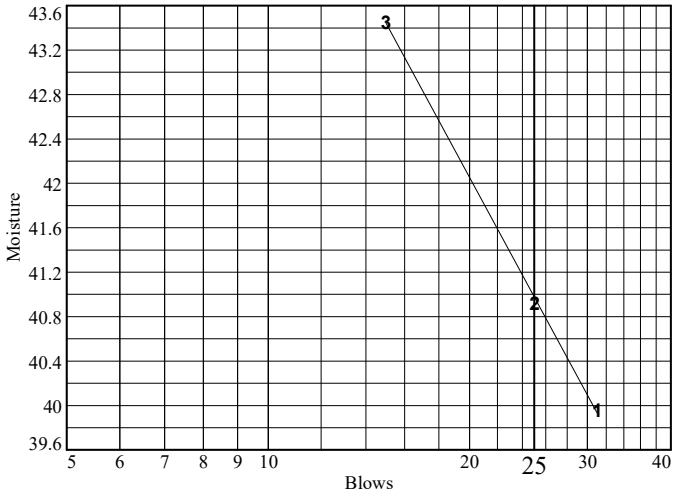
LIQUID AND PLASTIC LIMIT TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 10'-12' **Sample Number:** BH1805 ST4
Material Description: Silty Clay trace Sand trace Gravel
%<#40: 96.7 **%<#200:** 92.2 **USCS:** CL **AASHTO:** A-7-6(19)
Checked by: H.Smith

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.20	29.42	28.67			
Dry+Tare	25.95	26.78	26.18			
Tare	20.32	20.33	20.45			
# Blows	31	25	15			
Moisture	40.0	40.9	43.5			



Liquid Limit= 41.0
Plastic Limit= 21.4
Plasticity Index= 19.6
Natural Moisture= 61.7
Liquidity Index= 2.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.68	23.06			
Dry+Tare	22.26	22.58			
Tare	20.28	20.35			
Moisture	21.2	21.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
1143.86	758.21	133.26	61.7

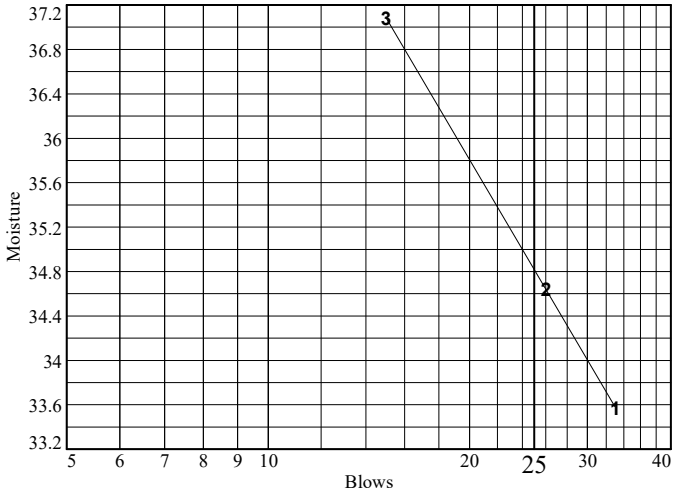
LIQUID AND PLASTIC LIMIT TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 15'-17'
Sample Number: BH1805 SS6
Material Description: Clay Low Plasticity
Checked by: H.Smith

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	37.86	28.08	37.60			
Dry+Tare	35.58	26.15	35.26			
Tare	28.79	20.58	28.95			
# Blows	33	26	15			
Moisture	33.6	34.6	37.1			



Liquid Limit= 34.8
Plastic Limit= 19.7
Plasticity Index= 15.1
Natural Moisture= 45.1
Liquidity Index= 1.7

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.60	23.87			
Dry+Tare	23.02	23.30			
Tare	20.13	20.35			
Moisture	20.1	19.3			

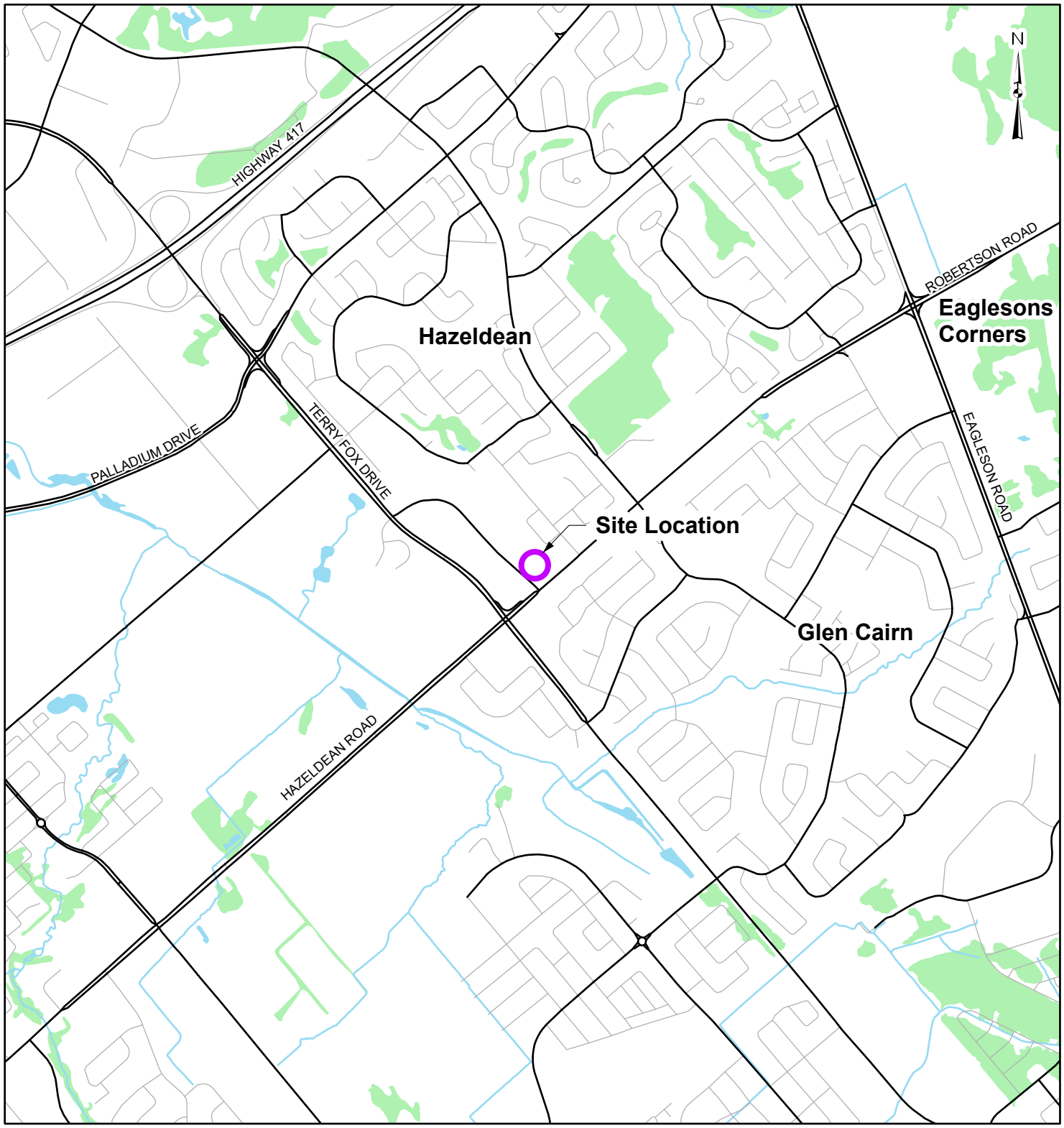
Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
885.08	652.54	136.53	45.1

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

FIGURES

McINTOSH PERRY



LEGEND

- Site Location
- Local Road
- Major Road
- Watercourse
- Waterbody
- Wooded Area

500 250 0 500

Scale 1:20,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

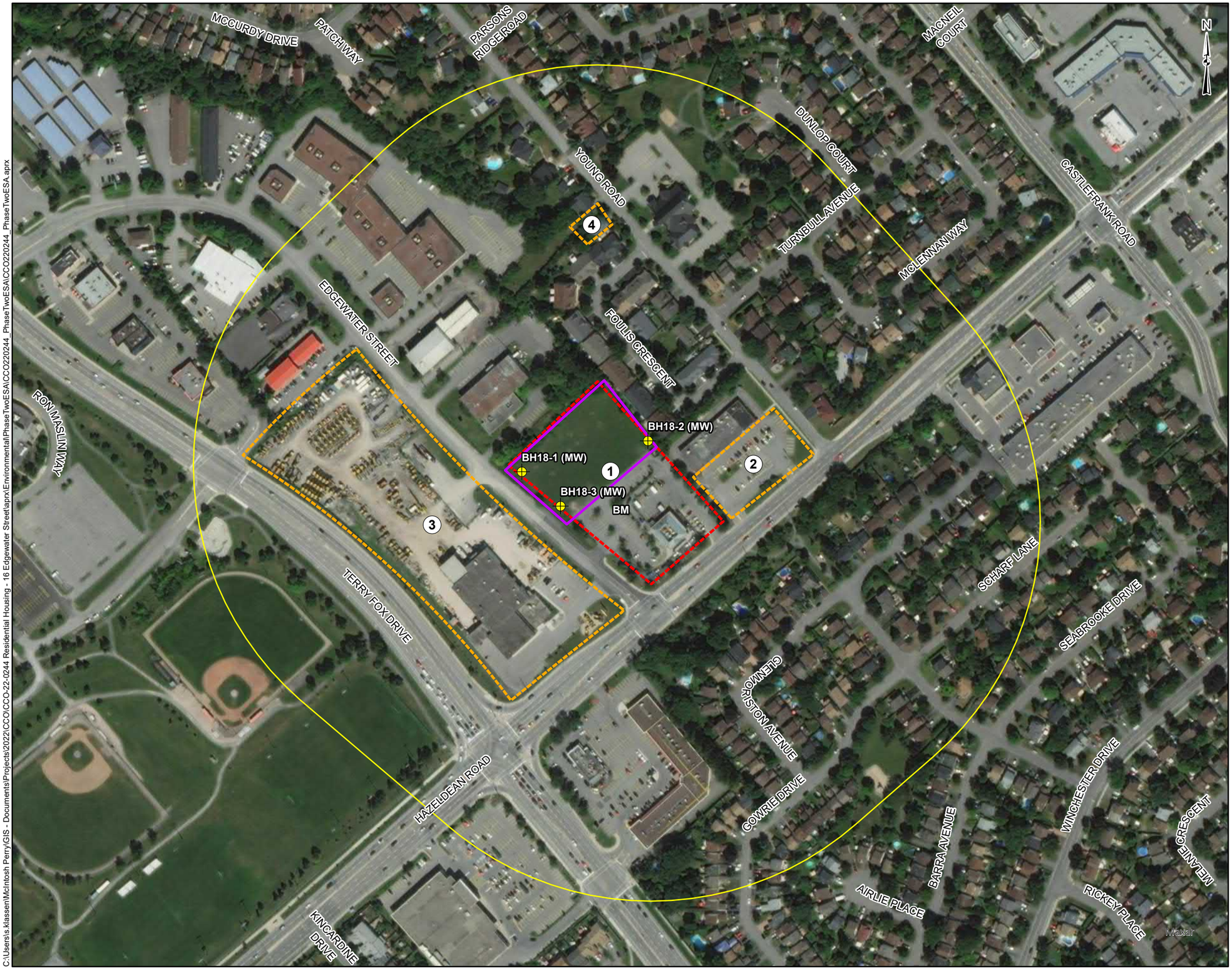
CLIENT: CHRIS McCLUSKEY

PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ON

TITLE: SITE LOCATION

115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO:CCO-22-0244		FIGURE:
Date	Oct., 06, 2021	1
GIS	SK	
Checked By	DA	



C:\Users\s.klassen\McIntosh Perry\GIS - Documents\Projects\2022\CCO\CCO-22-0244 Residential Housing - 16 Edgewater Street\aprx\Environmental\PhaseTwoESA\CCO220244_PhaseTwoESA\CCO220244_PhaseTwoESA.aprx

LEGEND

- Approximate Site Boundary
- 250m Buffer
- Monitoring Well
- APECs
- PCAs

1 6 Edgewater Street
- Former materials storage yard with AST

2 501 Hazeldean Road
- Former retail fuel outlet
- 3 fuel storage tanks
- Ontario spill (20L hydraulic oil to catch basin

3 5 Edgewater Street
- Heavy equiptment garage
- Former private fuel outlet
- 2 fuel storage tanks (status unknown)
- Former trichloroethane leak from tank

4 21 Young Road
- Ontario spill (4-5L of heating oil, cleaned up)

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

0 30 60 120

Scale 1:3,000 Metres

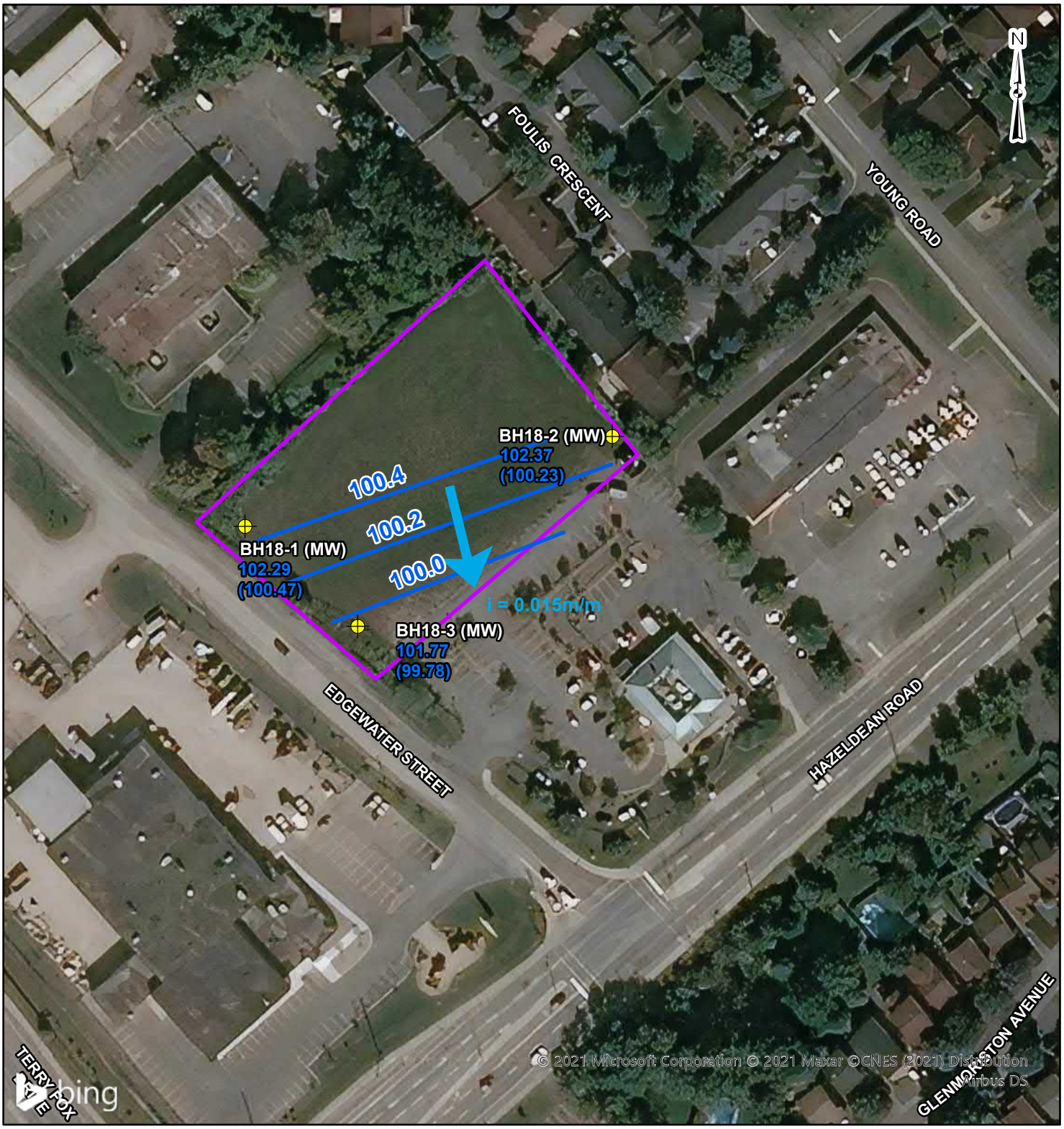
CLIENT: CHRIS McCLUSKEY

PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ON

TITLE: BOREHOLE LOCATION PLAN

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO: CCO-22-0244	FIGURE:
Date: Oct., 07, 2021	2
GIS: SK	
Checked By: DA	



LEGEND

- Approximate Site Boundary
- Monitoring Well
- 102.29 Ground Surface Elevation
- (100.47) Groundwater Elevation
- 102.29 Groundwater Elevation Contour
- Groundwater Flow Direction and Hydraulic Gradient
  i = 0.015m/m

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

50 25 0 50

Scale 1:1,500 Metres

CLIENT: CHRIS McCLUSKEY

PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ON

TITLE: GROUNDWATER CONTOUR PLAN

115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO:CCO-22-0244	FIGURE: 3
Date	Oct., 07, 2021
GIS	SK
Checked By	DA

C:\Users\klassen\McIntosh Perry\GIS - Documents\Projects\2022\CCO\CCO-22-0244 Residential Housing - 16 Edgewater Street\aprx\Environmental\PhaseTwoESA\CCO220244_PhaseTwoESA.aprx

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

TABLES

McINTOSH PERRY

Table 1: Monitoring Well Construction Detains and Groundwater Elevations

Monitoring Well ID	Total Depth (m)	Screened Interval (m BGS)	Top of Pipe Elevation (m ASL)	Ground Elevation (m ASL)	Stick-up (m)	Water Level Measurement (m BTOP)	Water Level Measurement (m BGS)	Water Elevation (m LD)	Date	Comments
BH/MW 18-1	4.57	1.52-4.57	103.132	102.29	0.842	2.225	1.383	100.907	14-Dec-18	Stick up well
						2.073	1.231	101.059	17-Dec-18	Used to determine GW flow direction
						2.186	1.344	100.946	07-Jan-19	Resample
						2.665	1.823	100.467	20-May-21	Resample
BH/MW 18-2	6.1	3.05-6.10	103.315	102.37	0.945	1.761	0.816	101.554	14-Dec-18	Stick up well
						1.778	0.833	101.537	17-Dec-18	Used to determine GW flow direction
						1.85	0.905	101.465	07-Jan-19	Resample
						3.085	2.14	100.23	20-May-21	Resample
BH/MW 18-3	4.88	1.83-4.88	102.676	101.77	0.906	2.017	1.111	100.659	14-Dec-18	Stick up well
						1.921	1.015	100.755	17-Dec-18	Used to determine GW flow direction
						1.994	1.088	100.682	07-Jan-19	Resample
						2.897	1.991	99.779	20-May-21	Resample

Notes:

GS	*ground surface*
TOP	*top of casing (i.e. top of pvc riser)*
Btop	*below top of casing*

Table 2: Analytical Results - Soil

PARAMETER	UNITS	MRL	Sample Date: / Sample ID: / Sample Depth (m bgs): 13-Dec-18 BH/MW18-1 SS5 2.44 - 3.05	13-Dec-18 BH/MW18-2 SS3 1.27 - 1.83	13-Dec-18 BH/MW18-3 SS3 1.83 - 2.44	13-Dec-18 BH/MW18-3 SS Duplicate of BH/MW3-SS3	Relative Percent Difference (%)	MECP Site Condition Standards **
Physical Test								
Conductivity	mS/cm	0.004	0.55	0.133	0.323	0.338	4.5%	0.7
% Moisture	%	0.1	33	26.2	27	26.8	0.7%	-
pH	pH Units	0.1	7.56	7.39	7.53	7.51	0.3%	-
Inorganics								
Cyanide, Weak Acid Diss	0.05	ug/g	<0.050	<0.050	<0.050	<0.050	--	0.051
SAR	0.1	SAR	3.54	1.08	2.91	2.79	4.2%	5
Calcium (Ca)	1	mg/L	27.4	8.1	13.2	14.8	11.4%	-
Magnesium (Mg)	1	mg/L	3.3	1.7	2.5	2.9	14.8%	-
Sodium (Na)	1	mg/L	73.7	13	44	44.9	2.0%	-
Metals								
Antimony (Sb)	1	ug/g	<1.0	<1.0	<1.0	<1.0	--	7.5
Arsenic (As)	1	ug/g	3.5	2.4	2.8	3	6.9%	18
Barium (Ba)	1	ug/g	283	142	162	164	1.2%	390
Beryllium (Be)	0.5	ug/g	0.61	<0.50	<0.50	<0.50	--	5
Boron (B), Hot Water Ext.	0.1	ug/g	0.23	0.1	<0.10	<0.10	--	1.5
Boron (B)	5	ug/g	5.4	<5.0	<5.0	<5.0	--	120
Cadmium (Cd)	0.5	ug/g	<0.50	<0.50	<0.50	<0.50	--	1.2
Chromium (Cr)	1	ug/g	40.4	22.4	28.4	29.9	5.1%	160
Cobalt (Co)	1	ug/g	11.1	6.5	7.9	8	1.3%	22
Copper (Cu)	1	ug/g	20.5	13.6	17.3	17.8	2.8%	180
Lead (Pb)	1	ug/g	7.5	3.7	4.6	4.6	0.0%	120
Mercury (Hg)	0.005	ug/g	0.0181	<0.0050	<0.0050	<0.0050	--	1.8
Molybdenum (Mo)	1	ug/g	<1.0	<1.0	<1.0	<1.0	--	6.9
Nickel (Ni)	1	ug/g	22.7	12.3	16.4	16.7	1.8%	130
Selenium (Se)	1	ug/g	<1.0	<1.0	<1.0	<1.0	--	2.4
Silver (Ag)	0.2	ug/g	<0.20	<0.20	<0.20	<0.20	--	25
Thallium (Tl)	0.5	ug/g	<0.50	<0.50	<0.50	<0.50	--	1
Uranium (U)	1	ug/g	<1.0	<1.0	<1.0	<1.0	--	23
Vanadium (V)	1	ug/g	51.8	33.9	44.2	46.3	4.6%	86
Zinc (Zn)	5	ug/g	63.8	33.3	43.1	44.3	2.7%	340
Chromium, Hexavalent	0.2	ug/g	0.5	<0.20	0.29	0.29	0.0%	10

Table 2: Analytical Results - Soil

PARAMETER	UNITS	MRL	Sample Date: 13-Dec-18 Sample ID: BH/MW18-1 SS5 Sample Depth (m bgs): 2.44 - 3.05	13-Dec-18 BH/MW18-2 SS3 1.27 - 1.83	13-Dec-18 BH/MW18-3 SS3 1.83 - 2.44	13-Dec-18 BH/MW18-3 SS Duplicate of BH/MW3-SS3	Relative Percent Difference (%)	MECP Site Condition Standards **
VOCs (including BTEX)								
Acetone		ug/g	<0.50	<0.50	<0.50	<0.50	--	28
Benzene		ug/g	<0.0068	<0.0068	<0.0068	<0.0068	--	0.17
Bromodichloromethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	13
Bromoform		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.26
Bromomethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.05
Carbon tetrachloride		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.12
Chlorobenzene		ug/g	<0.050	<0.050	<0.050	<0.050	--	2.7
Dibromochloromethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	9.4
Chloroform		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.18
1,2-Dibromoethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.05
1,2-Dichlorobenzene		ug/g	<0.050	<0.050	<0.050	<0.050	--	4.3
1,3-Dichlorobenzene		ug/g	<0.050	<0.050	<0.050	<0.050	--	6
1,4-Dichlorobenzene		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.097
Dichlorodifluoromethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	25
1,1-Dichloroethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	11
1,2-Dichloroethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.05
1,1-Dichloroethylene		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.05
cis-1,2-Dichloroethylene		ug/g	<0.050	<0.050	<0.050	<0.050	--	30
trans-1,2-Dichloroethylene		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.75
Methylene Chloride		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.96
1,2-Dichloropropane		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.085
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	<0.042	<0.042	<0.042	<0.042	--	0.083
Ethylbenzene		ug/g	<0.018	<0.018	<0.018	<0.018	--	15
n-Hexane		ug/g	<0.050	<0.050	<0.050	<0.050	--	34
Methyl Ethyl Ketone		ug/g	<0.50	<0.50	<0.50	<0.50	--	44
Methyl Isobutyl Ketone		ug/g	<0.50	<0.50	<0.50	<0.50	--	4.3
MTBE		ug/g	<0.050	<0.050	<0.050	<0.050	--	1.4
Styrene		ug/g	<0.050	<0.050	<0.050	<0.050	--	2.2
1,1,1,2-Tetrachloroethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.05
1,1,2,2-Tetrachloroethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.05
Tetrachloroethylene		ug/g	<0.050	<0.050	<0.050	<0.050	--	2.3
Toluene		ug/g	<0.080	<0.080	<0.080	<0.080	--	6
1,1,1-Trichloroethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	3.4
1,1,2-Trichloroethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	0.05
Trichloroethylene		ug/g	<0.010	<0.010	<0.010	<0.010	--	0.52
Trichlorofluoromethane		ug/g	<0.050	<0.050	<0.050	<0.050	--	5.8
Vinyl chloride		ug/g	<0.020	<0.020	<0.020	<0.020	--	0.022

Table 2: Analytical Results - Soil

PARAMETER	UNITS	MRL	Sample Date: 13-Dec-18 Sample ID: BH/MW18-1 SS5 Sample Depth (m bgs): 2.44 - 3.05	13-Dec-18 BH/MW18-2 SS3 1.27 - 1.83	13-Dec-18 BH/MW18-3 SS3 1.83 - 2.44	13-Dec-18 BH/MW18-3 SS Duplicate of BH/MW3-SS3	Relative Percent Difference (%)	MECP Site Condition Standards **
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	<0.050	<0.050	<0.050	<0.050	--	25
PHCs								
F1 (C6-C10)	5	ug/g	<5.0	<5.0	<5.0	<5.0	--	65
F1-BTEX	5	ug/g	<5.0	<5.0	<5.0	<5.0	--	65
F2 (C10-C16)	10	ug/g	<10	<10	<10	<10	--	150
F2-Naphth	10	ug/g	<10	<10	<10	<10	--	-
F3 (C16-C34)	50	ug/g	<50	<50	<50	<50	--	1300
F3-PAH	50	ug/g	<50	<50	<50	<50	--	-
F4 (C34-C50)	50	ug/g	<50	<50	<50	<50	--	5600
PAHs								
Acenaphthene	0.05	ug/g	<0.050	<0.050	<0.050	<0.050	--	58
Acenaphthylene	0.05	ug/g	<0.050	<0.050	<0.050	<0.050	--	0.17
Anthracene	0.05	ug/g	<0.050	<0.050	<0.050	<0.050	--	0.74
Benzo(a)anthracene	0.05	ug/g	0.082	<0.050	<0.050	<0.050	--	0.63
Benzo(a)pyrene	0.05	ug/g	0.086	<0.050	<0.050	<0.050	--	0.3
Benzo(b)fluoranthene	0.05	ug/g	0.144	<0.050	<0.050	<0.050	--	0.78
Benzo(g,h,i)perylene	0.05	ug/g	0.081	<0.050	<0.050	<0.050	--	7.8
Benzo(k)fluoranthene	0.05	ug/g	<0.050	<0.050	<0.050	<0.050	--	0.78
Chrysene	0.05	ug/g	0.081	<0.050	<0.050	<0.050	--	7.8
Dibenzo(ah)anthracene	0.05	ug/g	<0.050	<0.050	<0.050	<0.050	--	0.1
Fluoranthene	0.05	ug/g	0.076	<0.050	<0.050	<0.050	--	0.69
Fluorene	0.05	ug/g	<0.050	<0.050	<0.050	<0.050	--	69
Indeno(1,2,3-cd)pyrene	0.05	ug/g	0.068	<0.050	<0.050	<0.050	--	0.48
1+2-Methylnaphthalenes	0.0424	ug/g	<0.042	<0.042	<0.042	<0.042	--	3.4
1-Methylnaphthalene	0.03	ug/g	<0.030	<0.030	<0.030	<0.030	--	3.4
2-Methylnaphthalene	0.03	ug/g	<0.030	<0.030	<0.030	<0.030	--	3.4
Naphthalene	0.013	ug/g	<0.013	<0.013	<0.013	<0.013	--	0.75
Phenanthrene	0.046	ug/g	<0.046	<0.046	<0.046	<0.046	--	7.8
Pyrene	0.05	ug/g	0.083	<0.050	<0.050	<0.050	--	78

Notes:

**	O.Reg. 153/04 (as amended) - Full Depth Generic Site Condition Standards (Table 3) / Residential property use / Fine textured soil
-	No Site Condition Standard
<0.013	Non Detectable (i.e. the analytical result was below the method reporting limit for the test)
124	Sample result exceeds the corresponding Site Condition Standard (SCS) - Table 3

Table 3: Analytical Results - Groundwater

PARAMETER	UNITS	MRL	Sample Date: / Sample ID: 13-Dec-18 BH/MW18-1	13-Dec-18 BH/MW18-2	13-Dec-18 BH/MW18-3	07-Jan-19 BH/MW18-1	07-Jan-19 BH/MW18-2	07-Jan-19 BH/MW18-3	20-May-21 MW1	20-May-21 MW2	20-May-21 MW3	20-May-21 MW2-DUP	20-May-21 TRIP BLANK	MOECC Site Condition Standards **
Physical Test														
Conductivity	mS/cm	0.003	2.34	0.516	1.77				0.561	1.48	1.6			-
pH	pH Units	0.1	7.22	7.95	7.18				8.22	7.75	7.86			-
Inorganics														
Cyanide, Weak Acid Diss									<2.0	<2.0	<2.0			66
Chloride (Cl)	mg/L	0.5	566	60.7	376				65.2	245	290			2300
Dissolved Metals														
Antimony (Sb)	ug/L	0.1	0.24	<0.1	<0.1				<0.10	<0.10	<0.10			20000
Arsenic (As)	ug/L	0.1	0.14	0.49	0.19				0.28	0.1	0.13			1900
Barium (Ba)	ug/L	0.1	339	129	125				146	176	101			29000
Beryllium (Be)	ug/L	0.1	<0.1	<0.10	<0.10				<0.10	<0.10	<0.10			67
Boron (B)	ug/L	10	17	73	20				67	15	17			45000
Cadmium (Cd)	ug/L	0.01	0.23	<0.01	0.026				<0.010	<0.010	0.018			2.7
Chromium (Cr)	ug/L	0.5	<0.5	<0.5	<0.5				<0.50	<0.50	<0.50			810
Cobalt (Co)	ug/L	0.1	<0.1	0.21	0.75				<0.10	<0.10	<0.10			66
Copper (Cu)	ug/L	0.2	1.01	<0.20	0.71				1.09	0.77	1.07			87
Lead (Pb)	ug/L	0.05	<0.05	<0.50	<0.05				0.087	<0.050	<0.050			25
Mercury (Hg)	ug/L	0.01	<0.01	<0.01	<0.010				<0.0050	<0.0050	<0.0050			2.8
Molybdenum (Mo)	ug/L	0.05	0.364	1.8	0.37				1.31	0.304	0.266			9200
Nickel (Ni)	ug/L	0.5	0.91	<0.5	1.59				<0.50	<0.50	0.54			490
Selenium (Se)	ug/L	0.05	0.363	<0.05	0.092				<0.050	0.428	0.156			63
Silver (Ag)	ug/L	0.05	<0.05	<0.05	<0.050				<0.050	<0.050	<0.050			1.5
Sodium (Na)	ug/L	500	182000	14900	166000				14900	162000	156000			2300000
Thallium (Tl)	ug/L	0.01	<0.01	<0.01	<0.01				<0.010	<0.010	<0.010			510
Uranium (U)	ug/L	0.01	1.24	0.369	1.17				0.097	1.15	1.11			420
Vanadium (V)	ug/L	0.5	<0.5	<0.50	1.15				<0.50	0.69	1.38			250
Zinc (Zn)	ug/L	1	4.9	<1.0	<1.0				1.3	<1.0	<1.0			1100
Chromium, Hexavalent	ug/L	0.5	<0.50	<0.5	<0.5				<0.50	<0.50	<0.50			140

Table 3: Analytical Results - Groundwater

PARAMETER	UNITS	MRL	Sample Date: / Sample ID: 13-Dec-18 BH/MW18-1	13-Dec-18 BH/MW18-2	13-Dec-18 BH/MW18-3	07-Jan-19 BH/MW18-1	07-Jan-19 BH/MW18-2	07-Jan-19 BH/MW18-3	20-May-21 MW1	20-May-21 MW2	20-May-21 MW3	20-May-21 MW2-DUP	20-May-21 TRIP BLANK	MOECC Site Condition Standards **
VOCs (including BTEX)														
Acetone	ug/L	30	<30	<30	<30				<30	<30	<30	<30	<30	130000
Benzene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	430
Bromodichloromethane	ug/L	2	<2.0	<2.0	<2.0				<2.0	<2.0	<2.0	<2.0	<2.0	85000
Bromoform	ug/L	5	<5.0	<5.0	<5.0				<5.0	<5.0	<5.0	<5.0	<5.0	770
Bromomethane	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	56
Carbon tetrachloride	ug/L	0.2	<0.20	<0.20	<0.20				<0.20	<0.20	<0.20	<0.20	<0.20	8.4
Chlorobenzene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	630
Dibromochloromethane	ug/L	2	<2.0	<2.0	<2.0				<2.0	<2.0	<2.0	<2.0	<2.0	82000
Chloroform	ug/L	1	<1.0	<1.0	<1.0				<1.0	<1.0	<1.0	<1.0	<1.0	22
1,2-Dibromoethane	ug/L	0.2	<0.20	<0.20	<0.20				<0.20	<0.20	<0.20	<0.20	<0.20	0.83
1,2-Dichlorobenzene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	9600
1,3-Dichlorobenzene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	9600
1,4-Dichlorobenzene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	67
Dichlorodifluoromethane	ug/L	2	<2.0	<2.0	<2.0				<2.0	<2.0	<2.0	<2.0	<2.0	4400
1,1-Dichloroethane	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	3100
1,2-Dichloroethane	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	12
1,1-Dichloroethylene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	17
cis-1,2-Dichloroethylene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	17
trans-1,2-Dichloroethylene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	17
Methylene Chloride	ug/L	5	<5.0	<5.0	<5.0				<5.0	<5.0	<5.0	<5.0	<5.0	5500
1,2-Dichloropropane	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	140
cis-1,3-Dichloropropene	ug/L	0.3	<0.30	<0.30	<0.30				<0.30	<0.30	<0.30	<0.30	<0.30	-
trans-1,3-Dichloropropene	ug/L	0.3	<0.30	<0.30	<0.30				<0.30	<0.30	<0.30	<0.30	<0.30	-
1,3-Dichloropropene (cis & trans)	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	45
Ethylbenzene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	2300
n-Hexane	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	520
Methyl Ethyl Ketone	ug/L	20	<20	<20	<20				<20	<20	<20	<20	<20	1500000
Methyl Isobutyl Ketone	ug/L	20	<20	<20	<20				<20	<20	<20	<20	<20	580000
MTBE	ug/L	2	<2.0	<2.0	<2.0				<2.0	<2.0	<2.0	<2.0	<2.0	1400
Styrene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	9100
1,1,1,2-Tetrachloroethane	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	28
1,1,2,2-Tetrachloroethane	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	15
Tetrachloroethylene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	17
Toluene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	18000
1,1,1-Trichloroethane	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	6700
1,1,2-Trichloroethane	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	30
Trichloroethylene	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	17
Trichlorofluoromethane	ug/L	5	<5.0	<5.0	<5.0				<5.0	<5.0	<5.0	<5.0	<5.0	2500
Vinyl chloride	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	1.7
o-Xylene	ug/L	0.3	<0.30	<0.30	<0.30				<0.30	<0.30	<0.30	<0.30	<0.30	-
m+p-Xylenes	ug/L	0.4	<0.40	<0.40	<0.40				<0.40	<0.40	<0.40	<0.40	<0.40	-
Xylenes (Total)	ug/L	0.5	<0.50	<0.50	<0.50				<0.50	<0.50	<0.50	<0.50	<0.50	4200

Table 3: Analytical Results - Groundwater

PARAMETER	UNITS	Sample Date: / Sample ID: / MRL	13-Dec-18 BH/MW18-1	13-Dec-18 BH/MW18-2	13-Dec-18 BH/MW18-3	07-Jan-19 BH/MW18-1	07-Jan-19 BH/MW18-2	07-Jan-19 BH/MW18-3	20-May-21 MW1	20-May-21 MW2	20-May-21 MW3	20-May-21 MW2-DUP	20-May-21 TRIP BLANK	MOECC Site Condition Standards **
PHCs														
F1 (C6-C10)	ug/L	25	<25	<0.25	<25				<25	<25	<25	<25	<25	750
F1-BTEX	ug/L	25	<25	<0.25	<25				<25	<25	<25	<25	<25	750
F2 (C10-C16)	ug/L	100	270	610	<100	<100	<100		<100	<100	<100	<100		150
F2-Naphth	ug/L	100	270	610	<100				<100	<100	<100	<100		-
F3 (C16-C34)	ug/L	250	460	870	280	<250	<250		<250	<250	<250	<250		500
F3-PAH	ug/L	250	450	870	280				<250	<250	<250	<250		-
F4 (C34-C50)	ug/L	250	370	<250	<250	<250	<250		<250	<250	<250	<250		500
Total Hydrocarbons (C6-C50)	ug/L	370	1090	1480	<370				<370	<370	<370	<370		-
PAHs														
Acenaphthene	ug/L	0.02	0.117	0.182	0.043				<0.020	<0.020	<0.020	<0.020		1700
Acenaphthylene	ug/L	0.02	0.054	0.07	<0.020				<0.020	<0.020	<0.020	<0.020		1.8
Anthracene	ug/L	0.02	0.099	0.123	0.022				<0.020	<0.020	<0.020	<0.020		2.4
Benzo(a)anthracene	ug/L	0.02	0.216	0.048	0.023				<0.020	<0.020	<0.020	<0.020		4.7
Benzo(a)pyrene	ug/L	0.01	0.196	0.039	0.021				<0.010	<0.010	<0.010	<0.010		0.81
Benzo(b)fluoranthene	ug/L	0.02	0.28	0.06	0.032				<0.020	<0.020	<0.020	<0.020		0.75
Benzo(g,h,i)perylene	ug/L	0.02	0.186	0.091	0.054				<0.020	<0.020	<0.020	<0.020		0.2
Benzo(k)fluoranthene	ug/L	0.02	0.089	<0.020	<0.020				<0.020	<0.020	<0.020	<0.020		0.4
Chrysene	ug/L	0.02	0.185	0.069	0.032				<0.020	<0.020	<0.020	<0.020		1
Dibenzo(ah)anthracene	ug/L	0.02	0.039	<0.020	<0.020				<0.020	<0.020	<0.020	<0.020		0.52
Fluoranthene	ug/L	0.02	0.379	0.251	0.089				<0.020	<0.020	<0.020	<0.020		130
Fluorene	ug/L	0.02	0.164	0.42	0.067				<0.020	<0.020	<0.020	<0.020		400
Indeno(1,2,3-cd)pyrene	ug/L	0.02	0.185	0.035	<0.020				<0.020	<0.020	<0.020	<0.020		0.2
1+2-Methylnaphthalenes	ug/L	0.028	3.1	2.88	0.397				<0.028	<0.028	<0.028	<0.028		1800
1-Methylnaphthalene	ug/L	0.02	1.68	1.65	0.215				<0.020	<0.020	<0.020	<0.020		1800
2-Methylnaphthalene	ug/L	0.02	1.42	1.22	0.183				<0.020	<0.020	<0.020	<0.020		1800
Naphthalene	ug/L	0.05	0.804	0.187	<0.050				<0.050	<0.050	<0.050	<0.050		6400
Phenanthrene	ug/L	0.02	0.483	1.5	0.233				<0.020	<0.020	<0.020	<0.020		580
Pyrene	ug/L	0.02	0.435	0.363	0.137				<0.020	<0.020	<0.020	<0.020		68

Notes:

**	O.Reg. 153/04 (as amended) - Full Depth Generic Site Condition Standards (Table 3) / Residential property use / Fine textured soil
-	No Site Condition Standard
<0.013 or ND	Non Detectable (i.e. the analytical result was below the method reporting limit for the test)
124	Sample result exceeds the corresponding Site Condition Standard (SCS) - Table 3

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX A
SURVEY PLAN OF THE PHASE TWO PROPERTY

McINTOSH PERRY

I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE LAND TITLES ACT.	**PLAN 4R-31503**
DATE: october 31, 2018	RECEIVED AND DEPOSITED DATE: Oct 31, 2018
A.J. Broxham ANDREW J. BROXHAM ONTARIO LAND SURVEYOR	D. Bourdeau REPRESENTATIVE FOR LAND REGISTRAR FOR THE LAND TITLES DIVISION OF OTTAWA-CARLETON NO. 4.

SCHEDULE

PART	LOT	CONCESSION	PIN
1	PART OF 30	12	ALL OF 04498-0112
2			

PLAN OF SURVEY OF

PART OF LOT 30
CONCESSION 12
GEOGRAPHIC TOWNSHIP OF GOULBOURN
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 250

10 7.5 5.0 2.5 0 5 10 Metres

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 and the Land Titles Act and the regulations made under them.
2. The survey was completed on the 29th day of October, 2018.

october 30, 2018
Date

A.J. Broxham
Andrew J. Broxham
Ontario Land Surveyor

Notes & Legend

—□—	Denotes	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
(WIT)	"	Witness
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
Meas.	"	Measured
(P1)	"	Plan 5R-6120
(P2)	"	Plan 4R-18403
(P3)	"	Plan 5R-2711
(P4)	"	Plan 4R-13349
(P5)	"	Plan 4R-17168
(P6)	"	Plan 4R-16158
(P7)	"	Plan by (857) dated April 26, 1988
(P8)	"	Plan by (1474) dated June 12, 2001
CLF	"	Chain Link Fence
BF	"	Board Fence

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.999912.

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations on reference points A and B, shown hereon, having a bearing of N43°04'00"W and are referenced to Specified Control Points 01919750705 and 01919770923, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For bearing comparisons, a rotation of 0°26'30" counter-clockwise was applied to bearings on P3, P4, P5 & P6.

For bearing comparisons, a rotation of 0°28'40" counter-clockwise was applied to bearings on P7.

Coordinates are derived from Can-Net 2016 Real Time Network GPS observations referenced to Specified Control Points 01919750705 and 01919770923, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

Coordinate values are to urban accuracy in accordance with O. Reg. 216/10.

. 01919750705	Northing	5016816.93	Easting	360806.84
. 01919770923	Northing	5013536.21	Easting	346275.92
. Point A	Northing	5017536.57	Easting	352277.65
. Point B	Northing	5017425.04	Easting	352381.89

Caution: Coordinates cannot, in themselves, be used to re-establish corners or boundaries shown on this plan.

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com
Ontario Land Surveyors

Job No. 18940-18 TimWen 6EdgewaterDr PtLt30Con12 R F A.M.

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX B
SAMPLING AND ANALYSIS PLAN

McINTOSH PERRY

SAMPLING AND ANALYSIS PLAN
6 EDGEWATER STREET, KANATA, ONTARIO

Project No.: 0CP-17-0635

Prepared for:

Chris McCluskey
6 Edgewater Street
Kanata, ON
K2L 1V8

Prepared by:

McIntosh Perry Consulting Engineers Ltd
115 Walgreen Road
Carp, ON
K0A 1L0

McINTOSH PERRY

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Background

McIntosh Perry ("MP") was retained by Chris McCluskey of McCluskey Group ("the Client") to conduct a Phase Two ESA at 6 Edgewater Street, Kanata, Ontario

The environmental subsurface investigation will be completed concurrently with a geotechnical investigation at the Site. The investigation will be completed in general accordance with Ontario Regulation (O. Reg.) 153/04 (as amended).

1.2 Objectives

As per the requirements of O. Reg. 153/04, the objectives of this Sampling and Analysis Plan are as follows:

- Plan an investigation that will achieve the general objectives of a Phase Two Environmental Site Assessment:
  - Through the use of an appropriate and complete information base concerning the Phase Two Property; and
  - Through the conduct of an investigation based both on information obtained before the Phase Two Environmental Site Assessment and on the incorporation of information obtained during the subsurface investigation.
- To develop a Sampling and Analysis Plan that will adequately assess all areas of the subsurface investigation property where contaminants may be present in land or water on, in or under the property.
  To develop a quality assurance program that is designed to effectively limit errors and bias in sampling and analysis through implementation of assessment and control measures that will ensure data are useful, appropriate and accurate in the determination of whether the Phase Two Property meets applicable Ontario Ministry of the Environment, Conservation and Parks (MECP) Site Condition Standards.

2.0 SAMPLING PROGRAM

2.1 Areas of Potential Environmental Concern and Contaminants of Potential Concern

Based on a Phase One ESA completed for the Site, McIntosh Perry identified the following Potentially Contaminating Activities which are interpreted to result in Areas of Potential Environmental Concern:

Table 1: Potentially Contaminating Activities

No.	Potential Contaminating Activity (PCA)	Location of PCA	Proximity of PCA to Phase One ESA Property	Time Frame Associated with PCA	Information Source	Does the PCA warrant an area of potential environmental concern (APEC)
1	Item 28, Column A, Table 2, Schedule D, O.Reg. 153/04: Gasoline and Associated Products Storage in Fixed Tanks (on-site ASTs)	On-Site	On-Site	1970s-1995	Interviews, previous report	YES – on-site PCA
2	No item under Column A, Table 2, Schedule D, O.Reg. 153/04: Building materials storage yard	On-Site	On-Site	1970s-1995	Interviews, air photos, previous report	YES – on-site PCA
3a	Item 27, Column A, Table 2, Schedule D, O.Reg. 153/04: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles (heavy equipment garage)	5 Edgewater Street	45 m southwest	1980s-present	Aerial photos, site visit, previous report, ERIS report	YES, based on proximity
3b	Item 28, Column A, Table 2, Schedule D, O.Reg. 153/04: Gasoline and Associated Products Storage in Fixed Tanks (AST records)	5 Edgewater Street	45 m southwest	1980s-present	ERIS report	YES, based on proximity
3c	No item under Column A, Table 2, Schedule D, O.Reg. 153/04: historical spill record (TCE)	5 Edgewater Street	45 m southwest	Unknown	Report by others	YES, based on proximity

Table 1: Potentially Contaminating Activities						
No.	Potential Contaminating Activity (PCA)	Location of PCA	Proximity of PCA to Phase One ESA Property	Time Frame Associated with PCA	Information Source	Does the PCA warrant an area of potential environmental concern (APEC)
4	Item 28, Column A, Table 2, Schedule D, O.Reg. 153/04: Gasoline and Associated Products Storage in Fixed Tanks (former retail fuel outlet)	501 Hazeldean Road	150 m south	Prior to 1994	ERIS report, air photos	YES, based on proximity
5	No item under Column A, Table 2, Schedule D, O.Reg. 153/04: Spill of fuel oil from residential fuel storage tank	21 Young Road	80 m north	2008	ERIS report	YES, based on proximity

The following contaminants of potential concern (COCs) are suspected and should be tested at the Phase One Property:

- Petroleum hydrocarbons Fractions 1 to 4 (PHCs): This parameter group consists of petroleum hydrocarbons of various carbon chain lengths commonly encountered in gasoline (PHC F1), diesel and furnace oil (PHC F2), and heavy oils and asphalts (PHC F3-F4). This parameter group was selected as COPCs for the Site due to the historic presence of ASTs at the Site, the historic presence of a retail fuel outlet at 501 Hazeldean Road, a record of a fuel oil spill at 21 Young Road, and ASTs and garage activities at 5 Edgewater Street.
- Volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, and xylenes (BTEX): This parameter group consists of soluble components in gasoline, diesel, and fuel oil, as well as various chlorinated solvents used in degreasing, dry cleaning, and industrial applications. VOCs were selected as COPCs for the Site due to the historic presence of ASTs at the Site, the historic presence of a retail fuel outlet at 501 Hazeldean Road, a record of a fuel oil spill at 21 Young Road, and ASTs and garage activities at 5 Edgewater Street, as well as the historic TCE spill record noted in a previous environmental report at 5 Edgewater Street.
- Polycyclic aromatic hydrocarbons (PAHs): This parameter group consists of various complex hydrocarbons associated with heavy oils as well as combustion byproducts, coal, etc. PAHs were selected as COPCs for the Site due to the historic use of the Site as a building materials storage yard and garage activities at 5 Edgewater Street.

Metals and inorganic parameters (As, Sb, Se, B, B-HWS, Na, Hg, Cl-, CN, Cr-VI, pH, EC and SAR) were selected as COPCs for the Site based on the historic use of the Site as a building materials storage yard.

2.2 Borehole Locations

The environmental subsurface investigation is to be completed concurrently with a geotechnical investigation, and the boreholes and test pits proposed under this investigation are located to achieve general site coverage from an environmental/soil quality and hydrogeological perspective. A summary of proposed borehole locations are provided below.

Borehole (BH)/ Test Pit (TP) ID	Location and Rationale	Depth and Rationale
BH 1	General site coverage; at/near site boundary to intercept potential groundwater impacts from off-site sources	Refusal on bedrock or encounter water table
BH 2	General site coverage; at/near site boundary to intercept potential groundwater impacts from off-site sources	Refusal on bedrock or encounter water table
BH 3	General site coverage; at/near site boundary to intercept potential groundwater impacts from off-site sources	Refusal on bedrock or encounter water table

2.3 Soil Samples

A summary of proposed soil samples to be submitted for laboratory analysis is provided below.

BH ID	Sample ID	Approx. Depth/ Stratigraphy	Chemical Analysis	Rationale
BH 1	TBC	TBC based on field screening	Metals and inorganics,PAHs, PHCs F1-F4, VOCs	General characterization
BH 2	TBC	TBC based on field screening	Metals and inorganics ,PAHs, PHCs F1-F4, VOCs	General characterization
BH 3	TBC	TBC based on field screening	Metals and inorganics, PAHs, PHCs F1-F4, VOCs	General characterization

It is noted that if visual or olfactory evidence of contamination is encountered during the subsurface investigation, different or additional samples may be submitted for laboratory analysis to capture the true "worst-case" scenario with respect to potential contamination.

2.4 Groundwater Samples

A summary of proposed groundwater samples to be submitted for laboratory analysis is provided below.

BH ID	Sample ID	Approx. Depth/ Stratigraphy	Chemical Analysis	Rationale
BH 1	BH1-GW	Shallow water table	Metals and inorganics, PAHs, PHCs F1-F4, VOCs	General characterization
BH 2	BH2-GW	Shallow water table	Metals and inorganics, PAHs, PHCs F1-F4, VOCs	General characterization
BH 3	BH3-GW	Shallow water table	Metals and inorganics, PAHs, PHCs F1-F4, VOCs	General characterization

2.5 Field Screening

Given the results of the previous investigation, the contaminants of concern, and the limited lateral extent of the project site, field screening will be limited to visual and olfactory observations of evidence of contamination. Field screening measurements will be recorded in our field notes and summarized in the Subsurface Characterization Report.

3.0 QUALITY ASSURANCE AND QUALITY CONTROL

A summary of quality assurance and quality control measures to be employed during the investigation is provided below.

3.1 Decontamination of Equipment

Boreholes will be advanced using direct push methods with single-use macro tubes or using conventional equipment (split spoon samplers and hollow stem augers). Hollow stem augers and split spoon samplers will arrive at the Site in a pre-cleaned condition. Between boreholes, the augers will be cleaned with a brush and washed with a water and Alconox™ solution.

Stainless steel split spoon samplers will be decontaminated between sampling locations in the following sequence: cleaned with a brush to remove adhered soil and/or debris, washed with a dilute solution of Alconox™ and water, rinsed with potable water and distilled water, then rinsed with methanol and allowed to air dry.

No other non-dedicated sampling equipment is expected to be used.

3.2 Field Duplicates

At least one (1) field duplicate sample will be collected and analysed for each ten (10) “worst-case” soil samples. Field duplicates will be analyzed for all parameters for which their corresponding samples are analyzed.

3.3 Sampling Protocols

The jars and preservatives (where applicable) used in the collection of soil samples will be supplied by the analytical laboratory. The soil samples intended to be submitted for analysis of VOCs and PHCs in the F1 fraction range will be immediately preserved in laboratory provided vials pre-charged with to sequester the volatile compounds.

Soil samples will be labelled as they are collected. Samples will be stored in ice-packed coolers until the samples are transported to the laboratory for chemical analysis. Samples will be either handed over to or dropped off at the laboratory by MP personnel. Chains of Custody for the samples will be prepared using laboratory-provided Chain of Custody forms.

4.0 DATA QUALITY OBJECTIVES

The purpose of the collection of field duplicate samples is to measure the precision or reproducibility of the field and laboratory methodology used in the collection and analysis of the samples. The precision is evaluated in terms of the relative percent difference (RPD) between the analyses of the field duplicate sample and its corresponding original sample. The RPDs of the original and field duplicate samples will not be calculated in situations where one or both of the original and field duplicate samples exhibit concentrations of analyzed parameters that are below the laboratory Reporting Detection Limits (RDLs).

The RPD between the involved samples will be calculated using the following formula:

$$RPD = \frac{(A - B)}{\frac{(A + B)}{2}} \times 100\%$$

Where:
A = concentration of compound in the primary sample
B = concentration of compound in the duplicate sample

Notes:

- RPD is calculated only for result pairs with concentrations greater than 5 times of the method detection limit in both samples.
- RPDs are not calculated where results are below the laboratory RDLs for sample pair.

The acceptable RPD limits for various analyzed groups are listed in the following table:

Parameter Group	Recommended RPD in Soil	Recommended RPD in Groundwater
PHC	30%	30%
VOCs	50%	30%
PAHs	40%	30%
PCBs	40%	30%
1,4-Dioxane	50%	30%
Dioxins/Furans	40%	30%
Organochlorine (OC) Pesticides	40%	30%
Metals	30%	20%
Hexavalent Chromium, Cr(VI)	35%	20%
Cyanide (CN–)	35%	20%

Parameter Group	Recommended RPD in Soil	Recommended RPD in Groundwater
Fraction Organic Carbon (FOC), Chloride	35%	20%
Methyl Mercury	40%	30%
Electric Conductivity	10%	-
pH	Within 0.3 pH units	-
* Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act - Laboratory Services Branch Ministry of the Environment - March 9, 2004, amended as of July 1, 2011		

Laboratory quality control limits for duplicate, method blank, method blank spike, matrix spike and surrogate recoveries will also be reviewed.

5.0 STANDARD OPERATING PROCEDURES

MP has implemented a Standard Operating Procedures (SOPs) program for environmental field activities. The SOPs are regularly updated and are provided to field staff as needed. SOPs applicable to this program may include:

- SOP 1-01: Field Notes and Record Keeping
- SOP 1-02: Field Equipment
- SOP 1-03: Sample Management
- SOP 3-01: Planning a Phase Two ESA Field Program
- SOP 3-02: Naming Conventions: Boreholes, Test Pits, and Monitoring Wells
- SOP 3-03: Naming Conventions: Individual Soil and Groundwater Samples
- SOP 3-04: Duplicate Samples
- SOP 3-05: Underground Service Locates
- SOP 3-06: Soil Sample Management and Disposal
- SOP 3-07: Cuttings and Purge Water Management
- SOP 3-08: Overburden Drilling – Geoprobe or Geomachine
- SOP 3-09: Overburden Drilling – Conventional Rig
- SOP 3-13: Test Pit Excavation – Power Equipment
- SOP 3-15: Sample Selection and Submission for Delineation of Contamination
- SOP 3-22: Description of Soil Samples
- SOP 3-23: Combined Environmental and Geotechnical Investigations
- SOP 3-24: Field Screening of Samples – Soil Vapour
- SOP 3-27: Phase Two ESA Reports

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX C
BOREHOLE LOGS

McINTOSH PERRY

BORING NUMBER 18-1

McIntosh Perry
115 Walgreen Rd
Carp, Ontario, K0A1L0

CLIENT Chris McCluskey Group
PROJECT NAME 6 Edgewater Street Phase II ESA
PROJECT NUMBER CP-17-0635
PROJECT LOCATION 6 Edgewater Street
DATE STARTED 13-12-18 **COMPLETED** 13-12-18 **GROUND ELEVATION** 102.29 m ASL **HOLE SIZE**
DRILLING CONTRACTOR Canadian Environmental Drilling
GROUND WATER LEVELS:
DRILLING METHOD Truck-Mounted Acker
AT TIME OF DRILLING ---
LOGGED BY PH **CHECKED BY** DJA
AT END OF DRILLING ---
NOTES
96hrs AFTER DRILLING 1.23 m

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	VOC Concentration (ppm) 20 40 60 80 / LEL (%) 20 40 60 80	WELL DIAGRAM
0							Casing Top Elev: 100.954 (m) Casing Type: Monument
	SS 1	3-7-9-5 (16)	PID = 1 Vapor = 15		0.2 Topsoil Clayey Silt, some gravel, some sand. Brown, moist, very stiff	15	
	SS 2	3-3-3-3 (6)	PID = 0 Vapor = 10			10	
	SS 3	1-2-3-3 (5)	PID = 0 Vapor = 0		1.5 clayey silt, some sand, brown, firm	0	
2	SS 4	1-2-3-3 (5)	PID = 0 Vapor = 15			15	
	SS 5	8-27-38-16 (65)	PID = 1 Vapor = 20		3.0 Sand with some gravel and trace silt. Brown, wet, loose	20	
	SS 6	4-4-4-8 (8)	PID = 0 Vapor = 0			0	
4	SS 7	4-4-12-30 (16)	PID = 0 Vapor = 0		4.1 Clay with sand and silt and some gravel, wet, hard	0	
	SS 8	50	PID = 0 Vapor = 0		4.6 Refusal on inferred bedrock Bottom of hole at 4.57 m.	0	

BORING NUMBER 18-2

McIntosh Perry
115 Walgreen Rd
Carp, Ontario, K0A1L0

CLIENT Chris McCluskey Group
PROJECT NAME 6 Edgewater Street Phase II ESA
PROJECT NUMBER CP-17-0635
PROJECT LOCATION 6 Edgewater Street
DATE STARTED 13-12-18 **COMPLETED** 13-12-18
GROUND ELEVATION 102.37 m ASL **HOLE SIZE**
DRILLING CONTRACTOR Canadian Environmental Drilling
GROUND WATER LEVELS:
DRILLING METHOD Truck-Mounted Acker
AT TIME OF DRILLING ---
LOGGED BY PH **CHECKED BY** DJA
AT END OF DRILLING ---
NOTES
96hrs AFTER DRILLING 0.83 m

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	VOC Concentration (ppm) 20 40 60 80 / LEL (%) 20 40 60 80	WELL DIAGRAM
0							Casing Top Elev: 101.099 (m) Casing Type: Monument
	SS 1		PID = 1 Vapor = 0		0.2 Topsoil Silt with clay, some sand and some gravel. Brown, moist, stiff to firm		
	SS 2		PID = 1 Vapor = 0		1.1 Sand with silt and some clay. Brown, moist to wet, loose		
	SS 3		PID = 1 Vapor = 0				
2	SS 4		PID = 0 Vapor = 0				
	SS 5		PID = 1 Vapor = 0		2.4 Clay with silt, grey, wet, very soft		
	SS 6		PID = 0 Vapor = 0				
4	SS 7		PID = 0 Vapor = 0				
					5.5 Clay with silt and sand, some gravel. Grey, wet, compact to dense		
6	SS 8		PID = 1 Vapor = 0		6.1 Refusal on inferred bedrock Bottom of hole at 6.10 m.		

BORING NUMBER 18-3

McIntosh Perry
115 Walgreen Rd
Carp, Ontario, K0A1L0

CLIENT Chris McCluskey Group
PROJECT NAME 6 Edgewater Street Phase II ESA
PROJECT NUMBER CP-17-0635
PROJECT LOCATION 6 Edgewater Street
DATE STARTED 13-12-18 **COMPLETED** 13-12-18
GROUND ELEVATION 101.77 m ASL **HOLE SIZE**
DRILLING CONTRACTOR Canadian Environmental Drilling
GROUND WATER LEVELS:
DRILLING METHOD Truck-Mounted Acker
AT TIME OF DRILLING ---
LOGGED BY BS **CHECKED BY** DJA
AT END OF DRILLING ---
NOTES
96hrs AFTER DRILLING 1.02 m

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	VOC Concentration (ppm) 20 40 60 80 / LEL (%) 20 40 60 80	WELL DIAGRAM
0	SS 1		PID = 0 Vapor = 0		0.1 Top Soil Sand with gravel. Brown		Casing Top Elev: 100.405 (m) Casing Type: Monument
					0.6 Gravel, low recovery, rock stuck in split spoon		
					1.2 Silt with sand and trace clay. Brown, moist to wet.		
2	SS 2		PID = 1 Vapor = 0				
	SS 3		PID = 0 Vapor = 0				
	SS 4		PID = 0 Vapor = 0		3.0 Clay with silt with some sand and trace gravel. Brown, wet, soft to firm		
	SS 5		PID = 0 Vapor = 0				
4	SS 6		PID = 0 Vapor = 0				
	SS 7		PID = 0 Vapor = 0		4.9 EOH traget depth Bottom of hole at 4.88 m.		

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX D
LABORATORY CERTIFICATES OF ANALYSIS

McINTOSH PERRY

McIntosh Perry Engineering Consultants (Ottawa)
ATTN: Bradley Sutherland
115 Walgreen Road RR3
Carp ON K0A 1L0

Date Received: 14-DEC-18
Report Date: 20-DEC-18 07:51 (MT)
Version: FINAL

Client Phone: 613-836-2184

Certificate of Analysis

Lab Work Order #: L2211036

Project P.O. #: NOT SUBMITTED
Job Reference: CP-17-0635
C of C Numbers:
Legal Site Desc:

Melanie Moshi
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211036-1 BH1 Sampled By: CLIENT on 13-DEC-18 @ 10:00 Matrix: SOIL							
Physical Tests							
Conductivity	0.550		0.0040	mS/cm		17-DEC-18	R4397413
% Moisture	33.0		0.10	%	17-DEC-18	18-DEC-18	R4396792
pH	7.56		0.10	pH units		17-DEC-18	R4397016
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4400394
Saturated Paste Extractables							
SAR	3.54		0.10	SAR		17-DEC-18	R4400088
Calcium (Ca)	27.4		1.0	mg/L		17-DEC-18	R4400088
Magnesium (Mg)	3.3		1.0	mg/L		17-DEC-18	R4400088
Sodium (Na)	73.7		1.0	mg/L		17-DEC-18	R4400088
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Arsenic (As)	3.5		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Barium (Ba)	283		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Beryllium (Be)	0.61		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B)	5.4		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B), Hot Water Ext.	0.23		0.10	ug/g	16-DEC-18	17-DEC-18	R4396954
Cadmium (Cd)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Chromium (Cr)	40.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Cobalt (Co)	11.1		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Copper (Cu)	20.5		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Lead (Pb)	7.5		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Mercury (Hg)	0.0181		0.0050	ug/g	16-DEC-18	17-DEC-18	R4397072
Molybdenum (Mo)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Nickel (Ni)	22.7		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Selenium (Se)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Silver (Ag)	<0.20		0.20	ug/g	16-DEC-18	17-DEC-18	R4399967
Thallium (Tl)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Uranium (U)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Vanadium (V)	51.8		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Zinc (Zn)	63.8		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Speciated Metals							
Chromium, Hexavalent	0.50		0.20	ug/g	17-DEC-18	18-DEC-18	R4400151
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Benzene	<0.0068		0.0068	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromodichloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromoform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromomethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Carbon tetrachloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dibromochloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356

* 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
L2211036-1 BH1 Sampled By: CLIENT on 13-DEC-18 @ 10:00 Matrix: SOIL							
Volatile Organic Compounds							
Chloroform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dibromoethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,4-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dichlorodifluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methylene Chloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloropropane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		18-DEC-18	
Ethylbenzene	<0.018		0.018	ug/g	17-DEC-18	18-DEC-18	R4399356
n-Hexane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Ethyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
MTBE	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Styrene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Tetrachloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Toluene	<0.080		0.080	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichloroethylene	<0.010		0.010	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichlorofluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Vinyl chloride	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
o-Xylene	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
m+p-Xylenes	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
Xylenes (Total)	<0.050		0.050	ug/g		18-DEC-18	
Surrogate: 4-Bromofluorobenzene	93.6		50-140	%	17-DEC-18	18-DEC-18	R4399356
Surrogate: 1,4-Difluorobenzene	105.9		50-140	%	17-DEC-18	18-DEC-18	R4399356
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	17-DEC-18	18-DEC-18	R4399356
F1-BTEX	<5.0		5.0	ug/g		18-DEC-18	
F2 (C10-C16)	<10		10	ug/g	15-DEC-18	17-DEC-18	R4398472
F2-Naphth	<10		10	ug/g		18-DEC-18	

* 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
L2211036-1 BH1 Sampled By: CLIENT on 13-DEC-18 @ 10:00 Matrix: SOIL							
Hydrocarbons							
F3 (C16-C34)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
F3-PAH	<50		50	ug/g		18-DEC-18	
F4 (C34-C50)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
Total Hydrocarbons (C6-C50)	<72		72	ug/g		18-DEC-18	
Chrom. to baseline at nC50	YES				15-DEC-18	17-DEC-18	R4398472
Surrogate: 2-Bromobenzotrifluoride	98.1		60-140	%	15-DEC-18	17-DEC-18	R4398472
Surrogate: 3,4-Dichlorotoluene	76.4		60-140	%	17-DEC-18	18-DEC-18	R4399356
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Acenaphthylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)anthracene	0.082		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)pyrene	0.086		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(b)fluoranthene	0.144		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(g,h,i)perylene	0.081		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Chrysene	0.081		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluoranthene	0.076		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluorene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Indeno(1,2,3-cd)pyrene	0.068		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		18-DEC-18	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
2-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
Naphthalene	<0.013		0.013	ug/g	15-DEC-18	18-DEC-18	R4399050
Phenanthrene	<0.046		0.046	ug/g	15-DEC-18	18-DEC-18	R4399050
Pyrene	0.083		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Surrogate: 2-Fluorobiphenyl	105.2		50-140	%	15-DEC-18	18-DEC-18	R4399050
Surrogate: p-Terphenyl d14	106.4		50-140	%	15-DEC-18	18-DEC-18	R4399050
L2211036-2 BH2 Sampled By: CLIENT on 13-DEC-18 @ 13:00 Matrix: SOIL							
Physical Tests							
Conductivity	0.133		0.0040	mS/cm		17-DEC-18	R4397413
% Moisture	26.2		0.10	%	17-DEC-18	18-DEC-18	R4396792
pH	7.39		0.10	pH units		17-DEC-18	R4397016
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4400394
Saturated Paste Extractables							
SAR	1.08		0.10	SAR		17-DEC-18	R4400088
Calcium (Ca)	8.1		1.0	mg/L		17-DEC-18	R4400088
Magnesium (Mg)	1.7		1.0	mg/L		17-DEC-18	R4400088

* 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
L2211036-2 BH2 Sampled By: CLIENT on 13-DEC-18 @ 13:00 Matrix: SOIL							
Saturated Paste Extractables							
Sodium (Na)	13.0		1.0	mg/L		17-DEC-18	R4400088
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Arsenic (As)	2.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Barium (Ba)	142		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Beryllium (Be)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B)	<5.0		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B), Hot Water Ext.	0.10		0.10	ug/g	16-DEC-18	17-DEC-18	R4396954
Cadmium (Cd)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Chromium (Cr)	22.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Cobalt (Co)	6.5		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Copper (Cu)	13.6		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Lead (Pb)	3.7		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Mercury (Hg)	<0.0050		0.0050	ug/g	16-DEC-18	17-DEC-18	R4397072
Molybdenum (Mo)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Nickel (Ni)	12.3		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Selenium (Se)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Silver (Ag)	<0.20		0.20	ug/g	16-DEC-18	17-DEC-18	R4399967
Thallium (Tl)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Uranium (U)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Vanadium (V)	33.9		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Zinc (Zn)	33.3		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	17-DEC-18	18-DEC-18	R4400151
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Benzene	<0.0068		0.0068	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromodichloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromoform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromomethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Carbon tetrachloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dibromochloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chloroform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dibromoethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,4-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dichlorodifluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356

* 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
L2211036-2 BH2 Sampled By: CLIENT on 13-DEC-18 @ 13:00 Matrix: SOIL							
Volatile Organic Compounds							
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methylene Chloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloropropane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		18-DEC-18	
Ethylbenzene	<0.018		0.018	ug/g	17-DEC-18	18-DEC-18	R4399356
n-Hexane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Ethyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
MTBE	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Styrene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Tetrachloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Toluene	<0.080		0.080	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichloroethylene	<0.010		0.010	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichlorofluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Vinyl chloride	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
o-Xylene	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
m+p-Xylenes	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
Xylenes (Total)	<0.050		0.050	ug/g		18-DEC-18	
Surrogate: 4-Bromofluorobenzene	96.5		50-140	%	17-DEC-18	18-DEC-18	R4399356
Surrogate: 1,4-Difluorobenzene	109.8		50-140	%	17-DEC-18	18-DEC-18	R4399356
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	17-DEC-18	18-DEC-18	R4399356
F1-BTEX	<5.0		5.0	ug/g		18-DEC-18	
F2 (C10-C16)	<10		10	ug/g	15-DEC-18	17-DEC-18	R4398472
F2-Naphth	<10		10	ug/g		18-DEC-18	
F3 (C16-C34)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
F3-PAH	<50		50	ug/g		18-DEC-18	
F4 (C34-C50)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
Total Hydrocarbons (C6-C50)	<72		72	ug/g		18-DEC-18	
Chrom. to baseline at nC50	YES				15-DEC-18	17-DEC-18	R4398472
Surrogate: 2-Bromobenzotrifluoride	99.6		60-140	%	15-DEC-18	17-DEC-18	R4398472
Surrogate: 3,4-Dichlorotoluene	62.6		60-140	%	17-DEC-18	18-DEC-18	R4399356
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050

* 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
L2211036-2 BH2 Sampled By: CLIENT on 13-DEC-18 @ 13:00 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Acenaphthylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(b)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Chrysene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluorene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		18-DEC-18	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
2-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
Naphthalene	<0.013		0.013	ug/g	15-DEC-18	18-DEC-18	R4399050
Phenanthrene	<0.046		0.046	ug/g	15-DEC-18	18-DEC-18	R4399050
Pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Surrogate: 2-Fluorobiphenyl	100.1		50-140	%	15-DEC-18	18-DEC-18	R4399050
Surrogate: p-Terphenyl d14	99.7		50-140	%	15-DEC-18	18-DEC-18	R4399050
L2211036-3 BH3 Sampled By: CLIENT on 13-DEC-18 @ 15:00 Matrix: SOIL							
Physical Tests							
Conductivity	0.323		0.0040	mS/cm		17-DEC-18	R4397413
% Moisture	27.0		0.10	%	17-DEC-18	18-DEC-18	R4396792
pH	7.53		0.10	pH units		17-DEC-18	R4397016
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4400394
Saturated Paste Extractables							
SAR	2.91		0.10	SAR		17-DEC-18	R4400088
Calcium (Ca)	13.2		1.0	mg/L		17-DEC-18	R4400088
Magnesium (Mg)	2.5		1.0	mg/L		17-DEC-18	R4400088
Sodium (Na)	44.0		1.0	mg/L		17-DEC-18	R4400088
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Arsenic (As)	2.8		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Barium (Ba)	162		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Beryllium (Be)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B)	<5.0		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	16-DEC-18	17-DEC-18	R4396954
Cadmium (Cd)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967

* 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
L2211036-3 BH3 Sampled By: CLIENT on 13-DEC-18 @ 15:00 Matrix: SOIL							
Metals							
Chromium (Cr)	28.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Cobalt (Co)	7.9		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Copper (Cu)	17.3		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Lead (Pb)	4.6		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Mercury (Hg)	<0.0050		0.0050	ug/g	16-DEC-18	17-DEC-18	R4397072
Molybdenum (Mo)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Nickel (Ni)	16.4		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Selenium (Se)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Silver (Ag)	<0.20		0.20	ug/g	16-DEC-18	17-DEC-18	R4399967
Thallium (Tl)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Uranium (U)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Vanadium (V)	44.2		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Zinc (Zn)	43.1		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Speciated Metals							
Chromium, Hexavalent	0.29		0.20	ug/g	17-DEC-18	18-DEC-18	R4400151
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Benzene	<0.0068		0.0068	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromodichloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromoform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromomethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Carbon tetrachloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dibromochloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chloroform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dibromoethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,4-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dichlorodifluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methylene Chloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloropropane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		18-DEC-18	
Ethylbenzene	<0.018		0.018	ug/g	17-DEC-18	18-DEC-18	R4399356

* 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
L2211036-3 BH3 Sampled By: CLIENT on 13-DEC-18 @ 15:00 Matrix: SOIL							
Volatile Organic Compounds							
n-Hexane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Ethyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
MTBE	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Styrene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Tetrachloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Toluene	<0.080		0.080	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichloroethylene	<0.010		0.010	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichlorofluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Vinyl chloride	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
o-Xylene	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
m+p-Xylenes	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
Xylenes (Total)	<0.050		0.050	ug/g		18-DEC-18	
Surrogate: 4-Bromofluorobenzene	92.5		50-140	%	17-DEC-18	18-DEC-18	R4399356
Surrogate: 1,4-Difluorobenzene	103.2		50-140	%	17-DEC-18	18-DEC-18	R4399356
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	17-DEC-18	18-DEC-18	R4399356
F1-BTEX	<5.0		5.0	ug/g		18-DEC-18	
F2 (C10-C16)	<10		10	ug/g	15-DEC-18	17-DEC-18	R4398472
F2-Naphth	<10		10	ug/g		18-DEC-18	
F3 (C16-C34)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
F3-PAH	<50		50	ug/g		18-DEC-18	
F4 (C34-C50)	<50		50	ug/g	15-DEC-18	17-DEC-18	R4398472
Total Hydrocarbons (C6-C50)	<72		72	ug/g		18-DEC-18	
Chrom. to baseline at nC50	YES				15-DEC-18	17-DEC-18	R4398472
Surrogate: 2-Bromobenzotrifluoride	90.0		60-140	%	15-DEC-18	17-DEC-18	R4398472
Surrogate: 3,4-Dichlorotoluene	73.6		60-140	%	17-DEC-18	18-DEC-18	R4399356
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Acenaphthylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(b)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Chrysene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050

* 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
L2211036-3 BH3 Sampled By: CLIENT on 13-DEC-18 @ 15:00 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluorene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		18-DEC-18	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
2-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
Naphthalene	<0.013		0.013	ug/g	15-DEC-18	18-DEC-18	R4399050
Phenanthrene	<0.046		0.046	ug/g	15-DEC-18	18-DEC-18	R4399050
Pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Surrogate: 2-Fluorobiphenyl	101.5		50-140	%	15-DEC-18	18-DEC-18	R4399050
Surrogate: p-Terphenyl d14	99.7		50-140	%	15-DEC-18	18-DEC-18	R4399050
L2211036-4 BH99 Sampled By: CLIENT on 13-DEC-18 @ 15:30 Matrix: SOIL							
Physical Tests							
Conductivity	0.338		0.0040	mS/cm		17-DEC-18	R4397413
% Moisture	26.8		0.10	%	17-DEC-18	18-DEC-18	R4396792
pH	7.51		0.10	pH units		17-DEC-18	R4397016
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4400394
Saturated Paste Extractables							
SAR	2.79		0.10	SAR		17-DEC-18	R4400088
Calcium (Ca)	14.8		1.0	mg/L		17-DEC-18	R4400088
Magnesium (Mg)	2.9		1.0	mg/L		17-DEC-18	R4400088
Sodium (Na)	44.9		1.0	mg/L		17-DEC-18	R4400088
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Arsenic (As)	3.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Barium (Ba)	164		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Beryllium (Be)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B)	<5.0		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	16-DEC-18	17-DEC-18	R4396954
Cadmium (Cd)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Chromium (Cr)	29.9		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Cobalt (Co)	8.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Copper (Cu)	17.8		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Lead (Pb)	4.6		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Mercury (Hg)	<0.0050		0.0050	ug/g	16-DEC-18	17-DEC-18	R4397072
Molybdenum (Mo)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Nickel (Ni)	16.7		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Selenium (Se)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967

* 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
L2211036-4 BH99 Sampled By: CLIENT on 13-DEC-18 @ 15:30 Matrix: SOIL							
Metals							
Silver (Ag)	<0.20		0.20	ug/g	16-DEC-18	17-DEC-18	R4399967
Thallium (Tl)	<0.50		0.50	ug/g	16-DEC-18	17-DEC-18	R4399967
Uranium (U)	<1.0		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Vanadium (V)	46.3		1.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Zinc (Zn)	44.3		5.0	ug/g	16-DEC-18	17-DEC-18	R4399967
Speciated Metals							
Chromium, Hexavalent	0.29		0.20	ug/g	17-DEC-18	18-DEC-18	R4400151
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Benzene	<0.0068		0.0068	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromodichloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromoform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Bromomethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Carbon tetrachloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dibromochloromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Chloroform	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dibromoethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,4-Dichlorobenzene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Dichlorodifluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methylene Chloride	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,2-Dichloropropane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		18-DEC-18	
Ethylbenzene	<0.018		0.018	ug/g	17-DEC-18	18-DEC-18	R4399356
n-Hexane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Ethyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	17-DEC-18	18-DEC-18	R4399356
MTBE	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Styrene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Tetrachloroethylene	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356

* 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
L2211036-4 BH99 Sampled By: CLIENT on 13-DEC-18 @ 15:30 Matrix: SOIL							
Volatile Organic Compounds							
Toluene	<0.080		0.080	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,1-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
1,1,2-Trichloroethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichloroethylene	<0.010		0.010	ug/g	17-DEC-18	18-DEC-18	R4399356
Trichlorofluoromethane	<0.050		0.050	ug/g	17-DEC-18	18-DEC-18	R4399356
Vinyl chloride	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
o-Xylene	<0.020		0.020	ug/g	17-DEC-18	18-DEC-18	R4399356
m+p-Xylenes	<0.030		0.030	ug/g	17-DEC-18	18-DEC-18	R4399356
Xylenes (Total)	<0.050		0.050	ug/g		18-DEC-18	
Surrogate: 4-Bromofluorobenzene	94.8		50-140	%	17-DEC-18	18-DEC-18	R4399356
Surrogate: 1,4-Difluorobenzene	103.1		50-140	%	17-DEC-18	18-DEC-18	R4399356
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	17-DEC-18	18-DEC-18	R4399356
F1-BTEX	<5.0		5.0	ug/g		18-DEC-18	
F2 (C10-C16)	<10		10	ug/g	16-DEC-18	17-DEC-18	R4399775
F2-Naphth	<10		10	ug/g		18-DEC-18	
F3 (C16-C34)	<50		50	ug/g	16-DEC-18	17-DEC-18	R4399775
F3-PAH	<50		50	ug/g		18-DEC-18	
F4 (C34-C50)	<50		50	ug/g	16-DEC-18	17-DEC-18	R4399775
Total Hydrocarbons (C6-C50)	<72		72	ug/g		18-DEC-18	
Chrom. to baseline at nC50	YES				16-DEC-18	17-DEC-18	R4399775
Surrogate: 2-Bromobenzotrifluoride	90.2		60-140	%	16-DEC-18	17-DEC-18	R4399775
Surrogate: 3,4-Dichlorotoluene	81.2		60-140	%	17-DEC-18	18-DEC-18	R4399356
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Acenaphthylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(a)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(b)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Chrysene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluoranthene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Fluorene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		18-DEC-18	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
2-Methylnaphthalene	<0.030		0.030	ug/g	15-DEC-18	18-DEC-18	R4399050
Naphthalene	<0.013		0.013	ug/g	15-DEC-18	18-DEC-18	R4399050

* 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
L2211036-4 BH99 Sampled By: CLIENT on 13-DEC-18 @ 15:30 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Phenanthrene	<0.046		0.046	ug/g	15-DEC-18	18-DEC-18	R4399050
Pyrene	<0.050		0.050	ug/g	15-DEC-18	18-DEC-18	R4399050
Surrogate: 2-Fluorobiphenyl	102.9		50-140	%	15-DEC-18	18-DEC-18	R4399050
Surrogate: p-Terphenyl d14	102.3		50-140	%	15-DEC-18	18-DEC-18	R4399050

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

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

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.

Reference Information

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).

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

Reference Information

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: L2211036 Report Date: 20-DEC-18

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4396954								
WG2955152-4 DUP		**L2211036-4**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	17-DEC-18
WG2955152-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			109.1		%		70-130	17-DEC-18
WG2955152-3 LCS								
Boron (B), Hot Water Ext.			93.4		%		70-130	17-DEC-18
WG2955152-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	17-DEC-18
CN-WAD-R511-WT	**Soil**							
Batch R4400394								
WG2955163-3 DUP		**L2211036-2**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	18-DEC-18
WG2955163-2 LCS								
Cyanide, Weak Acid Diss			99.1		%		80-120	18-DEC-18
WG2955163-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	18-DEC-18
WG2955163-4 MS		**L2211036-2**						
Cyanide, Weak Acid Diss			101.5		%		70-130	18-DEC-18
CR-CR6-IC-WT	**Soil**							
Batch R4400151								
WG2955171-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			86.5		%		70-130	18-DEC-18
WG2955171-3 DUP		**L2210938-1**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	18-DEC-18
WG2955171-2 LCS								
Chromium, Hexavalent			82.9		%		80-120	18-DEC-18
WG2955171-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	18-DEC-18
EC-WT	**Soil**							
Batch R4397413								
WG2955149-4 DUP		**WG2955149-3**						
Conductivity		0.408	0.401		mS/cm	1.7	20	17-DEC-18
WG2955149-2 IRM		**WT SAR2**						
Conductivity			102.6		%		70-130	17-DEC-18
WG2955223-1 LCS								
Conductivity			104.1		%		90-110	17-DEC-18
WG2955149-1 MB								

Quality Control Report

Workorder: L2211036 Report Date: 20-DEC-18

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4397413								
WG2955149-1 MB								
Conductivity			<0.0040		mS/cm		0.004	17-DEC-18
F1-HS-511-WT	**Soil**							
Batch R4399356								
WG2955352-4 DUP		**WG2955352-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	18-DEC-18
WG2955352-2 LCS								
F1 (C6-C10)			98.3		%		80-120	18-DEC-18
WG2955352-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	18-DEC-18
Surrogate: 3,4-Dichlorotoluene			84.7		%		60-140	18-DEC-18
WG2955352-6 MS		**L2211036-3**						
F1 (C6-C10)			87.5		%		60-140	18-DEC-18
F2-F4-511-WT	**Soil**							
Batch R4398472								
WG2954750-3 DUP		**WG2954750-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	17-DEC-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	17-DEC-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	17-DEC-18
WG2954750-2 LCS								
F2 (C10-C16)			115.0		%		80-120	18-DEC-18
F3 (C16-C34)			117.0		%		80-120	18-DEC-18
F4 (C34-C50)			119.2		%		80-120	18-DEC-18
WG2954750-1 MB								
F2 (C10-C16)			<10		ug/g		10	17-DEC-18
F3 (C16-C34)			<50		ug/g		50	17-DEC-18
F4 (C34-C50)			<50		ug/g		50	17-DEC-18
Surrogate: 2-Bromobenzotrifluoride			102.1		%		60-140	17-DEC-18
WG2954750-4 MS		**WG2954750-5**						
F2 (C10-C16)			107.8		%		60-140	17-DEC-18
F3 (C16-C34)			112.7		%		60-140	17-DEC-18
F4 (C34-C50)			116.1		%		60-140	17-DEC-18
Batch R4399775								
WG2955142-3 DUP		**WG2955142-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4399775								
WG2955142-3 DUP		**WG2955142-5**						
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	17-DEC-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	17-DEC-18
WG2955142-2 LCS								
F2 (C10-C16)			105.6		%		80-120	17-DEC-18
F3 (C16-C34)			112.9		%		80-120	17-DEC-18
F4 (C34-C50)			116.7		%		80-120	17-DEC-18
WG2955142-1 MB								
F2 (C10-C16)			<10		ug/g		10	17-DEC-18
F3 (C16-C34)			<50		ug/g		50	17-DEC-18
F4 (C34-C50)			<50		ug/g		50	17-DEC-18
Surrogate: 2-Bromobenzotrifluoride			87.3		%		60-140	17-DEC-18
WG2955142-4 MS		**WG2955142-5**						
F2 (C10-C16)			116.2		%		60-140	17-DEC-18
F3 (C16-C34)			118.0		%		60-140	17-DEC-18
F4 (C34-C50)			118.9		%		60-140	17-DEC-18
HG-200.2-CVAA-WT	**Soil**							
Batch R4397072								
WG2955145-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			99.4		%		70-130	17-DEC-18
WG2955145-6 DUP		**WG2955145-5**						
Mercury (Hg)		<0.0050	<0.0050	RPD-NA	ug/g	N/A	40	17-DEC-18
WG2955145-3 LCS								
Mercury (Hg)			106.0		%		80-120	17-DEC-18
WG2955145-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	17-DEC-18
MET-200.2-CCMS-WT	**Soil**							
Batch R4399967								
WG2955145-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			106.7		%		70-130	17-DEC-18
Arsenic (As)			102.6		%		70-130	17-DEC-18
Barium (Ba)			100.8		%		70-130	17-DEC-18
Beryllium (Be)			104.8		%		70-130	17-DEC-18
Boron (B)			3.0		mg/kg		0-8.2	17-DEC-18
Cadmium (Cd)			95.2		%		70-130	17-DEC-18
Chromium (Cr)			99.8		%		70-130	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4399967								
WG2955145-2 CRM		**WT-CANMET-TILL1**						
Cobalt (Co)			97.4		%		70-130	17-DEC-18
Copper (Cu)			100.4		%		70-130	17-DEC-18
Lead (Pb)			101.8		%		70-130	17-DEC-18
Molybdenum (Mo)			98.2		%		70-130	17-DEC-18
Nickel (Ni)			99.7		%		70-130	17-DEC-18
Selenium (Se)			0.29		mg/kg		0.11-0.51	17-DEC-18
Silver (Ag)			0.23		mg/kg		0.13-0.33	17-DEC-18
Thallium (Tl)			0.121		mg/kg		0.077-0.18	17-DEC-18
Uranium (U)			101.0		%		70-130	17-DEC-18
Vanadium (V)			99.5		%		70-130	17-DEC-18
Zinc (Zn)			99.4		%		70-130	17-DEC-18
WG2955145-6 DUP		**WG2955145-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	17-DEC-18
Arsenic (As)		1.71	1.65		ug/g	3.2	30	17-DEC-18
Barium (Ba)		26.0	25.9		ug/g	0.3	40	17-DEC-18
Beryllium (Be)		0.15	0.13		ug/g	14	30	17-DEC-18
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	17-DEC-18
Cadmium (Cd)		0.038	0.041		ug/g	8.9	30	17-DEC-18
Chromium (Cr)		8.20	8.15		ug/g	0.7	30	17-DEC-18
Cobalt (Co)		2.97	2.87		ug/g	3.3	30	17-DEC-18
Copper (Cu)		6.33	6.18		ug/g	2.4	30	17-DEC-18
Lead (Pb)		2.98	2.86		ug/g	4.1	40	17-DEC-18
Molybdenum (Mo)		0.38	0.37		ug/g	1.8	40	17-DEC-18
Nickel (Ni)		6.71	6.48		ug/g	3.4	30	17-DEC-18
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	17-DEC-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	17-DEC-18
Thallium (Tl)		0.062	0.059		ug/g	5.0	30	17-DEC-18
Uranium (U)		0.230	0.232		ug/g	0.8	30	17-DEC-18
Vanadium (V)		17.0	18.0		ug/g	6.0	30	17-DEC-18
Zinc (Zn)		15.8	16.1		ug/g	1.5	30	17-DEC-18
WG2955145-4 LCS								
Antimony (Sb)			106.2		%		80-120	17-DEC-18
Arsenic (As)			101.4		%		80-120	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4399967								
WG2955145-4 LCS								
Barium (Ba)			102.5		%		80-120	17-DEC-18
Beryllium (Be)			103.1		%		80-120	17-DEC-18
Boron (B)			103.2		%		80-120	17-DEC-18
Cadmium (Cd)			98.2		%		80-120	17-DEC-18
Chromium (Cr)			97.8		%		80-120	17-DEC-18
Cobalt (Co)			94.0		%		80-120	17-DEC-18
Copper (Cu)			94.4		%		80-120	17-DEC-18
Lead (Pb)			100.3		%		80-120	17-DEC-18
Molybdenum (Mo)			100.4		%		80-120	17-DEC-18
Nickel (Ni)			95.9		%		80-120	17-DEC-18
Selenium (Se)			94.8		%		80-120	17-DEC-18
Silver (Ag)			99.2		%		80-120	17-DEC-18
Thallium (Tl)			98.4		%		80-120	17-DEC-18
Uranium (U)			99.4		%		80-120	17-DEC-18
Vanadium (V)			100.3		%		80-120	17-DEC-18
Zinc (Zn)			95.9		%		80-120	17-DEC-18
WG2955145-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	17-DEC-18
Arsenic (As)			<0.10		mg/kg		0.1	17-DEC-18
Barium (Ba)			<0.50		mg/kg		0.5	17-DEC-18
Beryllium (Be)			<0.10		mg/kg		0.1	17-DEC-18
Boron (B)			<5.0		mg/kg		5	17-DEC-18
Cadmium (Cd)			<0.020		mg/kg		0.02	17-DEC-18
Chromium (Cr)			<0.50		mg/kg		0.5	17-DEC-18
Cobalt (Co)			<0.10		mg/kg		0.1	17-DEC-18
Copper (Cu)			<0.50		mg/kg		0.5	17-DEC-18
Lead (Pb)			<0.50		mg/kg		0.5	17-DEC-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	17-DEC-18
Nickel (Ni)			<0.50		mg/kg		0.5	17-DEC-18
Selenium (Se)			<0.20		mg/kg		0.2	17-DEC-18
Silver (Ag)			<0.10		mg/kg		0.1	17-DEC-18
Thallium (Tl)			<0.050		mg/kg		0.05	17-DEC-18
Uranium (U)			<0.050		mg/kg		0.05	17-DEC-18
Vanadium (V)			<0.20		mg/kg		0.2	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4399967								
WG2955145-1 MB								
Zinc (Zn)			<2.0		mg/kg		2	17-DEC-18
MOISTURE-WT	**Soil**							
Batch R4396792								
WG2955165-3 DUP		**L2210949-8**						
% Moisture		5.55	5.52		%	0.6	20	18-DEC-18
WG2955165-2 LCS								
% Moisture			99.3		%		90-110	18-DEC-18
WG2955165-1 MB								
% Moisture			<0.10		%		0.1	18-DEC-18
PAH-511-WT	**Soil**							
Batch R4399050								
WG2954671-3 DUP		**WG2954671-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	18-DEC-18
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	18-DEC-18
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
WG2954671-2 LCS								
1-Methylnaphthalene			98.2		%		50-140	18-DEC-18
2-Methylnaphthalene			94.7		%		50-140	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4399050								
WG2954671-2 LCS								
Acenaphthene			104.0		%		50-140	18-DEC-18
Acenaphthylene			103.6		%		50-140	18-DEC-18
Anthracene			108.0		%		50-140	18-DEC-18
Benzo(a)anthracene			109.4		%		50-140	18-DEC-18
Benzo(a)pyrene			97.2		%		50-140	18-DEC-18
Benzo(b)fluoranthene			99.1		%		50-140	18-DEC-18
Benzo(g,h,i)perylene			96.7		%		50-140	18-DEC-18
Benzo(k)fluoranthene			94.5		%		50-140	18-DEC-18
Chrysene			104.5		%		50-140	18-DEC-18
Dibenzo(ah)anthracene			90.8		%		50-140	18-DEC-18
Fluoranthene			99.9		%		50-140	18-DEC-18
Fluorene			97.2		%		50-140	18-DEC-18
Indeno(1,2,3-cd)pyrene			91.8		%		50-140	18-DEC-18
Naphthalene			96.9		%		50-140	18-DEC-18
Phenanthrene			103.4		%		50-140	18-DEC-18
Pyrene			99.4		%		50-140	18-DEC-18
WG2954671-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	18-DEC-18
2-Methylnaphthalene			<0.030		ug/g		0.03	18-DEC-18
Acenaphthene			<0.050		ug/g		0.05	18-DEC-18
Acenaphthylene			<0.050		ug/g		0.05	18-DEC-18
Anthracene			<0.050		ug/g		0.05	18-DEC-18
Benzo(a)anthracene			<0.050		ug/g		0.05	18-DEC-18
Benzo(a)pyrene			<0.050		ug/g		0.05	18-DEC-18
Benzo(b)fluoranthene			<0.050		ug/g		0.05	18-DEC-18
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	18-DEC-18
Benzo(k)fluoranthene			<0.050		ug/g		0.05	18-DEC-18
Chrysene			<0.050		ug/g		0.05	18-DEC-18
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	18-DEC-18
Fluoranthene			<0.050		ug/g		0.05	18-DEC-18
Fluorene			<0.050		ug/g		0.05	18-DEC-18
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	18-DEC-18
Naphthalene			<0.013		ug/g		0.013	18-DEC-18
Phenanthrene			<0.046		ug/g		0.046	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4399050								
WG2954671-1 MB								
Pyrene			<0.050		ug/g		0.05	18-DEC-18
Surrogate: 2-Fluorobiphenyl			107.2		%		50-140	18-DEC-18
Surrogate: p-Terphenyl d14			110.4		%		50-140	18-DEC-18
WG2954671-4 MS		**WG2954671-5**						
1-Methylnaphthalene			99.4		%		50-140	18-DEC-18
2-Methylnaphthalene			95.9		%		50-140	18-DEC-18
Acenaphthene			105.8		%		50-140	18-DEC-18
Acenaphthylene			102.1		%		50-140	18-DEC-18
Anthracene			105.4		%		50-140	18-DEC-18
Benzo(a)anthracene			108.3		%		50-140	18-DEC-18
Benzo(a)pyrene			101.2		%		50-140	18-DEC-18
Benzo(b)fluoranthene			100.8		%		50-140	18-DEC-18
Benzo(g,h,i)perylene			99.9		%		50-140	18-DEC-18
Benzo(k)fluoranthene			99.6		%		50-140	18-DEC-18
Chrysene			108.4		%		50-140	18-DEC-18
Dibenzo(ah)anthracene			97.4		%		50-140	18-DEC-18
Fluoranthene			97.5		%		50-140	18-DEC-18
Fluorene			98.3		%		50-140	18-DEC-18
Indeno(1,2,3-cd)pyrene			95.7		%		50-140	18-DEC-18
Naphthalene			98.3		%		50-140	18-DEC-18
Phenanthrene			104.6		%		50-140	18-DEC-18
Pyrene			99.0		%		50-140	18-DEC-18
PH-WT	**Soil**							
Batch R4397016								
WG2954789-1 DUP		**L2210947-1**						
pH		9.93	10.02	J	pH units	0.09	0.3	17-DEC-18
WG2955217-1 LCS								
pH			7.00		pH units		6.9-7.1	17-DEC-18
SAR-R511-WT	**Soil**							
Batch R4400088								
WG2955149-4 DUP		**WG2955149-3**						
Calcium (Ca)		17.0	15.6		mg/L	9.1	30	17-DEC-18
Sodium (Na)		93.3	92.9		mg/L	0.4	30	17-DEC-18
Magnesium (Mg)		1.3	1.2		mg/L	12	30	17-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4400088								
WG2955149-2 IRM		**WT SAR2**						
Calcium (Ca)			103.6		%		70-130	17-DEC-18
Sodium (Na)			94.7		%		70-130	17-DEC-18
Magnesium (Mg)			101.7		%		70-130	17-DEC-18
WG2955149-1 MB								
Calcium (Ca)			<1.0		mg/L		1	17-DEC-18
Sodium (Na)			<1.0		mg/L		1	17-DEC-18
Magnesium (Mg)			<1.0		mg/L		1	17-DEC-18
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-4 DUP		**WG2955352-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	18-DEC-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	18-DEC-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-4 DUP		**WG2955352-3**						
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	18-DEC-18
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	18-DEC-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	18-DEC-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	18-DEC-18
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	18-DEC-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-DEC-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	18-DEC-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-DEC-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	18-DEC-18
WG2955352-2 LCS								
1,1,1,2-Tetrachloroethane			107.3		%		60-130	18-DEC-18
1,1,2,2-Tetrachloroethane			119.0		%		60-130	18-DEC-18
1,1,1-Trichloroethane			108.1		%		60-130	18-DEC-18
1,1,2-Trichloroethane			113.5		%		60-130	18-DEC-18
1,1-Dichloroethane			106.1		%		60-130	18-DEC-18
1,1-Dichloroethylene			105.8		%		60-130	18-DEC-18
1,2-Dibromoethane			113.3		%		70-130	18-DEC-18
1,2-Dichlorobenzene			111.8		%		70-130	18-DEC-18
1,2-Dichloroethane			120.9		%		60-130	18-DEC-18
1,2-Dichloropropane			113.6		%		70-130	18-DEC-18
1,3-Dichlorobenzene			109.7		%		70-130	18-DEC-18
1,4-Dichlorobenzene			109.3		%		70-130	18-DEC-18
Acetone			110.5		%		60-140	18-DEC-18
Benzene			112.4		%		70-130	18-DEC-18
Bromodichloromethane			117.4		%		50-140	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-2 LCS								
Bromoform			114.9		%		70-130	18-DEC-18
Bromomethane			113.2		%		50-140	18-DEC-18
Carbon tetrachloride			109.8		%		70-130	18-DEC-18
Chlorobenzene			109.9		%		70-130	18-DEC-18
Chloroform			113.8		%		70-130	18-DEC-18
cis-1,2-Dichloroethylene			113.3		%		70-130	18-DEC-18
cis-1,3-Dichloropropene			116.8		%		70-130	18-DEC-18
Dibromochloromethane			112.4		%		60-130	18-DEC-18
Dichlorodifluoromethane			73.9		%		50-140	18-DEC-18
Ethylbenzene			98.8		%		70-130	18-DEC-18
n-Hexane			93.3		%		70-130	18-DEC-18
Methylene Chloride			120.0		%		70-130	18-DEC-18
MTBE			106.5		%		70-130	18-DEC-18
m+p-Xylenes			103.1		%		70-130	18-DEC-18
Methyl Ethyl Ketone			101.4		%		60-140	18-DEC-18
Methyl Isobutyl Ketone			91.7		%		60-140	18-DEC-18
o-Xylene			100.1		%		70-130	18-DEC-18
Styrene			102.5		%		70-130	18-DEC-18
Tetrachloroethylene			108.1		%		60-130	18-DEC-18
Toluene			103.7		%		70-130	18-DEC-18
trans-1,2-Dichloroethylene			112.2		%		60-130	18-DEC-18
trans-1,3-Dichloropropene			105.9		%		70-130	18-DEC-18
Trichloroethylene			114.2		%		60-130	18-DEC-18
Trichlorofluoromethane			103.3		%		50-140	18-DEC-18
Vinyl chloride			80.6		%		60-140	18-DEC-18
WG2955352-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1-Dichloroethane			<0.050		ug/g		0.05	18-DEC-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	18-DEC-18
1,2-Dibromoethane			<0.050		ug/g		0.05	18-DEC-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-1 MB								
1,2-Dichloroethane			<0.050		ug/g		0.05	18-DEC-18
1,2-Dichloropropane			<0.050		ug/g		0.05	18-DEC-18
1,3-Dichlorobenzene			<0.050		ug/g		0.05	18-DEC-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	18-DEC-18
Acetone			<0.50		ug/g		0.5	18-DEC-18
Benzene			<0.0068		ug/g		0.0068	18-DEC-18
Bromodichloromethane			<0.050		ug/g		0.05	18-DEC-18
Bromoform			<0.050		ug/g		0.05	18-DEC-18
Bromomethane			<0.050		ug/g		0.05	18-DEC-18
Carbon tetrachloride			<0.050		ug/g		0.05	18-DEC-18
Chlorobenzene			<0.050		ug/g		0.05	18-DEC-18
Chloroform			<0.050		ug/g		0.05	18-DEC-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	18-DEC-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	18-DEC-18
Dibromochloromethane			<0.050		ug/g		0.05	18-DEC-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	18-DEC-18
Ethylbenzene			<0.018		ug/g		0.018	18-DEC-18
n-Hexane			<0.050		ug/g		0.05	18-DEC-18
Methylene Chloride			<0.050		ug/g		0.05	18-DEC-18
MTBE			<0.050		ug/g		0.05	18-DEC-18
m+p-Xylenes			<0.030		ug/g		0.03	18-DEC-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	18-DEC-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	18-DEC-18
o-Xylene			<0.020		ug/g		0.02	18-DEC-18
Styrene			<0.050		ug/g		0.05	18-DEC-18
Tetrachloroethylene			<0.050		ug/g		0.05	18-DEC-18
Toluene			<0.080		ug/g		0.08	18-DEC-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	18-DEC-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	18-DEC-18
Trichloroethylene			<0.010		ug/g		0.01	18-DEC-18
Trichlorofluoromethane			<0.050		ug/g		0.05	18-DEC-18
Vinyl chloride			<0.020		ug/g		0.02	18-DEC-18
Surrogate: 1,4-Difluorobenzene			121.8		%		50-140	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-1 MB								
Surrogate: 4-Bromofluorobenzene			107.6		%		50-140	18-DEC-18
WG2955352-5 MS		**L2211036-2**						
1,1,1,2-Tetrachloroethane			115.8		%		50-140	18-DEC-18
1,1,2,2-Tetrachloroethane			128.7		%		50-140	18-DEC-18
1,1,1-Trichloroethane			120.3		%		50-140	18-DEC-18
1,1,2-Trichloroethane			123.4		%		50-140	18-DEC-18
1,1-Dichloroethane			120.5		%		50-140	18-DEC-18
1,1-Dichloroethylene			113.9		%		50-140	18-DEC-18
1,2-Dibromoethane			124.1		%		50-140	18-DEC-18
1,2-Dichlorobenzene			120.2		%		50-140	18-DEC-18
1,2-Dichloroethane			131.7		%		50-140	18-DEC-18
1,2-Dichloropropane			122.8		%		50-140	18-DEC-18
1,3-Dichlorobenzene			117.7		%		50-140	18-DEC-18
1,4-Dichlorobenzene			117.9		%		50-140	18-DEC-18
Acetone			122.3		%		50-140	18-DEC-18
Benzene			121.6		%		50-140	18-DEC-18
Bromodichloromethane			127.6		%		50-140	18-DEC-18
Bromoform			124.7		%		50-140	18-DEC-18
Bromomethane			119.2		%		50-140	18-DEC-18
Carbon tetrachloride			118.0		%		50-140	18-DEC-18
Chlorobenzene			118.1		%		50-140	18-DEC-18
Chloroform			123.1		%		50-140	18-DEC-18
cis-1,2-Dichloroethylene			121.9		%		50-140	18-DEC-18
cis-1,3-Dichloropropene			120.8		%		50-140	18-DEC-18
Dibromochloromethane			121.7		%		50-140	18-DEC-18
Dichlorodifluoromethane			70.4		%		50-140	18-DEC-18
Ethylbenzene			105.6		%		50-140	18-DEC-18
n-Hexane			99.7		%		50-140	18-DEC-18
Methylene Chloride			130.3		%		50-140	18-DEC-18
MTBE			114.1		%		50-140	18-DEC-18
m+p-Xylenes			110.2		%		50-140	18-DEC-18
Methyl Ethyl Ketone			104.3		%		50-140	18-DEC-18
Methyl Isobutyl Ketone			101.3		%		50-140	18-DEC-18
o-Xylene			107.3		%		50-140	18-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4399356								
WG2955352-5 MS		**L2211036-2**						
Styrene			109.8		%		50-140	18-DEC-18
Tetrachloroethylene			115.9		%		50-140	18-DEC-18
Toluene			111.4		%		50-140	18-DEC-18
trans-1,2-Dichloroethylene			120.9		%		50-140	18-DEC-18
trans-1,3-Dichloropropene			109.0		%		50-140	18-DEC-18
Trichloroethylene			122.9		%		50-140	18-DEC-18
Trichlorofluoromethane			110.4		%		50-140	18-DEC-18
Vinyl chloride			86.0		%		50-140	18-DEC-18

Quality Control Report

Workorder: L2211036 Report Date: 20-DEC-18

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

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.

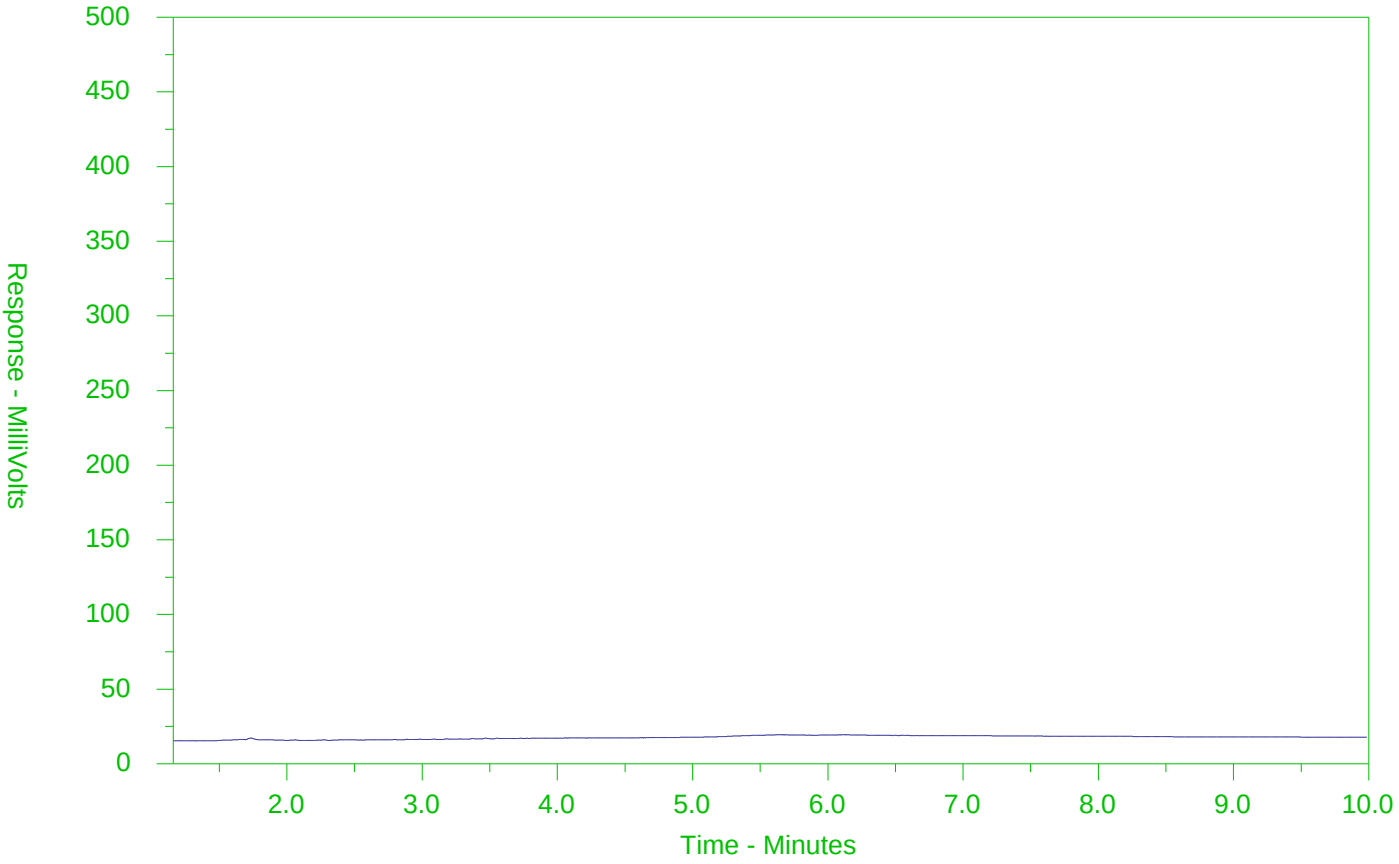
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2211036-4
Client Sample ID: BH99



←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

L2211036-COFC

COC Number: 17 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	McIntosh Perry - 23229
Contact:	Bradley Sutherland
Phone:	613-836-2184
	Company address below will appear on the final report
Street:	115 Walgreen Road RR3
City/Province:	Carp, ON
Postal Code:	K0A 1L0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
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	b.sutherland@mcintoshperry.com
Email 2	
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	b.sutherland@mcintoshperry.com
Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q71138	AFE/Cost Center:	PO#
Job #:	CP-17-0635	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2211036 ISA

ALS Contact: Melanie M. Sampler:

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

NUMBER OF CONTAINERS

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	VOC / BTEX / F1-F4 (VOC-R511, F1-F4-P-WT)	Reg.153 Metals & Inorganics (R511-INORGANICS-P-WT)	PAHs (PAH-511-WT)	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
1	BH1	13-Dec-18	10:00am	Soil	X	X	X		
2	BH2	↓	1:00pm		X	X	X		
3	BH3		3:00 pm		X	X	X		
4	BH99		3:30pm	↓	X	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? ☐ 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			
7.4				8.7°C	7.5		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by: Tammy Andrew	Date: DEC 14th 2018	Time: 1:30	Received by:	Date: 14/Dec/2018	Time: 10:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 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**.

McIntosh Perry Engineering Consultants (Ottawa)
ATTN: Bradley Sutherland
115 Walgreen Road RR3
Carp ON K0A 1L0

Date Received: 17-DEC-18
Report Date: 24-DEC-18 09:45 (MT)
Version: FINAL

Client Phone: 613-836-2184

Certificate of Analysis

Lab Work Order #: L2211815

Project P.O. #: NOT SUBMITTED
Job Reference: CP-17-0635
C of C Numbers:
Legal Site Desc:

Melanie Moshi
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211815-1 MW-18-2 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:30 Matrix: WATER							
Physical Tests							
Conductivity	0.516		0.0030	mS/cm		19-DEC-18	R4405188
pH	7.95		0.10	pH units		19-DEC-18	R4405188
Anions and Nutrients							
Chloride (Cl)	60.7		0.50	mg/L		19-DEC-18	R4406767
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L		21-DEC-18	R4406810
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD					19-DEC-18	R4402078
Dissolved Metals Filtration Location	FIELD					19-DEC-18	R4401709
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Arsenic (As)-Dissolved	0.49		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Barium (Ba)-Dissolved	129		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Boron (B)-Dissolved	73		10	ug/L	19-DEC-18	19-DEC-18	R4404611
Cadmium (Cd)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Cobalt (Co)-Dissolved	0.21		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Copper (Cu)-Dissolved	<0.20		0.20	ug/L	19-DEC-18	19-DEC-18	R4404611
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Mercury (Hg)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4402771
Molybdenum (Mo)-Dissolved	1.80		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Nickel (Ni)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Selenium (Se)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Sodium (Na)-Dissolved	14900		500	ug/L	19-DEC-18	19-DEC-18	R4404611
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Uranium (U)-Dissolved	0.369		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Vanadium (V)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Zinc (Zn)-Dissolved	<1.0		1.0	ug/L	19-DEC-18	19-DEC-18	R4404611
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L		19-DEC-18	R4403350
Volatile Organic Compounds							
Acetone	<30	OWP	30	ug/L		19-DEC-18	R4402010
Benzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Bromodichloromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Bromoform	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
Bromomethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Carbon tetrachloride	<0.20	OWP	0.20	ug/L		19-DEC-18	R4402010
Chlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Dibromochloromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Chloroform	<1.0	OWP	1.0	ug/L		19-DEC-18	R4402010
1,2-Dibromoethane	<0.20	OWP	0.20	ug/L		19-DEC-18	R4402010

* 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
L2211815-1 MW-18-2 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:30 Matrix: WATER							
Volatile Organic Compounds							
1,2-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,3-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,4-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Dichlorodifluoromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
1,1-Dichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,2-Dichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
cis-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
trans-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Methylene Chloride	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
1,2-Dichloropropane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
cis-1,3-Dichloropropene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
trans-1,3-Dichloropropene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		19-DEC-18	
Ethylbenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
n-Hexane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Methyl Ethyl Ketone	<20	OWP	20	ug/L		19-DEC-18	R4402010
Methyl Isobutyl Ketone	<20	OWP	20	ug/L		19-DEC-18	R4402010
MTBE	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Styrene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,1,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,2,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Tetrachloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Toluene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,1-Trichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,2-Trichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Trichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Trichlorofluoromethane	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
Vinyl chloride	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
o-Xylene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
m+p-Xylenes	<0.40	OWP	0.40	ug/L		19-DEC-18	R4402010
Xylenes (Total)	<0.50		0.50	ug/L		19-DEC-18	
Surrogate: 4-Bromofluorobenzene	95.9		70-130	%		19-DEC-18	R4402010
Surrogate: 1,4-Difluorobenzene	98.6		70-130	%		19-DEC-18	R4402010
Hydrocarbons							
F1 (C6-C10)	<25	OWP	25	ug/L		19-DEC-18	R4402010
F1-BTEX	<25		25	ug/L		20-DEC-18	
F2 (C10-C16)	610		100	ug/L	18-DEC-18	19-DEC-18	R4404448
F2-Naphth	610		100	ug/L		20-DEC-18	
F3 (C16-C34)	870		250	ug/L	18-DEC-18	19-DEC-18	R4404448
F3-PAH	870		250	ug/L		20-DEC-18	

* 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
L2211815-1 MW-18-2 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:30 Matrix: WATER							
Hydrocarbons							
F4 (C34-C50)	<250		250	ug/L	18-DEC-18	19-DEC-18	R4404448
Total Hydrocarbons (C6-C50)	1480		370	ug/L		20-DEC-18	
Chrom. to baseline at nC50	YES				18-DEC-18	19-DEC-18	R4404448
Surrogate: 2-Bromobenzotrifluoride	106.8		60-140	%	18-DEC-18	19-DEC-18	R4404448
Surrogate: 3,4-Dichlorotoluene	75.7		60-140	%		19-DEC-18	R4402010
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	0.182		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Acenaphthylene	0.070		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Anthracene	0.123		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(a)anthracene	0.048		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(a)pyrene	0.039		0.010	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(b)fluoranthene	0.060		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(g,h,i)perylene	0.091		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(k)fluoranthene	<0.020		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Chrysene	0.069		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Fluoranthene	0.251		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Fluorene	0.420		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Indeno(1,2,3-cd)pyrene	0.035		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
1+2-Methylnaphthalenes	2.88		0.028	ug/L		20-DEC-18	
1-Methylnaphthalene	1.65		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
2-Methylnaphthalene	1.22		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Naphthalene	0.187	R	0.050	ug/L	18-DEC-18	20-DEC-18	R4406969
Phenanthrene	1.50		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Pyrene	0.363		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Surrogate: d10-Acenaphthene	112.1		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d12-Chrysene	102.5		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d8-Naphthalene	101.2		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d10-Phenanthrene	121.5		60-140	%	18-DEC-18	20-DEC-18	R4406969
L2211815-2 MW-18-3 Sampled By: JUSTIN C. on 17-DEC-18 @ 13:00 Matrix: WATER							
Physical Tests							
Conductivity	1.77		0.0030	mS/cm		19-DEC-18	R4405188
pH	7.18		0.10	pH units		19-DEC-18	R4405188
Anions and Nutrients							
Chloride (Cl)	376		0.50	mg/L		19-DEC-18	R4406767
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L		21-DEC-18	R4406810
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD					19-DEC-18	R4402078
Dissolved Metals Filtration Location	FIELD					19-DEC-18	R4401709

* 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
L2211815-2 MW-18-3 Sampled By: JUSTIN C. on 17-DEC-18 @ 13:00 Matrix: WATER							
Dissolved Metals							
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Arsenic (As)-Dissolved	0.19		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Barium (Ba)-Dissolved	125		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Boron (B)-Dissolved	20		10	ug/L	19-DEC-18	19-DEC-18	R4404611
Cadmium (Cd)-Dissolved	0.026		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Cobalt (Co)-Dissolved	0.75		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Copper (Cu)-Dissolved	0.71		0.20	ug/L	19-DEC-18	19-DEC-18	R4404611
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Mercury (Hg)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4402771
Molybdenum (Mo)-Dissolved	0.370		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Nickel (Ni)-Dissolved	1.59		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Selenium (Se)-Dissolved	0.092		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Sodium (Na)-Dissolved	166000	DLHC	500	ug/L	19-DEC-18	19-DEC-18	R4404611
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Uranium (U)-Dissolved	1.17		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Vanadium (V)-Dissolved	1.15		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Zinc (Zn)-Dissolved	<1.0		1.0	ug/L	19-DEC-18	19-DEC-18	R4404611
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L		19-DEC-18	R4403350
Volatile Organic Compounds							
Acetone	<30	OWP	30	ug/L		19-DEC-18	R4402010
Benzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Bromodichloromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Bromoform	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
Bromomethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Carbon tetrachloride	<0.20	OWP	0.20	ug/L		19-DEC-18	R4402010
Chlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Dibromochloromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Chloroform	<1.0	OWP	1.0	ug/L		19-DEC-18	R4402010
1,2-Dibromoethane	<0.20	OWP	0.20	ug/L		19-DEC-18	R4402010
1,2-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,3-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,4-Dichlorobenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Dichlorodifluoromethane	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
1,1-Dichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,2-Dichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
cis-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010

* 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
L2211815-2 MW-18-3 Sampled By: JUSTIN C. on 17-DEC-18 @ 13:00 Matrix: WATER							
Volatile Organic Compounds							
trans-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Methylene Chloride	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
1,2-Dichloropropane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
cis-1,3-Dichloropropene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
trans-1,3-Dichloropropene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		19-DEC-18	
Ethylbenzene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
n-Hexane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Methyl Ethyl Ketone	<20	OWP	20	ug/L		19-DEC-18	R4402010
Methyl Isobutyl Ketone	<20	OWP	20	ug/L		19-DEC-18	R4402010
MTBE	<2.0	OWP	2.0	ug/L		19-DEC-18	R4402010
Styrene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,1,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,2,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Tetrachloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Toluene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,1-Trichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
1,1,2-Trichloroethane	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Trichloroethylene	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
Trichlorofluoromethane	<5.0	OWP	5.0	ug/L		19-DEC-18	R4402010
Vinyl chloride	<0.50	OWP	0.50	ug/L		19-DEC-18	R4402010
o-Xylene	<0.30	OWP	0.30	ug/L		19-DEC-18	R4402010
m+p-Xylenes	<0.40	OWP	0.40	ug/L		19-DEC-18	R4402010
Xylenes (Total)	<0.50		0.50	ug/L		19-DEC-18	
Surrogate: 4-Bromofluorobenzene	96.1		70-130	%		19-DEC-18	R4402010
Surrogate: 1,4-Difluorobenzene	98.5		70-130	%		19-DEC-18	R4402010
Hydrocarbons							
F1 (C6-C10)	<25	OWP	25	ug/L		19-DEC-18	R4402010
F1-BTEX	<25		25	ug/L		21-DEC-18	
F2 (C10-C16)	<100		100	ug/L	18-DEC-18	19-DEC-18	R4404448
F2-Naphth	<100		100	ug/L		21-DEC-18	
F3 (C16-C34)	280		250	ug/L	18-DEC-18	19-DEC-18	R4404448
F3-PAH	280		250	ug/L		21-DEC-18	
F4 (C34-C50)	<250		250	ug/L	18-DEC-18	19-DEC-18	R4404448
Total Hydrocarbons (C6-C50)	<370		370	ug/L		21-DEC-18	
Chrom. to baseline at nC50	YES				18-DEC-18	19-DEC-18	R4404448
Surrogate: 2-Bromobenzotrifluoride	102.3		60-140	%	18-DEC-18	19-DEC-18	R4404448
Surrogate: 3,4-Dichlorotoluene	85.7		60-140	%		19-DEC-18	R4402010
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	0.043		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Acenaphthylene	<0.020		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969

* 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
L2211815-2 MW-18-3 Sampled By: JUSTIN C. on 17-DEC-18 @ 13:00 Matrix: WATER							
Polycyclic Aromatic Hydrocarbons							
Anthracene	0.022		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(a)anthracene	0.023		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(a)pyrene	0.021		0.010	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(b)fluoranthene	0.032		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(g,h,i)perylene	0.054		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Benzo(k)fluoranthene	<0.020		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Chrysene	0.032		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Dibenzo(ah)anthracene	<0.020		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Fluoranthene	0.089		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Fluorene	0.067		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
1+2-Methylnaphthalenes	0.397		0.028	ug/L		21-DEC-18	
1-Methylnaphthalene	0.215		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
2-Methylnaphthalene	0.183		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Naphthalene	<0.050		0.050	ug/L	18-DEC-18	21-DEC-18	R4406969
Phenanthrene	0.233		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Pyrene	0.137		0.020	ug/L	18-DEC-18	21-DEC-18	R4406969
Surrogate: d10-Acenaphthene	105.6		60-140	%	18-DEC-18	21-DEC-18	R4406969
Surrogate: d12-Chrysene	109.8		60-140	%	18-DEC-18	21-DEC-18	R4406969
Surrogate: d8-Naphthalene	103.4		60-140	%	18-DEC-18	21-DEC-18	R4406969
Surrogate: d10-Phenanthrene	112.0		60-140	%	18-DEC-18	21-DEC-18	R4406969
L2211815-3 MW-18-1 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:40 Matrix: WATER							
Physical Tests							
Conductivity	2.34		0.0030	mS/cm		19-DEC-18	R4405188
pH	7.22		0.10	pH units		19-DEC-18	R4405188
Anions and Nutrients							
Chloride (Cl)	566		0.50	mg/L		19-DEC-18	R4406767
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L		21-DEC-18	R4406810
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD					19-DEC-18	R4402078
Dissolved Metals Filtration Location	FIELD					19-DEC-18	R4401709
Antimony (Sb)-Dissolved	0.24		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Arsenic (As)-Dissolved	0.14		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Barium (Ba)-Dissolved	339		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611
Boron (B)-Dissolved	17		10	ug/L	19-DEC-18	19-DEC-18	R4404611
Cadmium (Cd)-Dissolved	0.023		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Cobalt (Co)-Dissolved	<0.10		0.10	ug/L	19-DEC-18	19-DEC-18	R4404611

* 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
L2211815-3 MW-18-1 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:40 Matrix: WATER							
Dissolved Metals							
Copper (Cu)-Dissolved	1.01		0.20	ug/L	19-DEC-18	19-DEC-18	R4404611
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Mercury (Hg)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4402771
Molybdenum (Mo)-Dissolved	0.364		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Nickel (Ni)-Dissolved	0.91		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Selenium (Se)-Dissolved	0.363		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	19-DEC-18	19-DEC-18	R4404611
Sodium (Na)-Dissolved	182000	DLHC	500	ug/L	19-DEC-18	19-DEC-18	R4404611
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Uranium (U)-Dissolved	1.24		0.010	ug/L	19-DEC-18	19-DEC-18	R4404611
Vanadium (V)-Dissolved	<0.50		0.50	ug/L	19-DEC-18	19-DEC-18	R4404611
Zinc (Zn)-Dissolved	4.9		1.0	ug/L	19-DEC-18	19-DEC-18	R4404611
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L		19-DEC-18	R4403350
Volatile Organic Compounds							
Acetone	<30		30	ug/L		19-DEC-18	R4402010
Benzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Bromodichloromethane	<2.0		2.0	ug/L		19-DEC-18	R4402010
Bromoform	<5.0		5.0	ug/L		19-DEC-18	R4402010
Bromomethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
Carbon tetrachloride	<0.20		0.20	ug/L		19-DEC-18	R4402010
Chlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Dibromochloromethane	<2.0		2.0	ug/L		19-DEC-18	R4402010
Chloroform	<1.0		1.0	ug/L		19-DEC-18	R4402010
1,2-Dibromoethane	<0.20		0.20	ug/L		19-DEC-18	R4402010
1,2-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,3-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,4-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Dichlorodifluoromethane	<2.0		2.0	ug/L		19-DEC-18	R4402010
1,1-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,2-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Methylene Chloride	<5.0		5.0	ug/L		19-DEC-18	R4402010
1,2-Dichloropropane	<0.50		0.50	ug/L		19-DEC-18	R4402010
cis-1,3-Dichloropropene	<0.30		0.30	ug/L		19-DEC-18	R4402010
trans-1,3-Dichloropropene	<0.30		0.30	ug/L		19-DEC-18	R4402010
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L		19-DEC-18	
Ethylbenzene	<0.50		0.50	ug/L		19-DEC-18	R4402010
n-Hexane	<0.50		0.50	ug/L		19-DEC-18	R4402010

* 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
L2211815-3 MW-18-1 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:40 Matrix: WATER							
Volatile Organic Compounds							
Methyl Ethyl Ketone	<20		20	ug/L		19-DEC-18	R4402010
Methyl Isobutyl Ketone	<20		20	ug/L		19-DEC-18	R4402010
MTBE	<2.0		2.0	ug/L		19-DEC-18	R4402010
Styrene	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
Tetrachloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Toluene	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1,1-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
1,1,2-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402010
Trichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402010
Trichlorofluoromethane	<5.0		5.0	ug/L		19-DEC-18	R4402010
Vinyl chloride	<0.50		0.50	ug/L		19-DEC-18	R4402010
o-Xylene	<0.30		0.30	ug/L		19-DEC-18	R4402010
m+p-Xylenes	<0.40		0.40	ug/L		19-DEC-18	R4402010
Xylenes (Total)	<0.50		0.50	ug/L		19-DEC-18	
Surrogate: 4-Bromofluorobenzene	96.7		70-130	%		19-DEC-18	R4402010
Surrogate: 1,4-Difluorobenzene	97.8		70-130	%		19-DEC-18	R4402010
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L		19-DEC-18	R4402010
F1-BTEX	<25		25	ug/L		20-DEC-18	
F2 (C10-C16)	270		100	ug/L	19-DEC-18	20-DEC-18	R4407171
F2-Naphth	270		100	ug/L		20-DEC-18	
F3 (C16-C34)	460		250	ug/L	19-DEC-18	20-DEC-18	R4407171
F3-PAH	450		250	ug/L		20-DEC-18	
F4 (C34-C50)	370		250	ug/L	19-DEC-18	20-DEC-18	R4407171
Total Hydrocarbons (C6-C50)	1090		370	ug/L		20-DEC-18	
Chrom. to baseline at nC50	YES				19-DEC-18	20-DEC-18	R4407171
Surrogate: 2-Bromobenzotrifluoride	100.3		60-140	%	19-DEC-18	20-DEC-18	R4407171
Surrogate: 3,4-Dichlorotoluene	87.3		60-140	%		19-DEC-18	R4402010
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	0.117	R	0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Acenaphthylene	0.054		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Anthracene	0.099		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(a)anthracene	0.216		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(a)pyrene	0.196		0.010	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(b)fluoranthene	0.280		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(g,h,i)perylene	0.186		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Benzo(k)fluoranthene	0.089		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Chrysene	0.185		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Dibenzo(ah)anthracene	0.039		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969

* 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
L2211815-3 MW-18-1 Sampled By: JUSTIN C. on 17-DEC-18 @ 12:40 Matrix: WATER							
Polycyclic Aromatic Hydrocarbons							
Fluoranthene	0.376		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Fluorene	0.164		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Indeno(1,2,3-cd)pyrene	0.185		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
1+2-Methylnaphthalenes	3.10		0.028	ug/L		20-DEC-18	
1-Methylnaphthalene	1.68		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
2-Methylnaphthalene	1.42		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Naphthalene	0.804		0.050	ug/L	18-DEC-18	20-DEC-18	R4406969
Phenanthrene	0.483		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Pyrene	0.435		0.020	ug/L	18-DEC-18	20-DEC-18	R4406969
Surrogate: d10-Acenaphthene	111.2		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d12-Chrysene	103.4		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d8-Naphthalene	99.8		60-140	%	18-DEC-18	20-DEC-18	R4406969
Surrogate: d10-Phenanthrene	117.2		60-140	%	18-DEC-18	20-DEC-18	R4406969

* 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	L2211815-1, -2, -3
Matrix Spike	Boron (B)-Dissolved	MS-B	L2211815-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2211815-1, -2, -3

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.
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.
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**
CL-IC-N-WT	Water	Chloride by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

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

CN-WAD-R511-WT	Water	Cyanide (WAD)-O.Reg 153/04	APHA 4500CN I-Weak acid Dist Colorimet

Weak acid dissociable cyanide (WAD) is determined by undergoing a distillation procedure. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

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

CR-CR6-IC-R511-WT	Water	Hex Chrom-O.Reg 153/04 (July 2011)	EPA 7199

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

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

EC-R511-WT	Water	Conductivity-O.Reg 153/04 (July 2011)	APHA 2510 B

Water samples can be measured directly by immersing the conductivity cell into the sample.

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

F1-F4-511-CALC-WT	Water	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-L

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

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

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

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
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).

Reference Information

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.

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:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid 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: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R4406767								
WG2957443-20 DUP		**WG2957443-18**						
Chloride (Cl)		60.0	60.6		mg/L	1.1	20	19-DEC-18
WG2957443-17 LCS								
Chloride (Cl)			101.7		%		90-110	19-DEC-18
WG2957443-16 MB								
Chloride (Cl)			<0.50		mg/L		0.5	19-DEC-18
WG2957443-19 MS		**WG2957443-18**						
Chloride (Cl)			96.7		%		75-125	19-DEC-18
CN-WAD-R511-WT	**Water**							
Batch R4406810								
WG2957270-3 DUP		**L2211815-1**						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	21-DEC-18
WG2957270-2 LCS								
Cyanide, Weak Acid Diss			106.9		%		80-120	21-DEC-18
WG2957270-1 MB								
Cyanide, Weak Acid Diss			<2.0		ug/L		2	21-DEC-18
WG2957270-4 MS		**L2211815-1**						
Cyanide, Weak Acid Diss			80.0		%		75-125	21-DEC-18
CR-CR6-IC-R511-WT	**Water**							
Batch R4403350								
WG2957306-4 DUP		**WG2957306-3**						
Chromium, Hexavalent		18.7	18.3		ug/L	1.9	20	19-DEC-18
WG2957306-2 LCS								
Chromium, Hexavalent			94.4		%		80-120	19-DEC-18
WG2957306-1 MB								
Chromium, Hexavalent			<0.50		ug/L		0.5	19-DEC-18
WG2957306-5 MS		**WG2957306-3**						
Chromium, Hexavalent			91.3		%		70-130	19-DEC-18
EC-R511-WT	**Water**							
Batch R4405188								
WG2956997-8 DUP		**WG2956997-7**						
Conductivity		1.77	1.76		mS/cm	0.6	10	19-DEC-18
WG2956997-6 LCS								
Conductivity			97.0		%		90-110	19-DEC-18
WG2956997-5 MB								
Conductivity			<0.0030		mS/cm		0.003	19-DEC-18
F1-HS-511-WT	**Water**							

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Water**							
Batch R4402010								
WG2956099-4 DUP		**WG2956099-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	19-DEC-18
WG2956099-1 LCS								
F1 (C6-C10)			115.8		%		80-120	19-DEC-18
WG2956099-2 MB								
F1 (C6-C10)			<25		ug/L		25	19-DEC-18
Surrogate: 3,4-Dichlorotoluene			94.0		%		60-140	19-DEC-18
WG2956099-5 MS		**WG2956099-3**						
F1 (C6-C10)			91.2		%		60-140	19-DEC-18
F2-F4-511-WT	**Water**							
Batch R4404448								
WG2956871-2 LCS								
F2 (C10-C16)			111.5		%		70-130	19-DEC-18
F3 (C16-C34)			118.2		%		70-130	19-DEC-18
F4 (C34-C50)			120.1		%		70-130	19-DEC-18
WG2956871-3 LCSD		**WG2956871-2**						
F2 (C10-C16)		111.5	111.8		%	0.2	50	19-DEC-18
F3 (C16-C34)		118.2	114.3		%	3.4	50	19-DEC-18
F4 (C34-C50)		120.1	115.6		%	3.9	50	19-DEC-18
WG2956871-1 MB								
F2 (C10-C16)			<100		ug/L		100	19-DEC-18
F3 (C16-C34)			<250		ug/L		250	19-DEC-18
F4 (C34-C50)			<250		ug/L		250	19-DEC-18
Surrogate: 2-Bromobenzotrifluoride			103.6		%		60-140	19-DEC-18
Batch R4407171								
WG2957781-2 LCS								
F2 (C10-C16)			93.3		%		70-130	20-DEC-18
F3 (C16-C34)			95.2		%		70-130	20-DEC-18
F4 (C34-C50)			99.1		%		70-130	20-DEC-18
WG2957781-1 MB								
F2 (C10-C16)			<100		ug/L		100	20-DEC-18
F3 (C16-C34)			<250		ug/L		250	20-DEC-18
F4 (C34-C50)			<250		ug/L		250	20-DEC-18
Surrogate: 2-Bromobenzotrifluoride			99.0		%		60-140	20-DEC-18
HG-D-UG/L-CVAA-WT	**Water**							

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-D-UG/L-CVAA-WT	**Water**							
Batch R4402771								
WG2957104-3 DUP		**L2211936-1**						
Mercury (Hg)-Dissolved		<0.010	<0.010	RPD-NA	ug/L	N/A	20	19-DEC-18
WG2957104-2 LCS								
Mercury (Hg)-Dissolved			101.0		%		80-120	19-DEC-18
WG2957104-1 MB								
Mercury (Hg)-Dissolved			<0.010		ug/L		0.01	19-DEC-18
WG2957104-4 MS		**L2211936-2**						
Mercury (Hg)-Dissolved			91.1		%		70-130	19-DEC-18
MET-D-UG/L-MS-WT	**Water**							
Batch R4404611								
WG2956908-4 DUP		**WG2956908-3**						
Antimony (Sb)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Arsenic (As)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Barium (Ba)-Dissolved		147	149		ug/L	1.8	20	19-DEC-18
Beryllium (Be)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Boron (B)-Dissolved		140	140		ug/L	0.5	20	19-DEC-18
Cadmium (Cd)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	19-DEC-18
Chromium (Cr)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Cobalt (Co)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Copper (Cu)-Dissolved		2.8	2.3	J	ug/L	0.6	4	19-DEC-18
Lead (Pb)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	19-DEC-18
Molybdenum (Mo)-Dissolved		2.00	2.12		ug/L	6.2	20	19-DEC-18
Nickel (Ni)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Selenium (Se)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	19-DEC-18
Silver (Ag)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	19-DEC-18
Sodium (Na)-Dissolved		754000	756000		ug/L	0.2	20	19-DEC-18
Thallium (Tl)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	19-DEC-18
Uranium (U)-Dissolved		1.83	1.82		ug/L	0.3	20	19-DEC-18
Vanadium (V)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	19-DEC-18
Zinc (Zn)-Dissolved		<10	<10	RPD-NA	ug/L	N/A	20	19-DEC-18
WG2956908-2 LCS								
Antimony (Sb)-Dissolved			101.6		%		80-120	19-DEC-18
Arsenic (As)-Dissolved			102.1		%		80-120	19-DEC-18
Barium (Ba)-Dissolved			103.1		%		80-120	19-DEC-18
Beryllium (Be)-Dissolved			95.8		%		80-120	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch	**R4404611**							
WG2956908-2	**LCS**							
Boron (B)-Dissolved			98.5		%		80-120	19-DEC-18
Cadmium (Cd)-Dissolved			101.3		%		80-120	19-DEC-18
Chromium (Cr)-Dissolved			98.5		%		80-120	19-DEC-18
Cobalt (Co)-Dissolved			97.6		%		80-120	19-DEC-18
Copper (Cu)-Dissolved			96.9		%		80-120	19-DEC-18
Lead (Pb)-Dissolved			99.8		%		80-120	19-DEC-18
Molybdenum (Mo)-Dissolved			101.9		%		80-120	19-DEC-18
Nickel (Ni)-Dissolved			97.8		%		80-120	19-DEC-18
Selenium (Se)-Dissolved			101.0		%		80-120	19-DEC-18
Silver (Ag)-Dissolved			102.1		%		80-120	19-DEC-18
Sodium (Na)-Dissolved			100.3		%		80-120	19-DEC-18
Thallium (Tl)-Dissolved			99.1		%		80-120	19-DEC-18
Uranium (U)-Dissolved			98.2		%		80-120	19-DEC-18
Vanadium (V)-Dissolved			101.0		%		80-120	19-DEC-18
Zinc (Zn)-Dissolved			97.8		%		80-120	19-DEC-18
WG2956908-1	**MB**							
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Boron (B)-Dissolved			<10		ug/L		10	19-DEC-18
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	19-DEC-18
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	19-DEC-18
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	19-DEC-18
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	19-DEC-18
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	19-DEC-18
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	19-DEC-18
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	19-DEC-18
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	19-DEC-18
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	19-DEC-18
Sodium (Na)-Dissolved			<50		ug/L		50	19-DEC-18
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	19-DEC-18
Uranium (U)-Dissolved			<0.010		ug/L		0.01	19-DEC-18
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4404611								
WG2956908-1 MB								
Zinc (Zn)-Dissolved			<1.0		ug/L		1	19-DEC-18
WG2956908-5 MS		**WG2956908-6**						
Antimony (Sb)-Dissolved			97.5		%		70-130	19-DEC-18
Arsenic (As)-Dissolved			101.3		%		70-130	19-DEC-18
Barium (Ba)-Dissolved			N/A	MS-B	%		-	19-DEC-18
Beryllium (Be)-Dissolved			97.9		%		70-130	19-DEC-18
Boron (B)-Dissolved			N/A	MS-B	%		-	19-DEC-18
Cadmium (Cd)-Dissolved			95.7		%		70-130	19-DEC-18
Chromium (Cr)-Dissolved			97.7		%		70-130	19-DEC-18
Cobalt (Co)-Dissolved			93.9		%		70-130	19-DEC-18
Copper (Cu)-Dissolved			89.3		%		70-130	19-DEC-18
Lead (Pb)-Dissolved			93.2		%		70-130	19-DEC-18
Molybdenum (Mo)-Dissolved			99.3		%		70-130	19-DEC-18
Nickel (Ni)-Dissolved			94.4		%		70-130	19-DEC-18
Selenium (Se)-Dissolved			90.3		%		70-130	19-DEC-18
Silver (Ag)-Dissolved			77.7		%		70-130	19-DEC-18
Sodium (Na)-Dissolved			N/A	MS-B	%		-	19-DEC-18
Thallium (Tl)-Dissolved			93.8		%		70-130	19-DEC-18
Uranium (U)-Dissolved			99.9		%		70-130	19-DEC-18
Vanadium (V)-Dissolved			102.5		%		70-130	19-DEC-18
Zinc (Zn)-Dissolved			89.4		%		70-130	19-DEC-18
PAH-511-WT	**Water**							
Batch R4406969								
WG2956871-2 LCS								
1-Methylnaphthalene			91.4		%		50-140	20-DEC-18
2-Methylnaphthalene			90.9		%		50-140	20-DEC-18
Acenaphthene			95.2		%		50-140	20-DEC-18
Acenaphthylene			98.9		%		50-140	20-DEC-18
Anthracene			97.7		%		50-140	20-DEC-18
Benzo(a)anthracene			106.3		%		50-140	20-DEC-18
Benzo(a)pyrene			89.4		%		50-140	20-DEC-18
Benzo(b)fluoranthene			87.6		%		50-140	20-DEC-18
Benzo(g,h,i)perylene			97.9		%		50-140	20-DEC-18
Benzo(k)fluoranthene			88.3		%		50-140	20-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4406969								
WG2956871-2 LCS								
Chrysene			94.6		%		50-140	20-DEC-18
Dibenzo(ah)anthracene			98.8		%		50-140	20-DEC-18
Fluoranthene			103.4		%		50-140	20-DEC-18
Fluorene			99.3		%		50-140	20-DEC-18
Indeno(1,2,3-cd)pyrene			110.2		%		50-140	20-DEC-18
Naphthalene			90.0		%		50-140	20-DEC-18
Phenanthrene			102.2		%		50-140	20-DEC-18
Pyrene			101.3		%		50-140	20-DEC-18
WG2956871-3 LCSD		**WG2956871-2**						
1-Methylnaphthalene		91.4	98.5		%	7.4	50	20-DEC-18
2-Methylnaphthalene		90.9	96.4		%	5.9	50	20-DEC-18
Acenaphthene		95.2	100.9		%	5.8	50	20-DEC-18
Acenaphthylene		98.9	103.8		%	4.9	50	20-DEC-18
Anthracene		97.7	98.6		%	0.9	50	20-DEC-18
Benzo(a)anthracene		106.3	112.0		%	5.2	50	20-DEC-18
Benzo(a)pyrene		89.4	99.0		%	10	50	20-DEC-18
Benzo(b)fluoranthene		87.6	93.4		%	6.5	50	20-DEC-18
Benzo(g,h,i)perylene		97.9	104.8		%	6.8	50	20-DEC-18
Benzo(k)fluoranthene		88.3	95.6		%	7.9	50	20-DEC-18
Chrysene		94.6	99.8		%	5.3	50	20-DEC-18
Dibenzo(ah)anthracene		98.8	104.8		%	5.9	50	20-DEC-18
Fluoranthene		103.4	108.8		%	5.1	50	20-DEC-18
Fluorene		99.3	104.4		%	5.0	50	20-DEC-18
Indeno(1,2,3-cd)pyrene		110.2	116.2		%	5.2	50	20-DEC-18
Naphthalene		90.0	95.5		%	6.0	50	20-DEC-18
Phenanthrene		102.2	106.9		%	4.5	50	20-DEC-18
Pyrene		101.3	106.2		%	4.8	50	20-DEC-18
WG2956871-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	20-DEC-18
2-Methylnaphthalene			<0.020		ug/L		0.02	20-DEC-18
Acenaphthene			<0.020		ug/L		0.02	20-DEC-18
Acenaphthylene			<0.020		ug/L		0.02	20-DEC-18
Anthracene			<0.020		ug/L		0.02	20-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4406969								
WG2956871-1 MB								
Benzo(a)anthracene			<0.020		ug/L		0.02	20-DEC-18
Benzo(a)pyrene			<0.010		ug/L		0.01	20-DEC-18
Benzo(b)fluoranthene			<0.020		ug/L		0.02	20-DEC-18
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	20-DEC-18
Benzo(k)fluoranthene			<0.020		ug/L		0.02	20-DEC-18
Chrysene			<0.020		ug/L		0.02	20-DEC-18
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	20-DEC-18
Fluoranthene			<0.020		ug/L		0.02	20-DEC-18
Fluorene			<0.020		ug/L		0.02	20-DEC-18
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	20-DEC-18
Naphthalene			<0.050		ug/L		0.05	20-DEC-18
Phenanthrene			<0.020		ug/L		0.02	20-DEC-18
Pyrene			<0.020		ug/L		0.02	20-DEC-18
Surrogate: d8-Naphthalene			104.8		%		60-140	20-DEC-18
Surrogate: d10-Phenanthrene			113.6		%		60-140	20-DEC-18
Surrogate: d12-Chrysene			107.8		%		60-140	20-DEC-18
Surrogate: d10-Acenaphthene			108.4		%		60-140	20-DEC-18
PH-WT	**Water**							
Batch R4405188								
WG2956997-8 DUP		**WG2956997-7**						
pH		7.18	7.18	J	pH units	0.00	0.2	19-DEC-18
WG2956997-6 LCS								
pH			7.00		pH units		6.9-7.1	19-DEC-18
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-4 DUP		**WG2956099-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-4 DUP		**WG2956099-3**						
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	19-DEC-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	19-DEC-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	19-DEC-18
cis-1,2-Dichloroethylene		3.17	3.10		ug/L	2.2	30	19-DEC-18
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	19-DEC-18
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	19-DEC-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	19-DEC-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	19-DEC-18
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	19-DEC-18
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	19-DEC-18
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	19-DEC-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	19-DEC-18
Trichloroethylene		5.85	5.85		ug/L	0.0	30	19-DEC-18
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
WG2956099-1 LCS								

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-1 LCS								
1,1,1,2-Tetrachloroethane			105.7		%		70-130	19-DEC-18
1,1,2,2-Tetrachloroethane			114.8		%		70-130	19-DEC-18
1,1,1-Trichloroethane			105.3		%		70-130	19-DEC-18
1,1,2-Trichloroethane			109.9		%		70-130	19-DEC-18
1,1-Dichloroethane			110.4		%		70-130	19-DEC-18
1,1-Dichloroethylene			105.5		%		70-130	19-DEC-18
1,2-Dibromoethane			109.4		%		70-130	19-DEC-18
1,2-Dichlorobenzene			110.6		%		70-130	19-DEC-18
1,2-Dichloroethane			111.0		%		70-130	19-DEC-18
1,2-Dichloropropane			109.2		%		70-130	19-DEC-18
1,3-Dichlorobenzene			109.0		%		70-130	19-DEC-18
1,4-Dichlorobenzene			109.8		%		70-130	19-DEC-18
Acetone			124.1		%		60-140	19-DEC-18
Benzene			113.3		%		70-130	19-DEC-18
Bromodichloromethane			109.6		%		70-130	19-DEC-18
Bromoform			106.1		%		70-130	19-DEC-18
Bromomethane			102.2		%		60-140	19-DEC-18
Carbon tetrachloride			105.9		%		70-130	19-DEC-18
Chlorobenzene			107.4		%		70-130	19-DEC-18
Chloroform			108.4		%		70-130	19-DEC-18
cis-1,2-Dichloroethylene			109.6		%		70-130	19-DEC-18
cis-1,3-Dichloropropene			109.1		%		70-130	19-DEC-18
Dibromochloromethane			107.2		%		70-130	19-DEC-18
Dichlorodifluoromethane			128.2		%		50-140	19-DEC-18
Ethylbenzene			97.6		%		70-130	19-DEC-18
n-Hexane			100.9		%		70-130	19-DEC-18
m+p-Xylenes			100.6		%		70-130	19-DEC-18
Methyl Ethyl Ketone			131.2		%		60-140	19-DEC-18
Methyl Isobutyl Ketone			134.5		%		60-140	19-DEC-18
Methylene Chloride			116.2		%		70-130	19-DEC-18
MTBE			110.8		%		70-130	19-DEC-18
o-Xylene			97.5		%		70-130	19-DEC-18
Styrene			100.3		%		70-130	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-1 LCS								
Tetrachloroethylene			105.4		%		70-130	19-DEC-18
Toluene			101.0		%		70-130	19-DEC-18
trans-1,2-Dichloroethylene			108.0		%		70-130	19-DEC-18
trans-1,3-Dichloropropene			103.0		%		70-130	19-DEC-18
Trichloroethylene			111.1		%		70-130	19-DEC-18
Trichlorofluoromethane			107.5		%		60-140	19-DEC-18
Vinyl chloride			83.0		%		60-140	19-DEC-18
WG2956099-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1-Dichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	19-DEC-18
1,2-Dibromoethane			<0.20		ug/L		0.2	19-DEC-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	19-DEC-18
1,2-Dichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,2-Dichloropropane			<0.50		ug/L		0.5	19-DEC-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	19-DEC-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	19-DEC-18
Acetone			<30		ug/L		30	19-DEC-18
Benzene			<0.50		ug/L		0.5	19-DEC-18
Bromodichloromethane			<2.0		ug/L		2	19-DEC-18
Bromoform			<5.0		ug/L		5	19-DEC-18
Bromomethane			<0.50		ug/L		0.5	19-DEC-18
Carbon tetrachloride			<0.20		ug/L		0.2	19-DEC-18
Chlorobenzene			<0.50		ug/L		0.5	19-DEC-18
Chloroform			<1.0		ug/L		1	19-DEC-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	19-DEC-18
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	19-DEC-18
Dibromochloromethane			<2.0		ug/L		2	19-DEC-18
Dichlorodifluoromethane			<2.0		ug/L		2	19-DEC-18
Ethylbenzene			<0.50		ug/L		0.5	19-DEC-18
n-Hexane			<0.50		ug/L		0.5	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-2 MB								
m+p-Xylenes			<0.40		ug/L		0.4	19-DEC-18
Methyl Ethyl Ketone			<20		ug/L		20	19-DEC-18
Methyl Isobutyl Ketone			<20		ug/L		20	19-DEC-18
Methylene Chloride			<5.0		ug/L		5	19-DEC-18
MTBE			<2.0		ug/L		2	19-DEC-18
o-Xylene			<0.30		ug/L		0.3	19-DEC-18
Styrene			<0.50		ug/L		0.5	19-DEC-18
Tetrachloroethylene			<0.50		ug/L		0.5	19-DEC-18
Toluene			<0.50		ug/L		0.5	19-DEC-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	19-DEC-18
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	19-DEC-18
Trichloroethylene			<0.50		ug/L		0.5	19-DEC-18
Trichlorofluoromethane			<5.0		ug/L		5	19-DEC-18
Vinyl chloride			<0.50		ug/L		0.5	19-DEC-18
Surrogate: 1,4-Difluorobenzene			98.8		%		70-130	19-DEC-18
Surrogate: 4-Bromofluorobenzene			96.9		%		70-130	19-DEC-18
WG2956099-5 MS		**WG2956099-3**						
1,1,1,2-Tetrachloroethane			104.6		%		50-140	19-DEC-18
1,1,2,2-Tetrachloroethane			109.7		%		50-140	19-DEC-18
1,1,1-Trichloroethane			106.1		%		50-140	19-DEC-18
1,1,2-Trichloroethane			104.9		%		50-140	19-DEC-18
1,1-Dichloroethane			109.2		%		50-140	19-DEC-18
1,1-Dichloroethylene			103.1		%		50-140	19-DEC-18
1,2-Dibromoethane			102.4		%		50-140	19-DEC-18
1,2-Dichlorobenzene			108.6		%		50-140	19-DEC-18
1,2-Dichloroethane			105.9		%		50-140	19-DEC-18
1,2-Dichloropropane			107.1		%		50-140	19-DEC-18
1,3-Dichlorobenzene			109.7		%		50-140	19-DEC-18
1,4-Dichlorobenzene			110.5		%		50-140	19-DEC-18
Acetone			112.6		%		50-140	19-DEC-18
Benzene			112.4		%		50-140	19-DEC-18
Bromodichloromethane			107.6		%		50-140	19-DEC-18
Bromoform			100.2		%		50-140	19-DEC-18
Bromomethane			95.3		%		50-140	19-DEC-18

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4402010								
WG2956099-5 MS		**WG2956099-3**						
Carbon tetrachloride			107.0		%		50-140	19-DEC-18
Chlorobenzene			107.5		%		50-140	19-DEC-18
Chloroform			108.2		%		50-140	19-DEC-18
cis-1,2-Dichloroethylene			108.5		%		50-140	19-DEC-18
cis-1,3-Dichloropropene			108.6		%		50-140	19-DEC-18
Dibromochloromethane			102.9		%		50-140	19-DEC-18
Dichlorodifluoromethane			102.6		%		50-140	19-DEC-18
Ethylbenzene			98.6		%		50-140	19-DEC-18
n-Hexane			96.5		%		50-140	19-DEC-18
m+p-Xylenes			102.3		%		50-140	19-DEC-18
Methyl Ethyl Ketone			108.6		%		50-140	19-DEC-18
Methyl Isobutyl Ketone			121.5		%		50-140	19-DEC-18
Methylene Chloride			112.8		%		50-140	19-DEC-18
MTBE			111.3		%		50-140	19-DEC-18
o-Xylene			97.8		%		50-140	19-DEC-18
Styrene			98.8		%		50-140	19-DEC-18
Tetrachloroethylene			109.2		%		50-140	19-DEC-18
Toluene			100.9		%		50-140	19-DEC-18
trans-1,2-Dichloroethylene			108.7		%		50-140	19-DEC-18
trans-1,3-Dichloropropene			101.2		%		50-140	19-DEC-18
Trichloroethylene			113.0		%		50-140	19-DEC-18
Trichlorofluoromethane			102.2		%		50-140	19-DEC-18
Vinyl chloride			75.1		%		50-140	19-DEC-18

Quality Control Report

Workorder: L2211815 Report Date: 24-DEC-18

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

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.

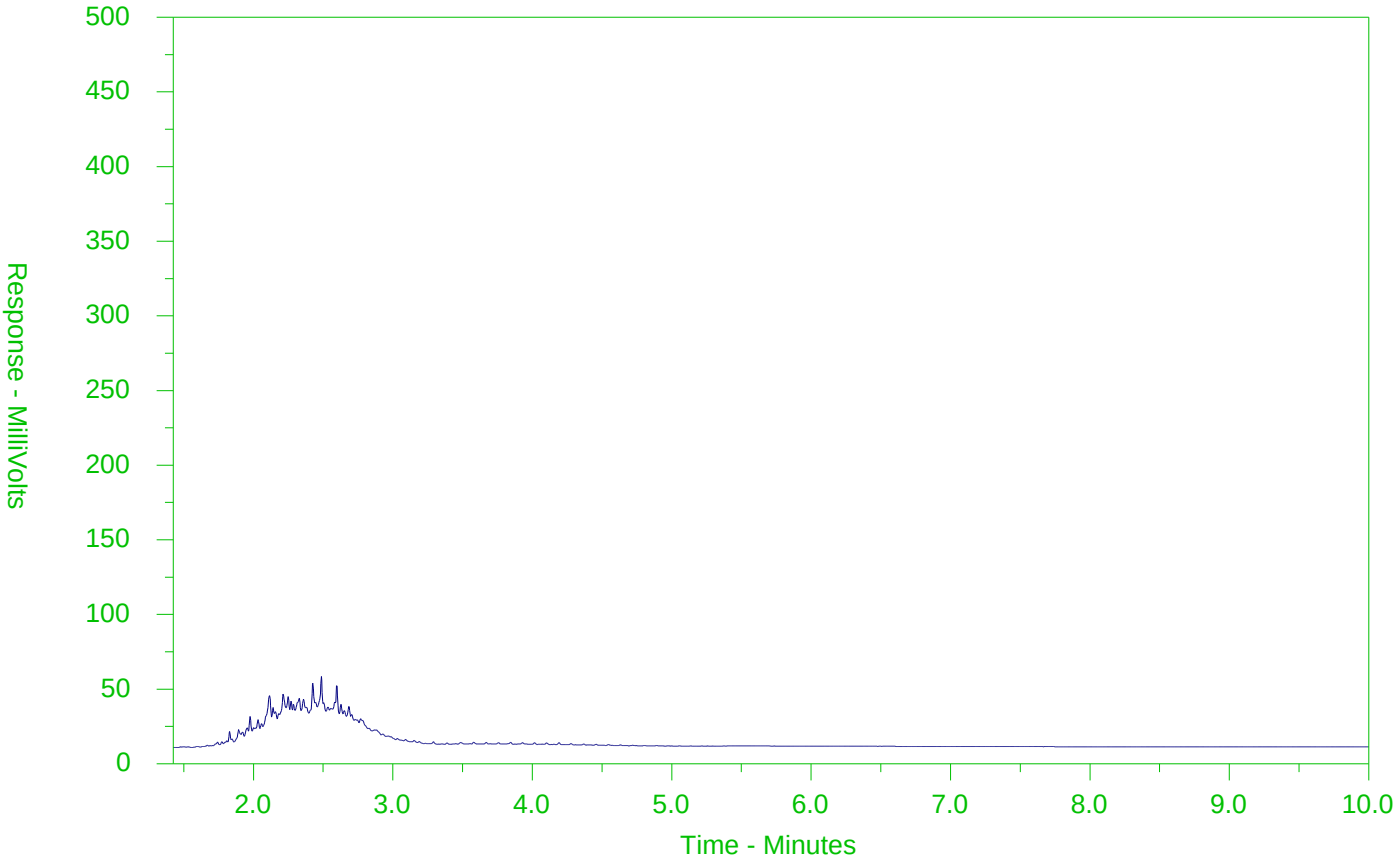
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2211815-1
Client Sample ID: MW-18-2



←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.

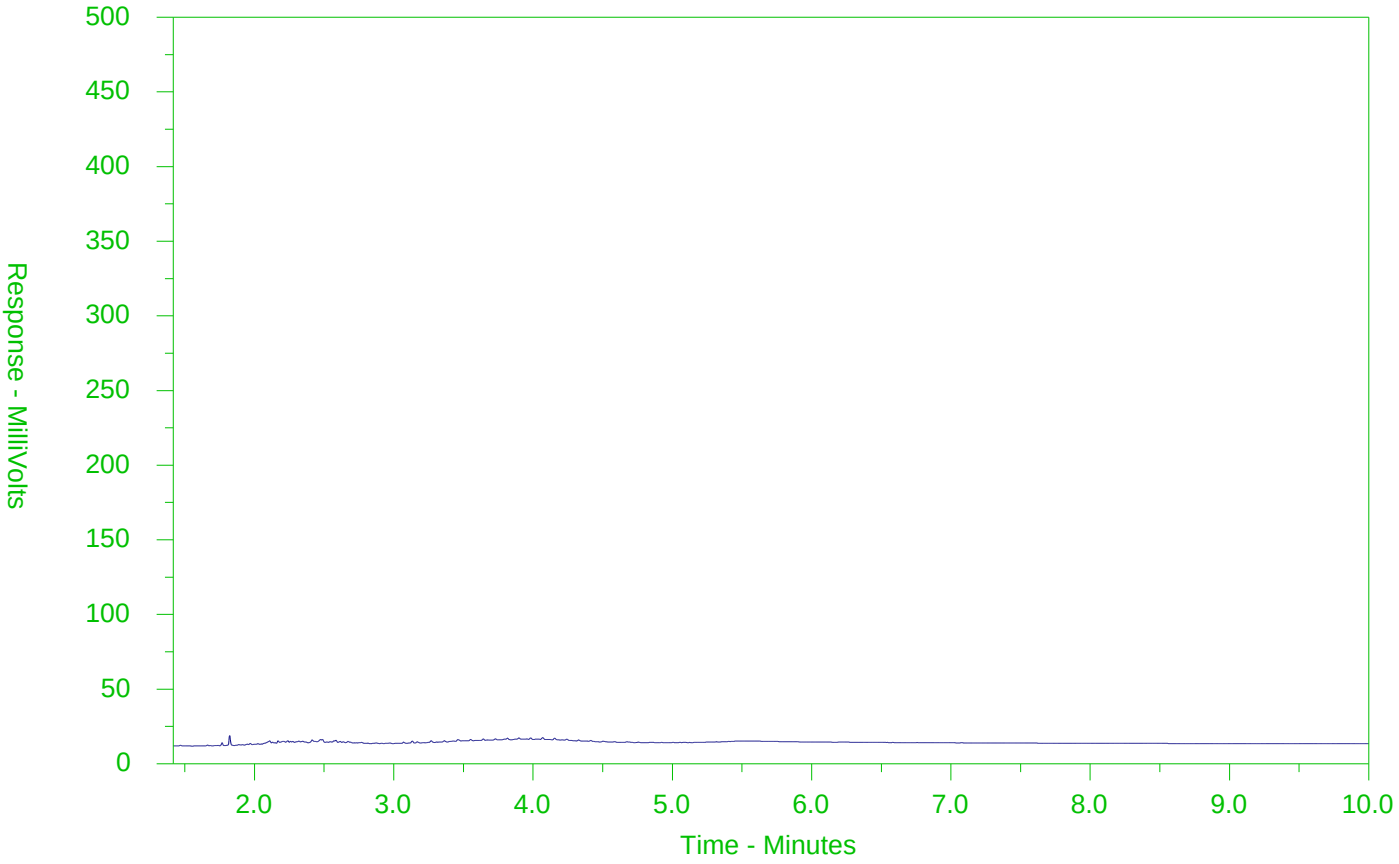
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2211815-2
Client Sample ID: MW-18-3



←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.

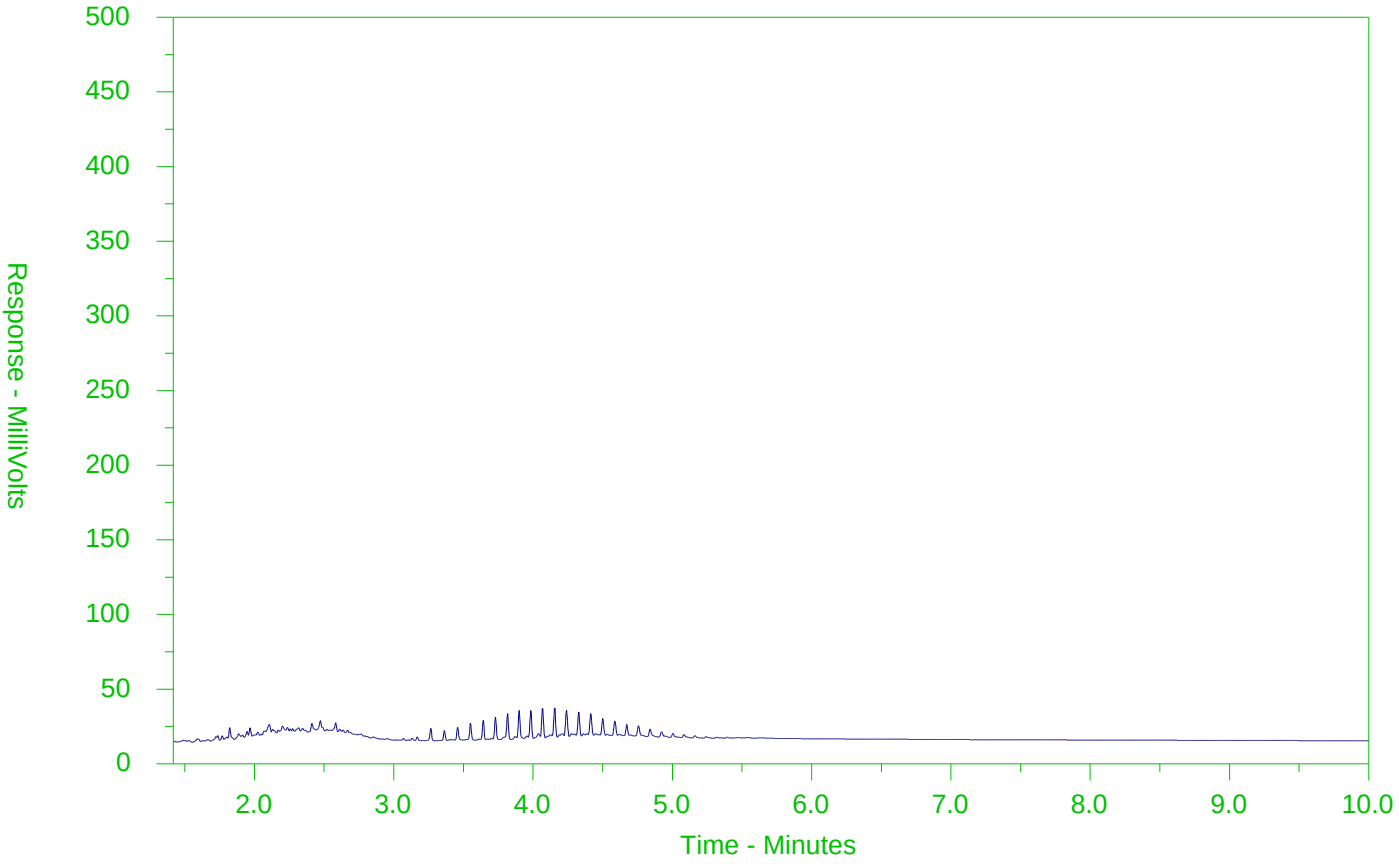
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2211815-3
Client Sample ID: MW-18-1



←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

L2211815-COFC

COC Number: 17 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	McIntosh Perry - 23229
Contact:	Bradley Sutherland
Phone:	613-836-2184
	Company address below will appear on the final report
Street:	115 Walgreen Road RR3
City/Province:	Carp, ON
Postal Code:	K0A 1L0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
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 b.sutherland@mcintoshperry.com
Email 2
Email 3

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax b.sutherland@mcintoshperry.com
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 [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.

Project Information

ALS Account # / Quote #:	Q71138
Job #:	CP-17-0635
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): L2211815

ALS Contact: Melanie M.

Sampler: Justin C.

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	VOC / BTEX / F1-F4 (VOC-R511_F1-F4-P-WT)	Reg.153 Metals & Inorganics (R511-INORGANICS-P-WT)	PAHs (PAH-511-WT)	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	~~MW-B1~~ BS	17-Dec-18 BS		Grab BS		X	X	X BS		
	MW-B2	17-Dec-18	12:30	GW		X	X	X		
	MW-B3	17-Dec-18	1:00	GW		X	X	X		
	MW-19-1	17-Dec-18	12:40	GW		X	X	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)

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			
9.4				2.8			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	Dec. 17 2018	1:58

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
Tammy Andrews	DEC 17th 2018	2:20

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
	Dec 18/2018	11:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 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.

McIntosh Perry Engineering Consultants (Ottawa)
ATTN: Bradley Sutherland
115 Walgreen Road RR3
Carp ON K0A 1L0

Date Received: 07-JAN-19
Report Date: 10-JAN-19 13:14 (MT)
Version: FINAL

Client Phone: 613-836-2184

Certificate of Analysis

Lab Work Order #: L2217373

Project P.O. #: NOT SUBMITTED
Job Reference: CP-17-0635
C of C Numbers:
Legal Site Desc:

Melanie Moshi
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2217373-1 MW18-1 Sampled By: CLIENT on 07-JAN-19 @ 14:00 Matrix: WATER							
Anions and Nutrients							
Chloride (Cl)	590	DLHC	2.5	mg/L		09-JAN-19	R4438367
Hydrocarbons							
F2 (C10-C16)	<100		100	ug/L	08-JAN-19	08-JAN-19	R4434207
F3 (C16-C34)	<250		250	ug/L	08-JAN-19	08-JAN-19	R4434207
F4 (C34-C50)	<250		250	ug/L	08-JAN-19	08-JAN-19	R4434207
Chrom. to baseline at nC50	YES				08-JAN-19	08-JAN-19	R4434207
Surrogate: 2-Bromobenzotrifluoride	78.7		60-140	%	08-JAN-19	08-JAN-19	R4434207
L2217373-2 MW18-2 Sampled By: CLIENT on 07-JAN-19 @ 14:15 Matrix: WATER							
Hydrocarbons							
F2 (C10-C16)	<100		100	ug/L	08-JAN-19	08-JAN-19	R4434207
F3 (C16-C34)	<250		250	ug/L	08-JAN-19	08-JAN-19	R4434207
F4 (C34-C50)	<250		250	ug/L	08-JAN-19	08-JAN-19	R4434207
Chrom. to baseline at nC50	YES				08-JAN-19	08-JAN-19	R4434207
Surrogate: 2-Bromobenzotrifluoride	83.9		60-140	%	08-JAN-19	08-JAN-19	R4434207
L2217373-3 MW18-3 Sampled By: CLIENT on 07-JAN-19 @ 15:00 Matrix: WATER							
Anions and Nutrients							
Chloride (Cl)	394	DLHC	2.5	mg/L		09-JAN-19	R4438367

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

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).

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.

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).

** 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: L2217373 Report Date: 10-JAN-19

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R4438367								
WG2966551-10 DUP		**L2217352-1**						
Chloride (Cl)		1.65	1.63		mg/L	1.4	20	09-JAN-19
WG2966551-7 LCS								
Chloride (Cl)			101.7		%		90-110	09-JAN-19
WG2966551-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	09-JAN-19
WG2966551-9 MS		**L2217352-1**						
Chloride (Cl)			106.3		%		75-125	09-JAN-19
F2-F4-511-WT	**Water**							
Batch R4434207								
WG2965658-2 LCS								
F2 (C10-C16)			102.0		%		70-130	08-JAN-19
F3 (C16-C34)			102.5		%		70-130	08-JAN-19
F4 (C34-C50)			105.1		%		70-130	08-JAN-19
WG2965658-3 LCSD		**WG2965658-2**						
F2 (C10-C16)		102.0	104.3		%	2.2	50	08-JAN-19
F3 (C16-C34)		102.5	103.9		%	1.3	50	08-JAN-19
F4 (C34-C50)		105.1	106.9		%	1.7	50	08-JAN-19
WG2965658-1 MB								
F2 (C10-C16)			<100		ug/L		100	08-JAN-19
F3 (C16-C34)			<250		ug/L		250	08-JAN-19
F4 (C34-C50)			<250		ug/L		250	08-JAN-19
Surrogate: 2-Bromobenzotrifluoride			81.1		%		60-140	08-JAN-19

Quality Control Report

Workorder: L2217373 Report Date: 10-JAN-19

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road RR3
Carp ON K0A 1L0
Contact: Bradley Sutherland

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

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

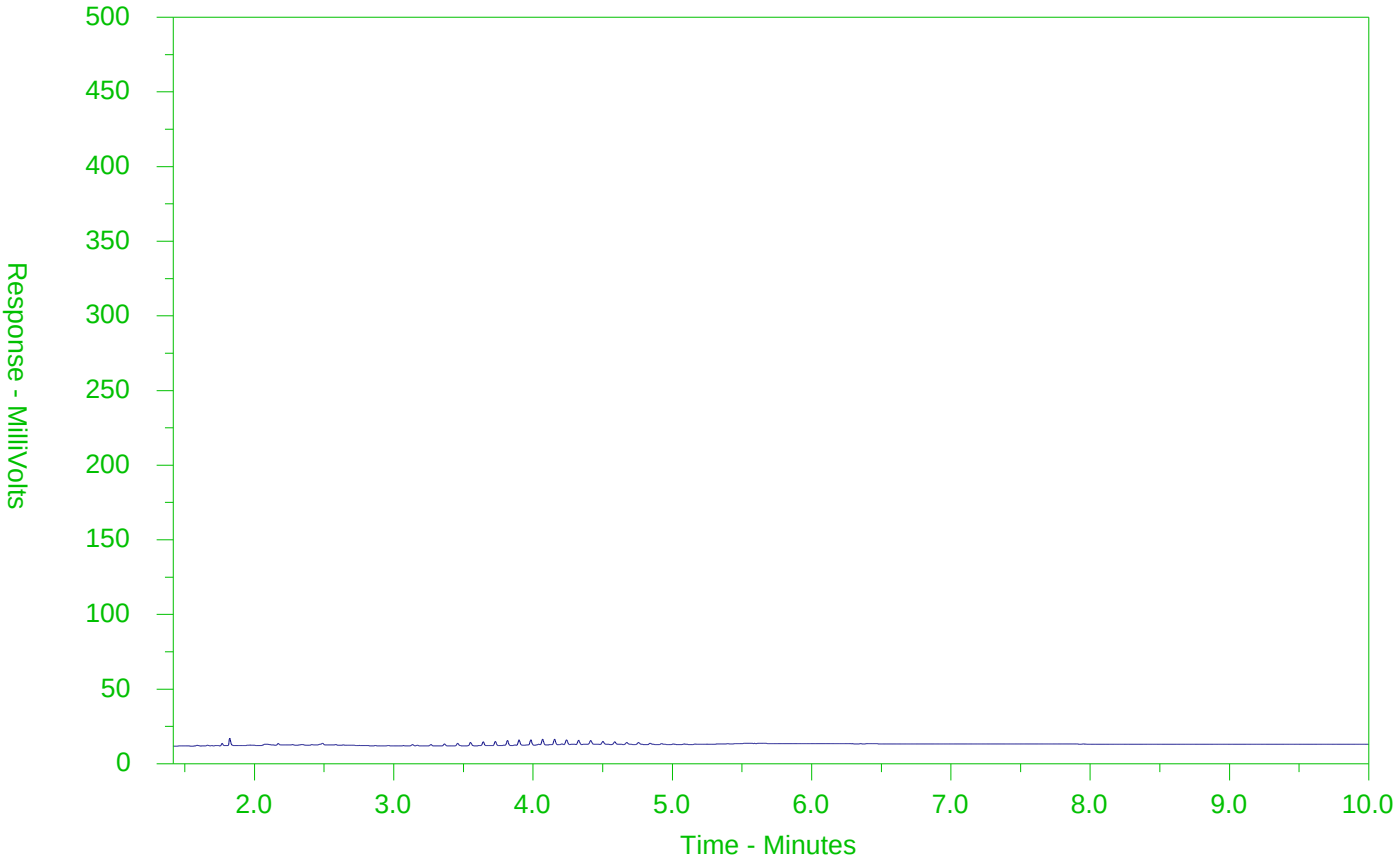
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2217373-1
Client Sample ID: MW18-1



←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.

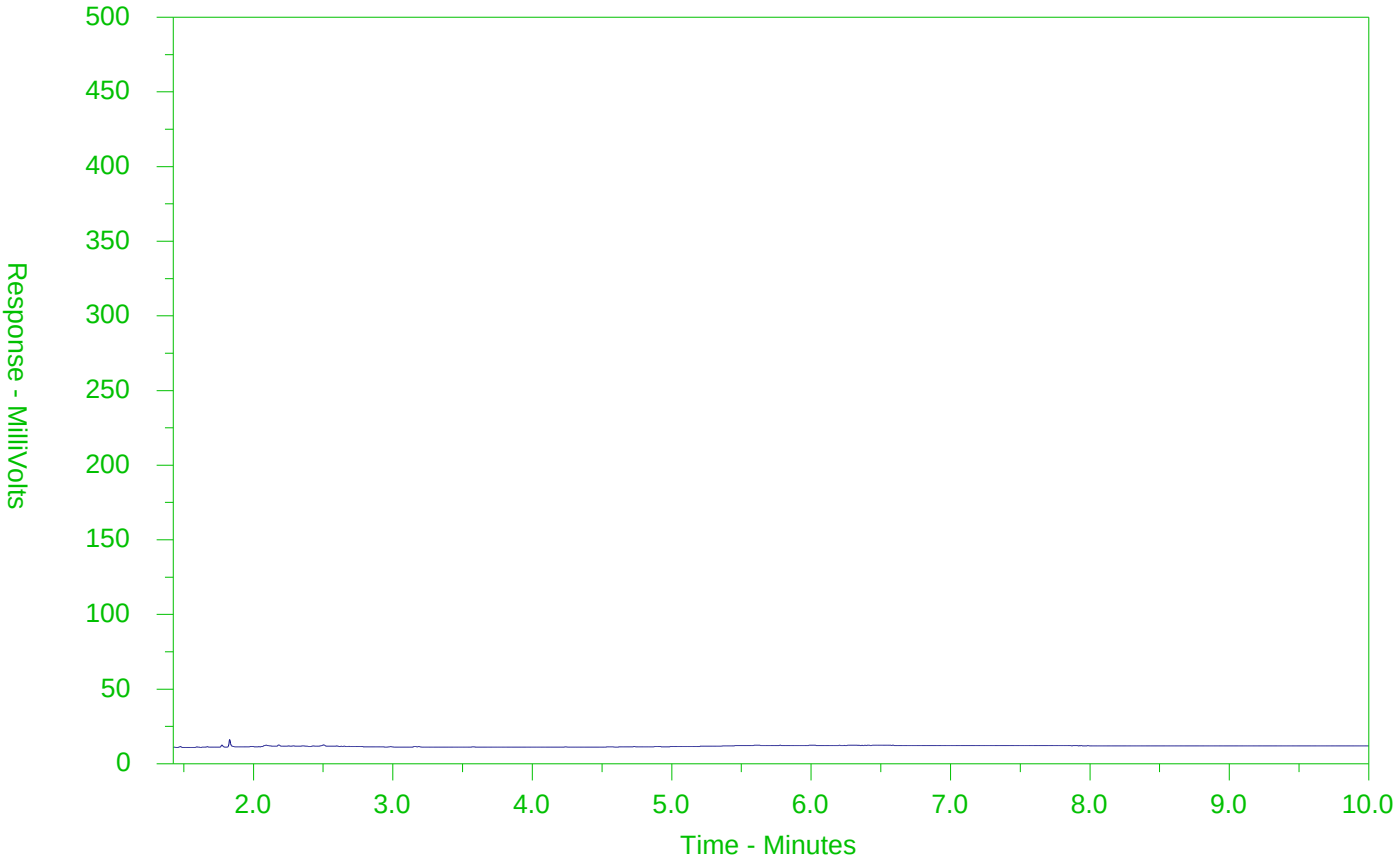
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2217373-2
Client Sample ID: MW18-2



←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.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2217373-COFC

COC Number: 17 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	McIntosh Perry - 23229
Contact:	Bradley Sutherland
Phone:	613-836-2184
	Company address below will appear on the final report
Street:	115 Walgreen Road RR3
City/Province:	Carp, ON
Postal Code:	K0A 1L0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
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 b.sutherland@mcintoshperry.com

Email 2

Email 3

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax b.sutherland@mcintoshperry.com

Email 2

Project Information

ALS Account # / Quote #:	Q71138
Job #:	CP-17-0635
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): L2217373

ALS Contact: Melanie M. Sampler:

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

NUMBER OF CONTAINERS

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	VOC / BTEX / F1-F4 (VOC-R511, F1-F4-P-WT)	Reg.153 Metals & Inorganics (R511-INORGANICS-P-WT)	PAHs (PAH-511-WT)	F2-F4	Chloride	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW19-1	07-Jan-19	2:00	GW				X	X		
	MW19-2	↓	2:15	GW				X			
	MW19-3	↓	3:06	GW					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)

Need by Thursday Pease

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			
1.1				5.6			

SHIPMENT RELEASE (client use)

Released by: Date: 07-01-19 Time: 3:45pm

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Jan/07/19 Time: 3:40

FINAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Jan 8/2019 Time: 9:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 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.**

McIntosh Perry Engineering Consultants (Ottawa)
ATTN: Bradley Sutherland
115 Walgreen Road, R.R. 3
Carp ON K0A1L0

Date Received: 20-MAY-21
Report Date: 31-MAY-21 07:51 (MT)
Version: FINAL

Client Phone: 613-903-5785

Certificate of Analysis

Lab Work Order #: L2590710

Project P.O. #: NOT SUBMITTED
Job Reference: CCO-22-0244
C of C Numbers:
Legal Site Desc:

Emily Smith
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-1 MW1							
Sampled By: CLIENT on 20-MAY-21 @ 10:30							
Matrix: WATER							
Physical Tests							
Conductivity	0.561		0.0030	mS/cm	22-MAY-21		
pH	8.22		0.10	pH units	22-MAY-21		
Anions and Nutrients							
Chloride (Cl)	65.2		0.50	mg/L	24-MAY-21	2300	2300
Cyanides							
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	25-MAY-21	66	66
Dissolved Metals							
Dissolved Mercury Filtration Location	FIELD			No Unit	25-MAY-21		
Dissolved Metals Filtration Location	FIELD			No Unit	21-MAY-21		
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	20000	20000
Arsenic (As)-Dissolved	0.28		0.10	ug/L	25-MAY-21	1900	1900
Barium (Ba)-Dissolved	146		0.10	ug/L	25-MAY-21	29000	29000
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	67	67
Boron (B)-Dissolved	67		10	ug/L	25-MAY-21	45000	45000
Cadmium (Cd)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	2.7	2.7
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	810	810
Cobalt (Co)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	66	66
Copper (Cu)-Dissolved	1.09		0.20	ug/L	25-MAY-21	87	87
Lead (Pb)-Dissolved	0.087		0.050	ug/L	25-MAY-21	25	25
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	26-MAY-21	0.29	2.8
Molybdenum (Mo)-Dissolved	1.31		0.050	ug/L	25-MAY-21	9200	9200
Nickel (Ni)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	490	490
Selenium (Se)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	63	63
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	1.5	1.5
Sodium (Na)-Dissolved	14900		500	ug/L	25-MAY-21	2300000	2300000
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	510	510
Uranium (U)-Dissolved	0.097		0.010	ug/L	25-MAY-21	420	420
Vanadium (V)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	250	250
Zinc (Zn)-Dissolved	1.3		1.0	ug/L	25-MAY-21	1100	1100
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L	22-MAY-21	140	140
Volatile Organic Compounds							
Acetone	<30		30	ug/L	31-MAY-21	130000	130000
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-1 MW1							
Sampled By: CLIENT on 20-MAY-21 @ 10:30							
Matrix: WATER							
Volatile Organic Compounds							
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7
o-Xylene	<0.30		0.30	ug/L	31-MAY-21		
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21		
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200
Surrogate: 4-Bromofluorobenzene	98.4		70-130	%	31-MAY-21		
Surrogate: 1,4-Difluorobenzene	99.8		70-130	%	31-MAY-21		
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750
F2 (C10-C16)	<100		100	ug/L	26-MAY-21	150	150
F2-Naphth	<100		100	ug/L	31-MAY-21		
F3 (C16-C34)	<250		250	ug/L	26-MAY-21	500	500
F3-PAH	<250		250	ug/L	31-MAY-21		
F4 (C34-C50)	<250		250	ug/L	26-MAY-21	500	500
Total Hydrocarbons (C6-C50)	<370		370	ug/L	31-MAY-21		
Chrom. to baseline at nC50	YES			No Unit	26-MAY-21		
Surrogate: 2-Bromobenzotrifluoride	89.0		60-140	%	26-MAY-21		
Surrogate: 3,4-Dichlorotoluene	76.8		60-140	%	31-MAY-21		
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.020		0.020	ug/L	28-MAY-21	600	1700
Acenaphthylene	<0.020		0.020	ug/L	28-MAY-21	1.8	1.8

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2590710-1 MW1 Sampled By: CLIENT on 20-MAY-21 @ 10:30 Matrix: WATER									
Polycyclic Aromatic Hydrocarbons									
Anthracene	<0.020		0.020	ug/L	28-MAY-21	2.4	2.4		
Benzo(a)anthracene	<0.020		0.020	ug/L	28-MAY-21	4.7	4.7		
Benzo(a)pyrene	<0.010		0.010	ug/L	28-MAY-21	0.81	0.81		
Benzo(b&j)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.75	0.75		
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
Benzo(k)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.4	0.4		
Chrysene	<0.020		0.020	ug/L	28-MAY-21	1	1		
Dibenz(a,h)anthracene	<0.020		0.020	ug/L	28-MAY-21	0.52	0.52		
Fluoranthene	<0.020		0.020	ug/L	28-MAY-21	130	130		
Fluorene	<0.020		0.020	ug/L	28-MAY-21	400	400		
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	28-MAY-21	1800	1800		
1-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
2-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
Naphthalene	<0.050		0.050	ug/L	28-MAY-21	1400	6400		
Phenanthrene	<0.020		0.020	ug/L	28-MAY-21	580	580		
Pyrene	<0.020		0.020	ug/L	28-MAY-21	68	68		
Surrogate: Naphthalene d8	91.8		60-140	%	28-MAY-21				
Surrogate: Phenanthrene d10	102.6		60-140	%	28-MAY-21				
L2590710-2 MW2 Sampled By: CLIENT on 20-MAY-21 @ 11:30 Matrix: WATER						#1	#2		
Physical Tests									
Conductivity	1.48		0.0030	mS/cm	22-MAY-21				
pH	7.75		0.10	pH units	22-MAY-21				
Anions and Nutrients									
Chloride (Cl)	245		2.5	mg/L	24-MAY-21	2300	2300		
Cyanides									
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	25-MAY-21	66	66		
Dissolved Metals									
Dissolved Mercury Filtration Location	FIELD			No Unit	25-MAY-21				
Dissolved Metals Filtration Location	FIELD			No Unit	21-MAY-21				
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	20000	20000		
Arsenic (As)-Dissolved	0.10		0.10	ug/L	25-MAY-21	1900	1900		
Barium (Ba)-Dissolved	176		0.10	ug/L	25-MAY-21	29000	29000		
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	67	67		
Boron (B)-Dissolved	15		10	ug/L	25-MAY-21	45000	45000		
Cadmium (Cd)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	2.7	2.7		
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	810	810		
Cobalt (Co)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	66	66		
Copper (Cu)-Dissolved	0.77		0.20	ug/L	25-MAY-21	87	87		
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	25	25		
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	26-MAY-21	0.29	2.8		
Molybdenum (Mo)-Dissolved	0.304		0.050	ug/L	25-MAY-21	9200	9200		

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-2 MW2							
Sampled By: CLIENT on 20-MAY-21 @ 11:30							
Matrix: WATER							
Dissolved Metals							
Nickel (Ni)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	490	490
Selenium (Se)-Dissolved	0.428		0.050	ug/L	25-MAY-21	63	63
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	1.5	1.5
Sodium (Na)-Dissolved	162000	DLHC	500	ug/L	25-MAY-21	2300000	2300000
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	510	510
Uranium (U)-Dissolved	1.15		0.010	ug/L	25-MAY-21	420	420
Vanadium (V)-Dissolved	0.69		0.50	ug/L	25-MAY-21	250	250
Zinc (Zn)-Dissolved	<1.0		1.0	ug/L	25-MAY-21	1100	1100
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L	22-MAY-21	140	140
Volatile Organic Compounds							
Acetone	<30		30	ug/L	31-MAY-21	130000	130000
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2590710-2 MW2									
Sampled By: CLIENT on 20-MAY-21 @ 11:30									
Matrix: WATER									
Volatile Organic Compounds									
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700		
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30		
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500		
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7		
o-Xylene	<0.30		0.30	ug/L	31-MAY-21				
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21				
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200		
Surrogate: 4-Bromofluorobenzene	98.6		70-130	%	31-MAY-21				
Surrogate: 1,4-Difluorobenzene	99.3		70-130	%	31-MAY-21				
Hydrocarbons									
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750		
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750		
F2 (C10-C16)	<100		100	ug/L	26-MAY-21	150	150		
F2-Naphth	<100		100	ug/L	31-MAY-21				
F3 (C16-C34)	<250		250	ug/L	26-MAY-21	500	500		
F3-PAH	<250		250	ug/L	31-MAY-21				
F4 (C34-C50)	<250		250	ug/L	26-MAY-21	500	500		
Total Hydrocarbons (C6-C50)	<370		370	ug/L	31-MAY-21				
Chrom. to baseline at nC50	YES			No Unit	26-MAY-21				
Surrogate: 2-Bromobenzotrifluoride	86.4		60-140	%	26-MAY-21				
Surrogate: 3,4-Dichlorotoluene	78.5		60-140	%	31-MAY-21				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.020		0.020	ug/L	28-MAY-21	600	1700		
Acenaphthylene	<0.020		0.020	ug/L	28-MAY-21	1.8	1.8		
Anthracene	<0.020		0.020	ug/L	28-MAY-21	2.4	2.4		
Benzo(a)anthracene	<0.020		0.020	ug/L	28-MAY-21	4.7	4.7		
Benzo(a)pyrene	<0.010		0.010	ug/L	28-MAY-21	0.81	0.81		
Benzo(b&j)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.75	0.75		
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
Benzo(k)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.4	0.4		
Chrysene	<0.020		0.020	ug/L	28-MAY-21	1	1		
Dibenz(a,h)anthracene	<0.020		0.020	ug/L	28-MAY-21	0.52	0.52		
Fluoranthene	<0.020		0.020	ug/L	28-MAY-21	130	130		
Fluorene	<0.020		0.020	ug/L	28-MAY-21	400	400		
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	28-MAY-21	1800	1800		
1-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
2-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
Naphthalene	<0.050		0.050	ug/L	28-MAY-21	1400	6400		
Phenanthrene	<0.020		0.020	ug/L	28-MAY-21	580	580		
Pyrene	<0.020		0.020	ug/L	28-MAY-21	68	68		
Surrogate: Naphthalene d8	85.9		60-140	%	28-MAY-21				
Surrogate: Phenanthrene d10	96.1		60-140	%	28-MAY-21				

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-3 MW2-DUP							
Sampled By: CLIENT on 20-MAY-21 @ 11:30							
Matrix: WATER							
Volatile Organic Compounds							
Acetone	<30		30	ug/L	31-MAY-21	130000	130000
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21		
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7
o-Xylene	<0.30		0.30	ug/L	31-MAY-21		
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21		
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200
Surrogate: 4-Bromofluorobenzene	96.5		70-130	%	31-MAY-21		
Surrogate: 1,4-Difluorobenzene	99.8		70-130	%	31-MAY-21		
Hydrocarbons							
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2590710-3 MW2-DUP									
Sampled By: CLIENT on 20-MAY-21 @ 11:30									
Matrix: WATER									
Hydrocarbons									
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750		
F2 (C10-C16)	<100		100	ug/L	26-MAY-21	150	150		
F2-Naphth	<100		100	ug/L	31-MAY-21				
F3 (C16-C34)	<250		250	ug/L	26-MAY-21	500	500		
F3-PAH	<250		250	ug/L	31-MAY-21				
F4 (C34-C50)	<250		250	ug/L	26-MAY-21	500	500		
Total Hydrocarbons (C6-C50)	<370		370	ug/L	31-MAY-21				
Chrom. to baseline at nC50	YES			No Unit	26-MAY-21				
Surrogate: 2-Bromobenzotrifluoride	90.7		60-140	%	26-MAY-21				
Surrogate: 3,4-Dichlorotoluene	77.1		60-140	%	31-MAY-21				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.020		0.020	ug/L	28-MAY-21	600	1700		
Acenaphthylene	<0.020		0.020	ug/L	28-MAY-21	1.8	1.8		
Anthracene	<0.020		0.020	ug/L	28-MAY-21	2.4	2.4		
Benzo(a)anthracene	<0.020		0.020	ug/L	28-MAY-21	4.7	4.7		
Benzo(a)pyrene	<0.010		0.010	ug/L	28-MAY-21	0.81	0.81		
Benzo(b&j)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.75	0.75		
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
Benzo(k)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.4	0.4		
Chrysene	<0.020		0.020	ug/L	28-MAY-21	1	1		
Dibenz(a,h)anthracene	<0.020		0.020	ug/L	28-MAY-21	0.52	0.52		
Fluoranthene	<0.020		0.020	ug/L	28-MAY-21	130	130		
Fluorene	<0.020		0.020	ug/L	28-MAY-21	400	400		
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	28-MAY-21	1800	1800		
1-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
2-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
Naphthalene	<0.050		0.050	ug/L	28-MAY-21	1400	6400		
Phenanthrene	<0.020		0.020	ug/L	28-MAY-21	580	580		
Pyrene	<0.020		0.020	ug/L	28-MAY-21	68	68		
Surrogate: Chrysene d12	116.0		50-150	%	28-MAY-21				
Surrogate: Naphthalene d8	113.3		60-140	%	28-MAY-21				
Surrogate: Phenanthrene d10	110.4		60-140	%	28-MAY-21				
L2590710-4 MW3									
Sampled By: CLIENT on 20-MAY-21 @ 12:30									
Matrix: WATER									
Physical Tests									
Conductivity	1.60		0.0030	mS/cm	22-MAY-21				
pH	7.86		0.10	pH units	22-MAY-21				
Anions and Nutrients									
Chloride (Cl)	290		2.5	mg/L	24-MAY-21	2300	2300		
Cyanides									
Cyanide, Weak Acid Diss	<2.0		2.0	ug/L	25-MAY-21	66	66		
Dissolved Metals									
Dissolved Mercury Filtration Location	FIELD			No Unit	25-MAY-21				

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2
L2590710-4 MW3							
Sampled By: CLIENT on 20-MAY-21 @ 12:30							
Matrix: WATER							
Dissolved Metals							
Dissolved Metals Filtration Location	FIELD			No Unit	21-MAY-21		
Antimony (Sb)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	20000	20000
Arsenic (As)-Dissolved	0.13		0.10	ug/L	25-MAY-21	1900	1900
Barium (Ba)-Dissolved	101		0.10	ug/L	25-MAY-21	29000	29000
Beryllium (Be)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	67	67
Boron (B)-Dissolved	17		10	ug/L	25-MAY-21	45000	45000
Cadmium (Cd)-Dissolved	0.018		0.010	ug/L	25-MAY-21	2.7	2.7
Chromium (Cr)-Dissolved	<0.50		0.50	ug/L	25-MAY-21	810	810
Cobalt (Co)-Dissolved	<0.10		0.10	ug/L	25-MAY-21	66	66
Copper (Cu)-Dissolved	1.07		0.20	ug/L	25-MAY-21	87	87
Lead (Pb)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	25	25
Mercury (Hg)-Dissolved	<0.0050		0.0050	ug/L	26-MAY-21	0.29	2.8
Molybdenum (Mo)-Dissolved	0.266		0.050	ug/L	25-MAY-21	9200	9200
Nickel (Ni)-Dissolved	0.54		0.50	ug/L	25-MAY-21	490	490
Selenium (Se)-Dissolved	0.156		0.050	ug/L	25-MAY-21	63	63
Silver (Ag)-Dissolved	<0.050		0.050	ug/L	25-MAY-21	1.5	1.5
Sodium (Na)-Dissolved	156000	DLHC	500	ug/L	25-MAY-21	2300000	2300000
Thallium (Tl)-Dissolved	<0.010		0.010	ug/L	25-MAY-21	510	510
Uranium (U)-Dissolved	1.11		0.010	ug/L	25-MAY-21	420	420
Vanadium (V)-Dissolved	1.38		0.50	ug/L	25-MAY-21	250	250
Zinc (Zn)-Dissolved	<1.0		1.0	ug/L	25-MAY-21	1100	1100
Speciated Metals							
Chromium, Hexavalent	<0.50		0.50	ug/L	22-MAY-21	140	140
Volatile Organic Compounds							
Acetone	<30		30	ug/L	31-MAY-21	130000	130000
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2590710-4 MW3									
Sampled By: CLIENT on 20-MAY-21 @ 12:30									
Matrix: WATER									
Volatile Organic Compounds									
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45		
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300		
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520		
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000		
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000		
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400		
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100		
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28		
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15		
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000		
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700		
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30		
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500		
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7		
o-Xylene	<0.30		0.30	ug/L	31-MAY-21				
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21				
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200		
Surrogate: 4-Bromofluorobenzene	96.7		70-130	%	31-MAY-21				
Surrogate: 1,4-Difluorobenzene	99.3		70-130	%	31-MAY-21				
Hydrocarbons									
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750		
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750		
F2 (C10-C16)	<100		100	ug/L	26-MAY-21	150	150		
F2-Naphth	<100		100	ug/L	31-MAY-21				
F3 (C16-C34)	<250		250	ug/L	26-MAY-21	500	500		
F3-PAH	<250		250	ug/L	31-MAY-21				
F4 (C34-C50)	<250		250	ug/L	26-MAY-21	500	500		
Total Hydrocarbons (C6-C50)	<370		370	ug/L	31-MAY-21				
Chrom. to baseline at nC50	YES			No Unit	26-MAY-21				
Surrogate: 2-Bromobenzotrifluoride	85.8		60-140	%	26-MAY-21				
Surrogate: 3,4-Dichlorotoluene	79.8		60-140	%	31-MAY-21				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.020		0.020	ug/L	28-MAY-21	600	1700		
Acenaphthylene	<0.020		0.020	ug/L	28-MAY-21	1.8	1.8		
Anthracene	<0.020		0.020	ug/L	28-MAY-21	2.4	2.4		
Benzo(a)anthracene	<0.020		0.020	ug/L	28-MAY-21	4.7	4.7		
Benzo(a)pyrene	<0.010		0.010	ug/L	28-MAY-21	0.81	0.81		
Benzo(b&j)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.75	0.75		
Benzo(g,h,i)perylene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
Benzo(k)fluoranthene	<0.020		0.020	ug/L	28-MAY-21	0.4	0.4		
Chrysene	<0.020		0.020	ug/L	28-MAY-21	1	1		
Dibenz(a,h)anthracene	<0.020		0.020	ug/L	28-MAY-21	0.52	0.52		

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2		
L2590710-4 MW3 Sampled By: CLIENT on 20-MAY-21 @ 12:30 Matrix: WATER									
Polycyclic Aromatic Hydrocarbons									
Fluoranthene	<0.020		0.020	ug/L	28-MAY-21	130	130		
Fluorene	<0.020		0.020	ug/L	28-MAY-21	400	400		
Indeno(1,2,3-cd)pyrene	<0.020		0.020	ug/L	28-MAY-21	0.2	0.2		
1+2-Methylnaphthalenes	<0.028		0.028	ug/L	28-MAY-21	1800	1800		
1-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
2-Methylnaphthalene	<0.020		0.020	ug/L	28-MAY-21	1800	1800		
Naphthalene	<0.050		0.050	ug/L	28-MAY-21	1400	6400		
Phenanthrene	<0.020		0.020	ug/L	28-MAY-21	580	580		
Pyrene	<0.020		0.020	ug/L	28-MAY-21	68	68		
Surrogate: Naphthalene d8	88.9		60-140	%	28-MAY-21				
Surrogate: Phenanthrene d10	100.4		60-140	%	28-MAY-21				
L2590710-5 TRIP BLANK Sampled By: CLIENT on 20-MAY-21 Matrix: WATER						#1	#2		
Volatile Organic Compounds									
Acetone	<30		30	ug/L	31-MAY-21	130000	130000		
Benzene	<0.50		0.50	ug/L	31-MAY-21	44	430		
Bromodichloromethane	<2.0		2.0	ug/L	31-MAY-21	85000	85000		
Bromoform	<5.0		5.0	ug/L	31-MAY-21	380	770		
Bromomethane	<0.50		0.50	ug/L	31-MAY-21	5.6	56		
Carbon tetrachloride	<0.20		0.20	ug/L	31-MAY-21	0.79	8.4		
Chlorobenzene	<0.50		0.50	ug/L	31-MAY-21	630	630		
Dibromochloromethane	<2.0		2.0	ug/L	31-MAY-21	82000	82000		
Chloroform	<1.0		1.0	ug/L	31-MAY-21	2.4	22		
1,2-Dibromoethane	<0.20		0.20	ug/L	31-MAY-21	0.25	0.83		
1,2-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	4600	9600		
1,3-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	9600	9600		
1,4-Dichlorobenzene	<0.50		0.50	ug/L	31-MAY-21	8	67		
Dichlorodifluoromethane	<2.0		2.0	ug/L	31-MAY-21	4400	4400		
1,1-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	320	3100		
1,2-Dichloroethane	<0.50		0.50	ug/L	31-MAY-21	1.6	12		
1,1-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
Methylene Chloride	<5.0		5.0	ug/L	31-MAY-21	610	5500		
1,2-Dichloropropane	<0.50		0.50	ug/L	31-MAY-21	16	140		
cis-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21				
trans-1,3-Dichloropropene	<0.30		0.30	ug/L	31-MAY-21				
1,3-Dichloropropene (cis & trans)	<0.50		0.50	ug/L	31-MAY-21	5.2	45		
Ethylbenzene	<0.50		0.50	ug/L	31-MAY-21	2300	2300		
n-Hexane	<0.50		0.50	ug/L	31-MAY-21	51	520		
Methyl Ethyl Ketone	<20		20	ug/L	31-MAY-21	470000	1500000		
Methyl Isobutyl Ketone	<20		20	ug/L	31-MAY-21	140000	580000		
MTBE	<2.0		2.0	ug/L	31-MAY-21	190	1400		
Styrene	<0.50		0.50	ug/L	31-MAY-21	1300	9100		

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	Guideline Limits #2		
L2590710-5 TRIP BLANK Sampled By: CLIENT on 20-MAY-21 Matrix: WATER									
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.3	28		
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	31-MAY-21	3.2	15		
Tetrachloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
Toluene	<0.50		0.50	ug/L	31-MAY-21	18000	18000		
1,1,1-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	640	6700		
1,1,2-Trichloroethane	<0.50		0.50	ug/L	31-MAY-21	4.7	30		
Trichloroethylene	<0.50		0.50	ug/L	31-MAY-21	1.6	17		
Trichlorofluoromethane	<5.0		5.0	ug/L	31-MAY-21	2500	2500		
Vinyl chloride	<0.50		0.50	ug/L	31-MAY-21	0.5	1.7		
o-Xylene	<0.30		0.30	ug/L	31-MAY-21				
m+p-Xylenes	<0.40		0.40	ug/L	31-MAY-21				
Xylenes (Total)	<0.50		0.50	ug/L	31-MAY-21	4200	4200		
Surrogate: 4-Bromofluorobenzene	96.6		70-130	%	31-MAY-21				
Surrogate: 1,4-Difluorobenzene	99.4		70-130	%	31-MAY-21				
Hydrocarbons									
F1 (C6-C10)	<25		25	ug/L	31-MAY-21	750	750		
F1-BTEX	<25		25	ug/L	31-MAY-21	750	750		
Surrogate: 3,4-Dichlorotoluene	85.8		60-140	%	31-MAY-21				

** 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] - T3 Non-Potable Ground Water (Coarse and Fine)

#1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse) **#2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)**

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***
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.
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).

Reference Information

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:

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		

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2590710 Report Date: 31-MAY-21

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R5467616								
WG3540264-9 DUP		**L2590710-1**						
Chloride (Cl)		65.2	65.3		mg/L	0.1	20	24-MAY-21
WG3540264-7 LCS								
Chloride (Cl)			102.3		%		90-110	24-MAY-21
WG3540264-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	24-MAY-21
WG3540264-10 MS		**L2590710-1**						
Chloride (Cl)			102.1		%		75-125	24-MAY-21
CN-WAD-R511-WT	**Water**							
Batch R5466558								
WG3540437-9 DUP		**WG3540437-8**						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	25-MAY-21
WG3540437-7 LCS								
Cyanide, Weak Acid Diss			96.1		%		80-120	25-MAY-21
WG3540437-6 MB								
Cyanide, Weak Acid Diss			<2.0		ug/L		2	25-MAY-21
WG3540437-10 MS		**WG3540437-8**						
Cyanide, Weak Acid Diss			101.3		%		75-125	25-MAY-21
CR-CR6-IC-R511-WT	**Water**							
Batch R5466576								
WG3539907-4 DUP		**WG3539907-3**						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	22-MAY-21
WG3539907-2 LCS								
Chromium, Hexavalent			101.1		%		80-120	22-MAY-21
WG3539907-1 MB								
Chromium, Hexavalent			<0.50		ug/L		0.5	22-MAY-21
WG3539907-5 MS		**WG3539907-3**						
Chromium, Hexavalent			102.5		%		70-130	22-MAY-21
EC-R511-WT	**Water**							
Batch R5465465								
WG3539939-4 DUP		**WG3539939-3**						
Conductivity		0.522	0.521		mS/cm	0.2	10	22-MAY-21
WG3539939-2 LCS								
Conductivity			102.3		%		90-110	22-MAY-21
WG3539939-1 MB								
Conductivity			<0.0030		mS/cm		0.003	22-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-R511-WT	**Water**							
Batch R5465466								
WG3539940-4 DUP		**WG3539940-3**						
Conductivity		1.37	1.36		mS/cm	0.3	10	22-MAY-21
WG3539940-2 LCS								
Conductivity			103.1		%		90-110	22-MAY-21
WG3539940-1 MB								
Conductivity			<0.0030		mS/cm		0.003	22-MAY-21
Batch R5465476								
WG3539941-4 DUP		**WG3539941-3**						
Conductivity		1.26	1.27		mS/cm	1.0	10	22-MAY-21
WG3539941-2 LCS								
Conductivity			102.8		%		90-110	22-MAY-21
WG3539941-1 MB								
Conductivity			<0.0030		mS/cm		0.003	22-MAY-21
F1-HS-511-WT	**Water**							
Batch R5475461								
WG3543076-4 DUP		**WG3543076-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	31-MAY-21
WG3543076-1 LCS								
F1 (C6-C10)			93.8		%		80-120	31-MAY-21
WG3543076-2 MB								
F1 (C6-C10)			<25		ug/L		25	31-MAY-21
Surrogate: 3,4-Dichlorotoluene			92.4		%		60-140	31-MAY-21
WG3543076-5 MS		**WG3543076-3**						
F1 (C6-C10)			91.2		%		60-140	31-MAY-21
F2-F4-511-WT	**Water**							
Batch R5468698								
WG3540369-2 LCS								
F2 (C10-C16)			111.3		%		70-130	26-MAY-21
F3 (C16-C34)			106.4		%		70-130	26-MAY-21
F4 (C34-C50)			99.6		%		70-130	26-MAY-21
WG3540369-1 MB								
F2 (C10-C16)			<100		ug/L		100	26-MAY-21
F3 (C16-C34)			<250		ug/L		250	26-MAY-21
F4 (C34-C50)			<250		ug/L		250	26-MAY-21
Surrogate: 2-Bromobenzotrifluoride			85.4		%		60-140	26-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Water**							
Batch R5469476								
WG3540802-2 LCS								
F2 (C10-C16)			108.6		%		70-130	26-MAY-21
F3 (C16-C34)			108.3		%		70-130	26-MAY-21
F4 (C34-C50)			104.9		%		70-130	26-MAY-21
WG3540802-1 MB								
F2 (C10-C16)			<100		ug/L		100	26-MAY-21
F3 (C16-C34)			<250		ug/L		250	26-MAY-21
F4 (C34-C50)			<250		ug/L		250	26-MAY-21
Surrogate: 2-Bromobenzotrifluoride			85.5		%		60-140	26-MAY-21
HG-D-UG/L-CVAA-WT	**Water**							
Batch R5468683								
WG3540464-4 DUP		**WG3540464-3**						
Mercury (Hg)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	26-MAY-21
WG3540464-2 LCS								
Mercury (Hg)-Dissolved			103.0		%		80-120	26-MAY-21
WG3540464-1 MB								
Mercury (Hg)-Dissolved			<0.0050		ug/L		0.005	26-MAY-21
WG3540464-6 MS		**WG3540464-5**						
Mercury (Hg)-Dissolved			99.1		%		70-130	26-MAY-21
MET-D-UG/L-MS-WT	**Water**							
Batch R5468236								
WG3539642-4 DUP		**WG3539642-3**						
Antimony (Sb)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	25-MAY-21
Arsenic (As)-Dissolved		0.28	0.26		ug/L	8.9	20	25-MAY-21
Barium (Ba)-Dissolved		146	144		ug/L	1.3	20	25-MAY-21
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	25-MAY-21
Boron (B)-Dissolved		67	65		ug/L	2.9	20	25-MAY-21
Cadmium (Cd)-Dissolved		0.0095	0.0069	J	ug/L	0.0026	0.01	25-MAY-21
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	25-MAY-21
Cobalt (Co)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	25-MAY-21
Copper (Cu)-Dissolved		1.09	1.08		ug/L	1.2	20	25-MAY-21
Lead (Pb)-Dissolved		0.087	0.084		ug/L	3.5	20	25-MAY-21
Molybdenum (Mo)-Dissolved		1.31	1.30		ug/L	1.1	20	25-MAY-21
Nickel (Ni)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	25-MAY-21
Selenium (Se)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	25-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5468236								
WG3539642-4 DUP		**WG3539642-3**						
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	25-MAY-21
Sodium (Na)-Dissolved		14900	14700		ug/L	1.3	20	25-MAY-21
Thallium (Tl)-Dissolved		<0.010	<0.010	RPD-NA	ug/L	N/A	20	25-MAY-21
Uranium (U)-Dissolved		0.097	0.094		ug/L	2.6	20	25-MAY-21
Vanadium (V)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	25-MAY-21
Zinc (Zn)-Dissolved		1.3	1.2		ug/L	6.5	20	25-MAY-21
WG3539642-2 LCS								
Antimony (Sb)-Dissolved			100.5		%		80-120	25-MAY-21
Arsenic (As)-Dissolved			104.2		%		80-120	25-MAY-21
Barium (Ba)-Dissolved			103.1		%		80-120	25-MAY-21
Beryllium (Be)-Dissolved			99.96		%		80-120	25-MAY-21
Boron (B)-Dissolved			100.7		%		80-120	25-MAY-21
Cadmium (Cd)-Dissolved			102.2		%		80-120	25-MAY-21
Chromium (Cr)-Dissolved			102.0		%		80-120	25-MAY-21
Cobalt (Co)-Dissolved			103.0		%		80-120	25-MAY-21
Copper (Cu)-Dissolved			103.8		%		80-120	25-MAY-21
Lead (Pb)-Dissolved			108.3		%		80-120	25-MAY-21
Molybdenum (Mo)-Dissolved			100.5		%		80-120	25-MAY-21
Nickel (Ni)-Dissolved			102.6		%		80-120	25-MAY-21
Selenium (Se)-Dissolved			100.5		%		80-120	25-MAY-21
Silver (Ag)-Dissolved			108.2		%		80-120	25-MAY-21
Sodium (Na)-Dissolved			111.3		%		80-120	25-MAY-21
Thallium (Tl)-Dissolved			108.0		%		80-120	25-MAY-21
Uranium (U)-Dissolved			109.9		%		80-120	25-MAY-21
Vanadium (V)-Dissolved			104.9		%		80-120	25-MAY-21
Zinc (Zn)-Dissolved			103.3		%		80-120	25-MAY-21
WG3539642-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Boron (B)-Dissolved			<10		ug/L		10	25-MAY-21
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	25-MAY-21
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	25-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5468236								
WG3539642-1 MB								
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	25-MAY-21
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	25-MAY-21
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	25-MAY-21
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	25-MAY-21
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	25-MAY-21
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	25-MAY-21
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	25-MAY-21
Sodium (Na)-Dissolved			<50		ug/L		50	25-MAY-21
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	25-MAY-21
Uranium (U)-Dissolved			<0.010		ug/L		0.01	25-MAY-21
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	25-MAY-21
Zinc (Zn)-Dissolved			<1.0		ug/L		1	25-MAY-21
WG3539642-5 MS		**WG3539642-6**						
Antimony (Sb)-Dissolved			99.0		%		70-130	25-MAY-21
Arsenic (As)-Dissolved			108.7		%		70-130	25-MAY-21
Barium (Ba)-Dissolved			N/A	MS-B	%		-	25-MAY-21
Beryllium (Be)-Dissolved			102.0		%		70-130	25-MAY-21
Boron (B)-Dissolved			96.3		%		70-130	25-MAY-21
Cadmium (Cd)-Dissolved			96.6		%		70-130	25-MAY-21
Chromium (Cr)-Dissolved			100.2		%		70-130	25-MAY-21
Cobalt (Co)-Dissolved			97.6		%		70-130	25-MAY-21
Copper (Cu)-Dissolved			91.6		%		70-130	25-MAY-21
Lead (Pb)-Dissolved			96.4		%		70-130	25-MAY-21
Molybdenum (Mo)-Dissolved			105.0		%		70-130	25-MAY-21
Nickel (Ni)-Dissolved			93.3		%		70-130	25-MAY-21
Selenium (Se)-Dissolved			113.0		%		70-130	25-MAY-21
Silver (Ag)-Dissolved			99.0		%		70-130	25-MAY-21
Sodium (Na)-Dissolved			N/A	MS-B	%		-	25-MAY-21
Thallium (Tl)-Dissolved			97.6		%		70-130	25-MAY-21
Uranium (U)-Dissolved			N/A	MS-B	%		-	25-MAY-21
Vanadium (V)-Dissolved			106.6		%		70-130	25-MAY-21
Zinc (Zn)-Dissolved			98.9		%		70-130	25-MAY-21
PAH-511-WT	**Water**							

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R5473422								
WG3540369-2 LCS								
1-Methylnaphthalene			105.0		%		50-140	27-MAY-21
2-Methylnaphthalene			100.5		%		50-140	27-MAY-21
Acenaphthene			108.2		%		50-140	27-MAY-21
Acenaphthylene			101.4		%		50-140	27-MAY-21
Anthracene			105.4		%		50-140	27-MAY-21
Benzo(a)anthracene			108.9		%		50-140	27-MAY-21
Benzo(a)pyrene			107.8		%		50-140	27-MAY-21
Benzo(b&j)fluoranthene			118.6		%		50-140	27-MAY-21
Benzo(g,h,i)perylene			125.3		%		50-140	27-MAY-21
Benzo(k)fluoranthene			118.8		%		50-140	27-MAY-21
Chrysene			112.2		%		50-140	27-MAY-21
Dibenz(a,h)anthracene			113.9		%		50-140	27-MAY-21
Fluoranthene			114.6		%		50-140	27-MAY-21
Fluorene			107.3		%		50-140	27-MAY-21
Indeno(1,2,3-cd)pyrene			124.0		%		50-140	27-MAY-21
Naphthalene			94.0		%		50-140	27-MAY-21
Phenanthrene			118.3		%		50-140	27-MAY-21
Pyrene			114.6		%		50-140	27-MAY-21
WG3540369-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	27-MAY-21
2-Methylnaphthalene			<0.020		ug/L		0.02	27-MAY-21
Acenaphthene			<0.020		ug/L		0.02	27-MAY-21
Acenaphthylene			<0.020		ug/L		0.02	27-MAY-21
Anthracene			<0.020		ug/L		0.02	27-MAY-21
Benzo(a)anthracene			<0.020		ug/L		0.02	27-MAY-21
Benzo(a)pyrene			<0.010		ug/L		0.01	27-MAY-21
Benzo(b&j)fluoranthene			<0.020		ug/L		0.02	27-MAY-21
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	27-MAY-21
Benzo(k)fluoranthene			<0.020		ug/L		0.02	27-MAY-21
Chrysene			<0.020		ug/L		0.02	27-MAY-21
Dibenz(a,h)anthracene			<0.020		ug/L		0.02	27-MAY-21
Fluoranthene			<0.020		ug/L		0.02	27-MAY-21
Fluorene			<0.020		ug/L		0.02	27-MAY-21
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	27-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R5473422								
WG3540369-1 MB								
Naphthalene			<0.050		ug/L		0.05	27-MAY-21
Phenanthrene			<0.020		ug/L		0.02	27-MAY-21
Pyrene			<0.020		ug/L		0.02	27-MAY-21
Surrogate: Naphthalene d8			98.3		%		60-140	27-MAY-21
Surrogate: Phenanthrene d10			111.4		%		60-140	27-MAY-21
Batch R5474752								
WG3540802-2 LCS								
1-Methylnaphthalene			95.8		%		50-140	28-MAY-21
2-Methylnaphthalene			93.7		%		50-140	28-MAY-21
Acenaphthene			102.6		%		50-140	28-MAY-21
Acenaphthylene			101.7		%		50-140	28-MAY-21
Anthracene			109.6		%		50-140	28-MAY-21
Benzo(a)anthracene			132.5		%		50-140	28-MAY-21
Benzo(a)pyrene			109.2		%		50-140	28-MAY-21
Benzo(b&j)fluoranthene			109.6		%		50-140	28-MAY-21
Benzo(g,h,i)perylene			123.6		%		50-140	28-MAY-21
Benzo(k)fluoranthene			111.4		%		50-140	28-MAY-21
Chrysene			131.1		%		50-140	28-MAY-21
Dibenz(a,h)anthracene			125.5		%		50-140	28-MAY-21
Fluoranthene			116.7		%		50-140	28-MAY-21
Fluorene			106.7		%		50-140	28-MAY-21
Indeno(1,2,3-cd)pyrene			138.2		%		50-140	28-MAY-21
Naphthalene			91.1		%		50-140	28-MAY-21
Phenanthrene			116.0		%		50-140	28-MAY-21
Pyrene			114.2		%		50-140	28-MAY-21
WG3540802-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	28-MAY-21
2-Methylnaphthalene			<0.020		ug/L		0.02	28-MAY-21
Acenaphthene			<0.020		ug/L		0.02	28-MAY-21
Acenaphthylene			<0.020		ug/L		0.02	28-MAY-21
Anthracene			<0.020		ug/L		0.02	28-MAY-21
Benzo(a)anthracene			<0.020		ug/L		0.02	28-MAY-21
Benzo(a)pyrene			<0.010		ug/L		0.01	28-MAY-21
Benzo(b&j)fluoranthene			<0.020		ug/L		0.02	28-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R5474752								
WG3540802-1 MB								
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	28-MAY-21
Benzo(k)fluoranthene			<0.020		ug/L		0.02	28-MAY-21
Chrysene			<0.020		ug/L		0.02	28-MAY-21
Dibenz(a,h)anthracene			<0.020		ug/L		0.02	28-MAY-21
Fluoranthene			<0.020		ug/L		0.02	28-MAY-21
Fluorene			<0.020		ug/L		0.02	28-MAY-21
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	28-MAY-21
Naphthalene			<0.050		ug/L		0.05	28-MAY-21
Phenanthrene			<0.020		ug/L		0.02	28-MAY-21
Pyrene			<0.020		ug/L		0.02	28-MAY-21
Surrogate: Naphthalene d8			95.1		%		60-140	28-MAY-21
Surrogate: Phenanthrene d10			99.9		%		60-140	28-MAY-21
Surrogate: Chrysene d12			114.4		%		50-150	28-MAY-21
PH-WT	**Water**							
Batch R5465465								
WG3539939-4 DUP		**WG3539939-3**						
pH		8.34	8.32	J	pH units	0.02	0.2	22-MAY-21
WG3539939-2 LCS								
pH			7.00		pH units		6.9-7.1	22-MAY-21
Batch R5465466								
WG3539940-4 DUP		**WG3539940-3**						
pH		7.67	7.66	J	pH units	0.01	0.2	22-MAY-21
WG3539940-2 LCS								
pH			7.00		pH units		6.9-7.1	22-MAY-21
Batch R5465476								
WG3539941-4 DUP		**WG3539941-3**						
pH		8.37	8.43	J	pH units	0.06	0.2	22-MAY-21
WG3539941-2 LCS								
pH			7.01		pH units		6.9-7.1	22-MAY-21
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-4 DUP		**WG3543076-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-4 DUP		**WG3543076-3**						
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	31-MAY-21
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	31-MAY-21
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	31-MAY-21
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	31-MAY-21
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	31-MAY-21
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	31-MAY-21
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	31-MAY-21
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	31-MAY-21
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	31-MAY-21
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	31-MAY-21
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	31-MAY-21
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
trans-1,2-Dichloroethylene		<0.50	<0.50		ug/L			31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-4 DUP		**WG3543076-3**						
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	31-MAY-21
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	31-MAY-21
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	31-MAY-21
WG3543076-1 LCS								
1,1,1,2-Tetrachloroethane			102.1		%		70-130	31-MAY-21
1,1,2,2-Tetrachloroethane			108.3		%		70-130	31-MAY-21
1,1,1-Trichloroethane			96.7		%		70-130	31-MAY-21
1,1,2-Trichloroethane			103.5		%		70-130	31-MAY-21
1,1-Dichloroethane			100.7		%		70-130	31-MAY-21
1,1-Dichloroethylene			98.7		%		70-130	31-MAY-21
1,2-Dibromoethane			108.2		%		70-130	31-MAY-21
1,2-Dichlorobenzene			102.2		%		70-130	31-MAY-21
1,2-Dichloroethane			106.5		%		70-130	31-MAY-21
1,2-Dichloropropane			106.1		%		70-130	31-MAY-21
1,3-Dichlorobenzene			97.6		%		70-130	31-MAY-21
1,4-Dichlorobenzene			97.7		%		70-130	31-MAY-21
Acetone			119.6		%		60-140	31-MAY-21
Benzene			98.3		%		70-130	31-MAY-21
Bromodichloromethane			104.4		%		70-130	31-MAY-21
Bromoform			112.2		%		70-130	31-MAY-21
Bromomethane			95.8		%		60-140	31-MAY-21
Carbon tetrachloride			98.0		%		70-130	31-MAY-21
Chlorobenzene			100.5		%		70-130	31-MAY-21
Chloroform			103.6		%		70-130	31-MAY-21
cis-1,2-Dichloroethylene			103.5		%		70-130	31-MAY-21
cis-1,3-Dichloropropene			96.0		%		70-130	31-MAY-21
Dibromochloromethane			102.9		%		70-130	31-MAY-21
Dichlorodifluoromethane			89.1		%		50-140	31-MAY-21
Ethylbenzene			97.2		%		70-130	31-MAY-21
n-Hexane			95.3		%		70-130	31-MAY-21
m+p-Xylenes			99.1		%		70-130	31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-1 LCS								
Methyl Ethyl Ketone			105.6		%		60-140	31-MAY-21
Methyl Isobutyl Ketone			107.9		%		60-140	31-MAY-21
Methylene Chloride			106.0		%		70-130	31-MAY-21
MTBE			96.0		%		70-130	31-MAY-21
o-Xylene			109.5		%		70-130	31-MAY-21
Styrene			108.2		%		70-130	31-MAY-21
Tetrachloroethylene			94.0		%		70-130	31-MAY-21
Toluene			96.2		%		70-130	31-MAY-21
trans-1,2-Dichloroethylene			100.2		%		70-130	31-MAY-21
trans-1,3-Dichloropropene			99.4		%		70-130	31-MAY-21
Trichloroethylene			97.6		%		70-130	31-MAY-21
Trichlorofluoromethane			96.9		%		60-140	31-MAY-21
Vinyl chloride			103.1		%		60-140	31-MAY-21
WG3543076-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1,1-Trichloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1,2-Trichloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1-Dichloroethane			<0.50		ug/L		0.5	31-MAY-21
1,1-Dichloroethylene			<0.50		ug/L		0.5	31-MAY-21
1,2-Dibromoethane			<0.20		ug/L		0.2	31-MAY-21
1,2-Dichlorobenzene			<0.50		ug/L		0.5	31-MAY-21
1,2-Dichloroethane			<0.50		ug/L		0.5	31-MAY-21
1,2-Dichloropropane			<0.50		ug/L		0.5	31-MAY-21
1,3-Dichlorobenzene			<0.50		ug/L		0.5	31-MAY-21
1,4-Dichlorobenzene			<0.50		ug/L		0.5	31-MAY-21
Acetone			<30		ug/L		30	31-MAY-21
Benzene			<0.50		ug/L		0.5	31-MAY-21
Bromodichloromethane			<2.0		ug/L		2	31-MAY-21
Bromoform			<5.0		ug/L		5	31-MAY-21
Bromomethane			<0.50		ug/L		0.5	31-MAY-21
Carbon tetrachloride			<0.20		ug/L		0.2	31-MAY-21
Chlorobenzene			<0.50		ug/L		0.5	31-MAY-21
Chloroform			<1.0		ug/L		1	31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-2 MB								
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	31-MAY-21
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	31-MAY-21
Dibromochloromethane			<2.0		ug/L		2	31-MAY-21
Dichlorodifluoromethane			<2.0		ug/L		2	31-MAY-21
Ethylbenzene			<0.50		ug/L		0.5	31-MAY-21
n-Hexane			<0.50		ug/L		0.5	31-MAY-21
m+p-Xylenes			<0.40		ug/L		0.4	31-MAY-21
Methyl Ethyl Ketone			<20		ug/L		20	31-MAY-21
Methyl Isobutyl Ketone			<20		ug/L		20	31-MAY-21
Methylene Chloride			<5.0		ug/L		5	31-MAY-21
MTBE			<2.0		ug/L		2	31-MAY-21
o-Xylene			<0.30		ug/L		0.3	31-MAY-21
Styrene			<0.50		ug/L		0.5	31-MAY-21
Tetrachloroethylene			<0.50		ug/L		0.5	31-MAY-21
Toluene			<0.50		ug/L		0.5	31-MAY-21
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	31-MAY-21
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	31-MAY-21
Trichloroethylene			<0.50		ug/L		0.5	31-MAY-21
Trichlorofluoromethane			<5.0		ug/L		5	31-MAY-21
Vinyl chloride			<0.50		ug/L		0.5	31-MAY-21
Surrogate: 1,4-Difluorobenzene			99.6		%		70-130	31-MAY-21
Surrogate: 4-Bromofluorobenzene			96.9		%		70-130	31-MAY-21
WG3543076-5 MS		**WG3543076-3**						
1,1,1,2-Tetrachloroethane			103.8		%		50-140	31-MAY-21
1,1,2,2-Tetrachloroethane			99.5		%		50-140	31-MAY-21
1,1,1-Trichloroethane			100.9		%		50-140	31-MAY-21
1,1,2-Trichloroethane			99.97		%		50-140	31-MAY-21
1,1-Dichloroethane			104.2		%		50-140	31-MAY-21
1,1-Dichloroethylene			104.9		%		50-140	31-MAY-21
1,2-Dibromoethane			100.5		%		50-140	31-MAY-21
1,2-Dichlorobenzene			104.3		%		50-140	31-MAY-21
1,2-Dichloroethane			101.4		%		50-140	31-MAY-21
1,2-Dichloropropane			108.0		%		50-140	31-MAY-21
1,3-Dichlorobenzene			102.3		%		50-140	31-MAY-21

Quality Control Report

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5475461								
WG3543076-5 MS		**WG3543076-3**						
1,4-Dichlorobenzene			102.0		%		50-140	31-MAY-21
Acetone			104.8		%		50-140	31-MAY-21
Benzene			100.6		%		50-140	31-MAY-21
Bromodichloromethane			102.6		%		50-140	31-MAY-21
Bromoform			99.5		%		50-140	31-MAY-21
Bromomethane			92.9		%		50-140	31-MAY-21
Carbon tetrachloride			102.1		%		50-140	31-MAY-21
Chlorobenzene			102.5		%		50-140	31-MAY-21
Chloroform			104.7		%		50-140	31-MAY-21
cis-1,2-Dichloroethylene			103.6		%		50-140	31-MAY-21
cis-1,3-Dichloropropene			95.0		%		50-140	31-MAY-21
Dibromochloromethane			98.3		%		50-140	31-MAY-21
Dichlorodifluoromethane			89.7		%		50-140	31-MAY-21
Ethylbenzene			104.3		%		50-140	31-MAY-21
n-Hexane			104.8		%		50-140	31-MAY-21
m+p-Xylenes			105.6		%		50-140	31-MAY-21
Methyl Ethyl Ketone			90.8		%		50-140	31-MAY-21
Methyl Isobutyl Ketone			100.6		%		50-140	31-MAY-21
Methylene Chloride			101.3		%		50-140	31-MAY-21
MTBE			97.8		%		50-140	31-MAY-21
o-Xylene			116.1		%		50-140	31-MAY-21
Styrene			110.7		%		50-140	31-MAY-21
Tetrachloroethylene			96.4		%		50-140	31-MAY-21
Toluene			102.3		%		50-140	31-MAY-21
trans-1,2-Dichloroethylene			104.3		%		50-140	31-MAY-21
trans-1,3-Dichloropropene			99.3		%		50-140	31-MAY-21
Trichloroethylene			98.6		%		50-140	31-MAY-21
Trichlorofluoromethane			101.2		%		50-140	31-MAY-21
Vinyl chloride			107.1		%		50-140	31-MAY-21

Quality Control Report

Workorder: L2590710 Report Date: 31-MAY-21

Client: McIntosh Perry Engineering Consultants (Ottawa)
115 Walgreen Road, R.R. 3
Carp ON K0A1L0
Contact: Bradley Sutherland

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.

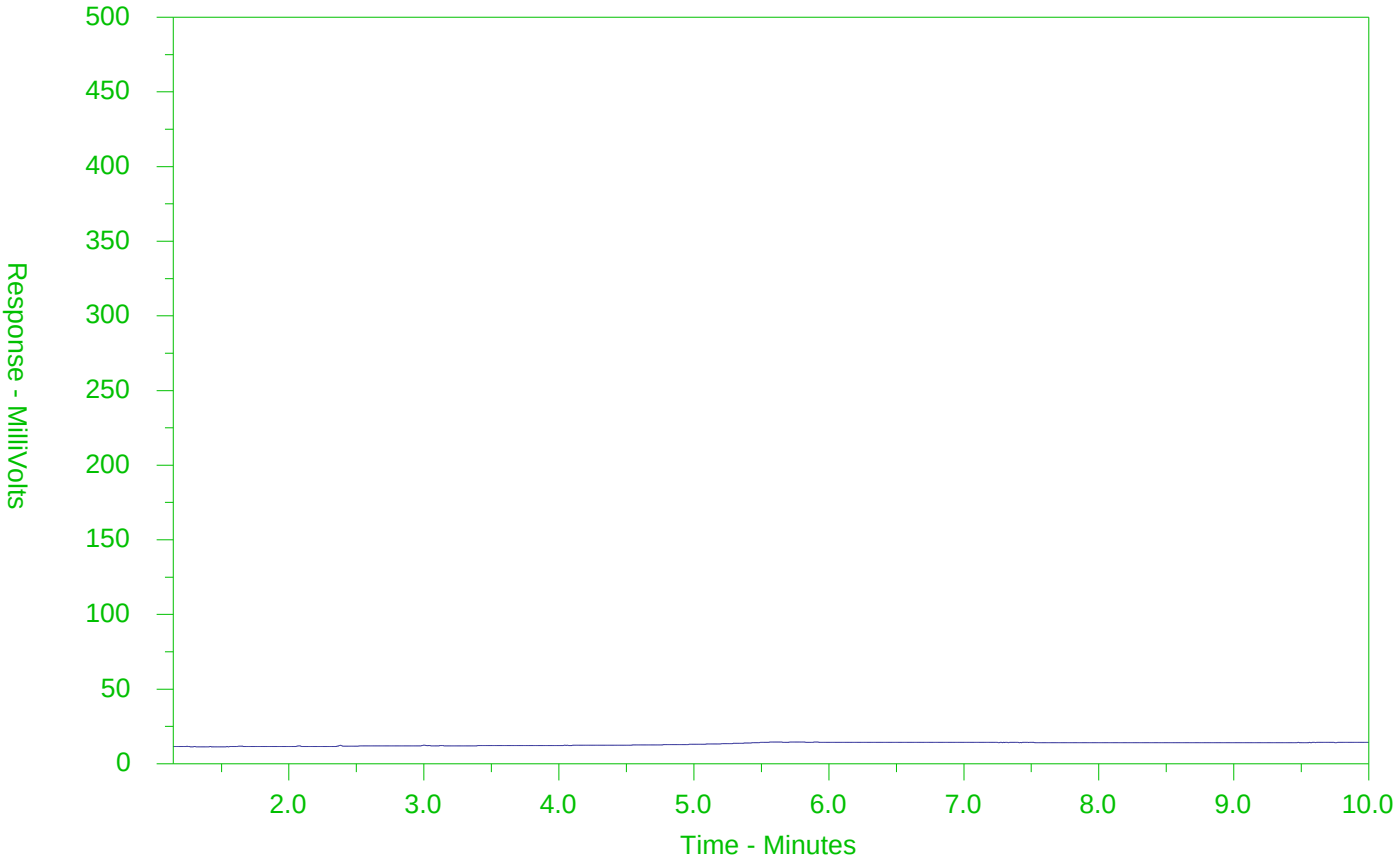
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: L2590710-1
Client Sample ID: MW1



←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.

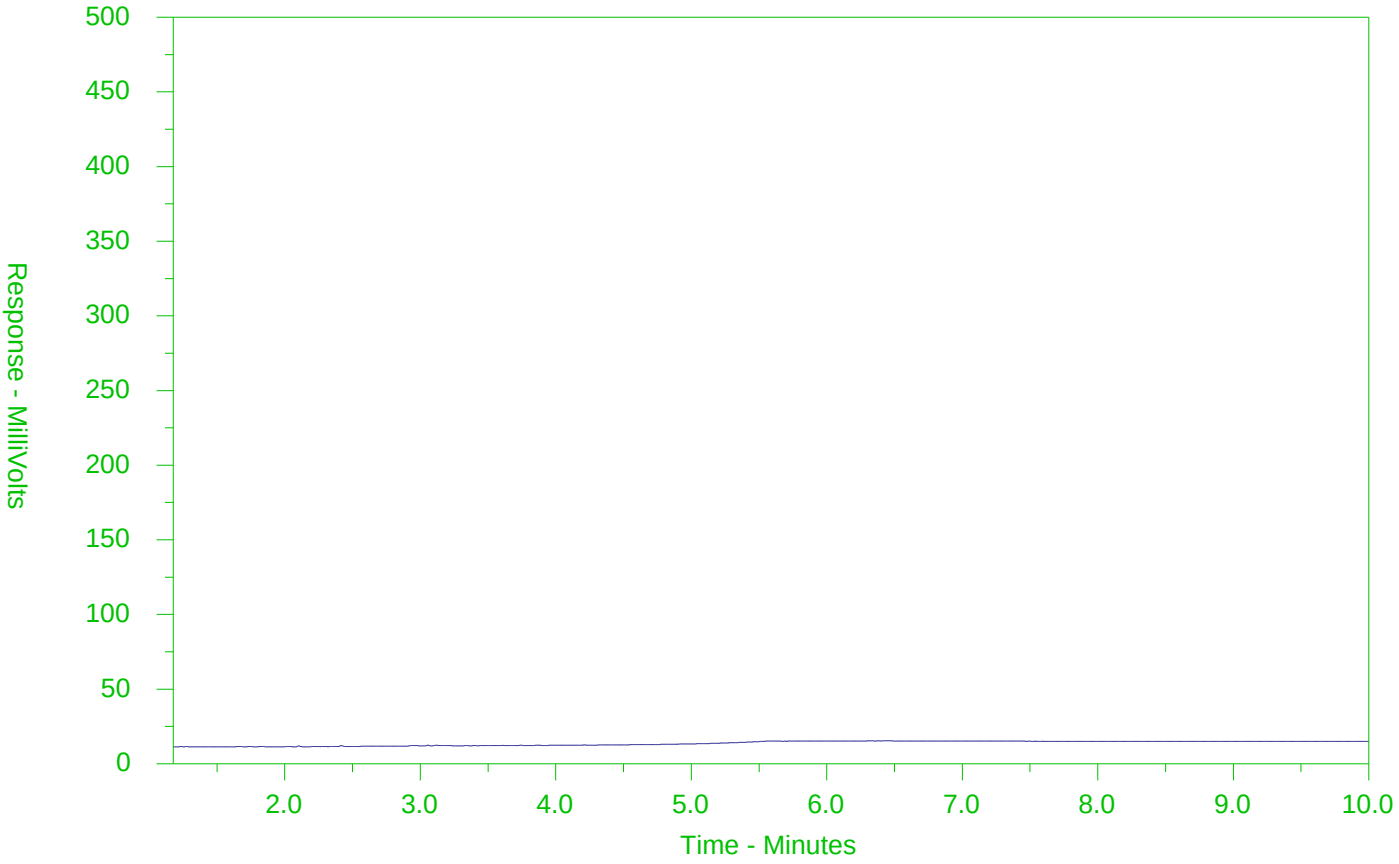
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2590710-2
Client Sample ID: MW2



←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.

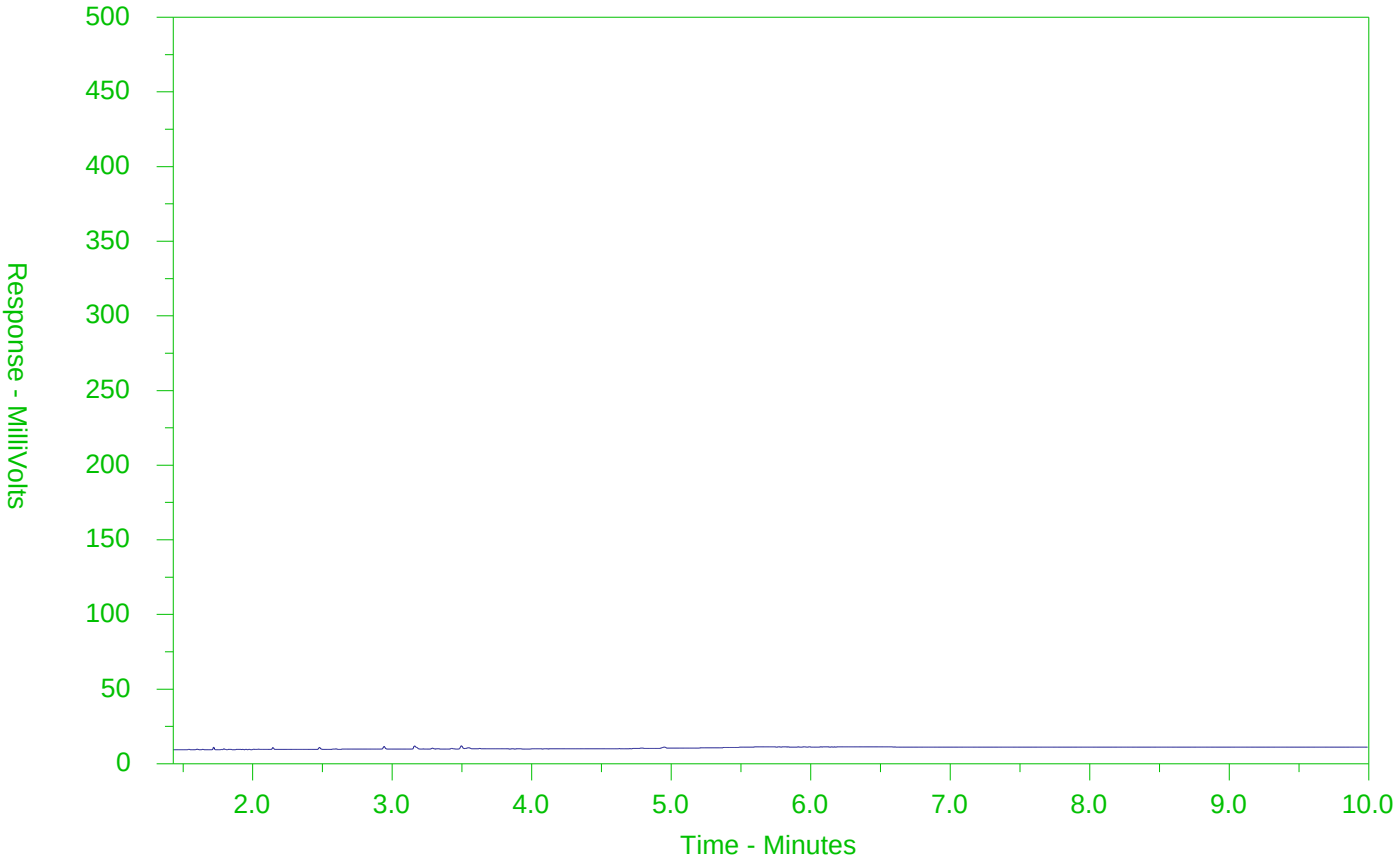
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2590710-3
Client Sample ID: MW2-DUP



←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.

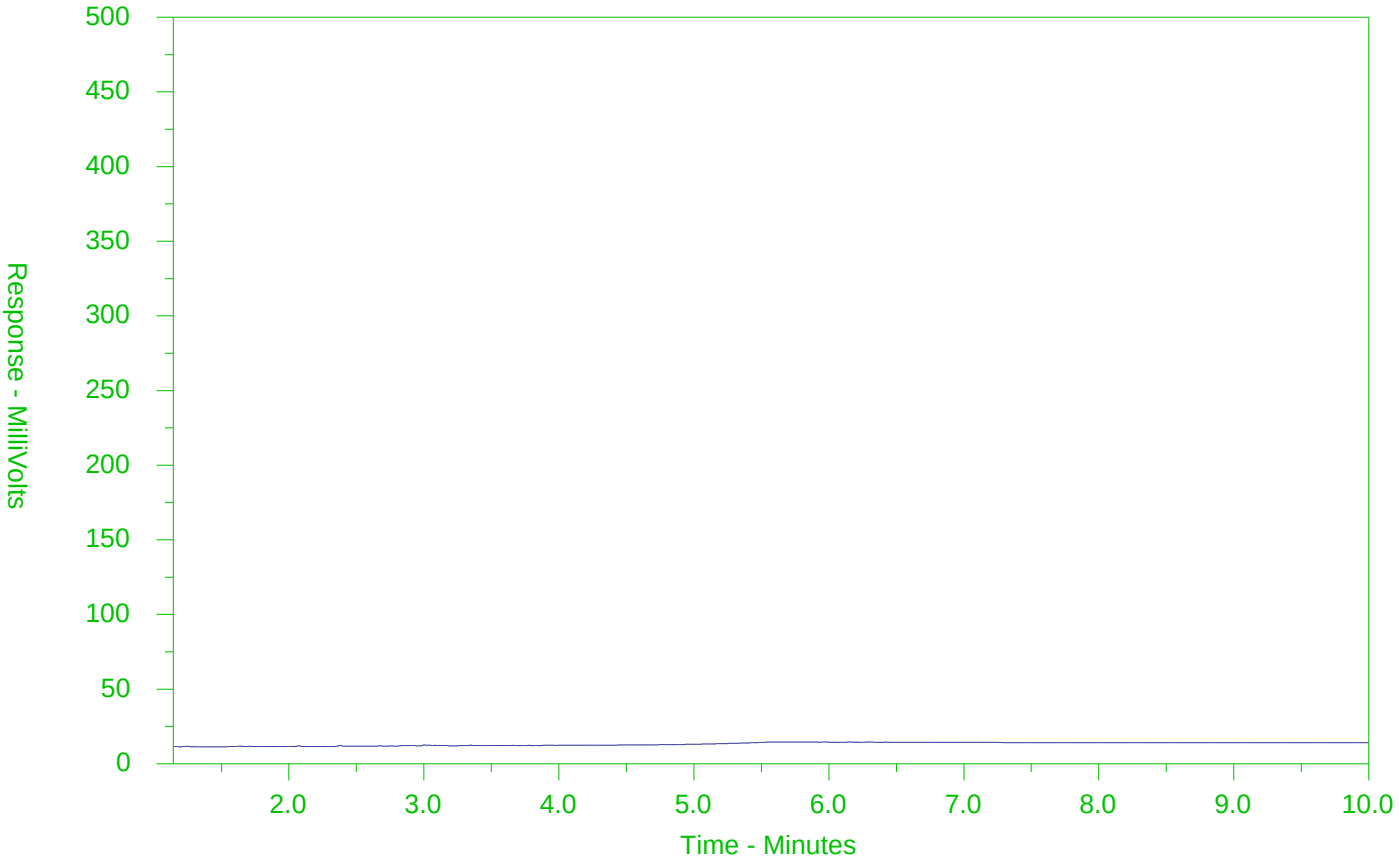
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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: L2590710-4
Client Sample ID: MW3



←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 www.alsglobal.com

Chain of Cu L2590710-COFC

COC Number: 20 -

Page 1 of 2

Report To	Contact and company name below will appear on the final report
Company:	McIntosh Perry (Oakville) ACCT # 26017
Contact:	Bradley Sutherland
Phone:	613-903-5785
	Company address below will appear on the final report
Street:	115 Walgreen Road RR3
City/Province:	Carp, ON
Postal Code:	K0A 1L0
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☑ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax b.sutherland@mcintoshperry.com
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
b.sutherland@mcintoshperry.com
m.innes@mcintoshperry.com, AP@Mcintoshperry.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	Q78918 (2021 SOA)
Job #:	CCO-22-0244
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 # (ALS use only): L2590710

ALS Contact: Emily Smith Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS 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/PHCs (VOC-R511,F1-F4-P-WT)	M&I (R511-INORGANICS-P-WT)	PAHs (PAH-511-WT)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MW1	20-May-21	10:30am	GW	3	✓	✓	✓			
	MW2	20-May-21	11:00am	GW	3	✓	✓	✓			
	MW2-DUP	20-May-21	11:30am	GW	3	✓		✓			
	MW3	20-May-21	12:30pm	GW	3	✓	✓	✓			
	TRIP BLANK	20-May-21	N/A		2	✓					

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

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Compare to table 3 of O Reg. 153

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☑ YES ☐ NO
Cooler Custody Seals Intact: ☑ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
9.2	11.1

SHIPMENT RELEASE (client use)

Released by: Bradley Sutherland Date: May 20 2021 Time: 1:15pm

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: COLTAT F Date: 5/20/21 Time: 13:15

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: 05/21/21 Time: 9am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 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**.

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
16 EDGEWATER STREET, KANATA, ONTARIO

APPENDIX E
GRAIN SIZE ANALYSIS

McINTOSH PERRY

McINTOSH PERRY

WATER CONTENT DETERMINATION

Test Method Utilized	☑ MTO LS-701		☐ ASTM D 2216		☐ AASHTO T-265		
Project No.: CP17-0635					Date Received: 01/07/19		
Project Name/Location: 6 Edgewater St. Ottawa					Date Tested: 01/09/19		
Material Type: Soils					Lab Sample No.: OL-19001		
Borehole No.	Depth Sample Taken (ft')	Sample Container I.D.	Wet Sample + Tare (A)	Dry Sample + Tare (B)	Tare (C)	Mass of Sample (D) (B-C)	% Moisture (A-B)/Dx100
BH18-01 SS4	6-8	Tr.152	829.69	644.65	127.91	516.74	**35.8**
BH18-03 SS4	10-12	Tr.199	788.50	590.56	128.64	461.92	**42.9**
BH18-03 SS5	15-17	Tr.114	787.02	570.55	152.69	417.86	**51.8**
BH18-04 SS3	7.5-9.5	Tr.2.18s	777.56	536.10	139.60	396.50	**60.9**
BH18-05 ST4	10-12	Tr.169	1143.86	758.21	133.26	624.95	**61.7**
BH18-05 SS5	15-17	Tr.163	885.08	652.54	136.53	516.01	**45.1**
BH18-05 SS6	20-22	Tr.118	982.72	879.30	133.02	746.28	**13.9**

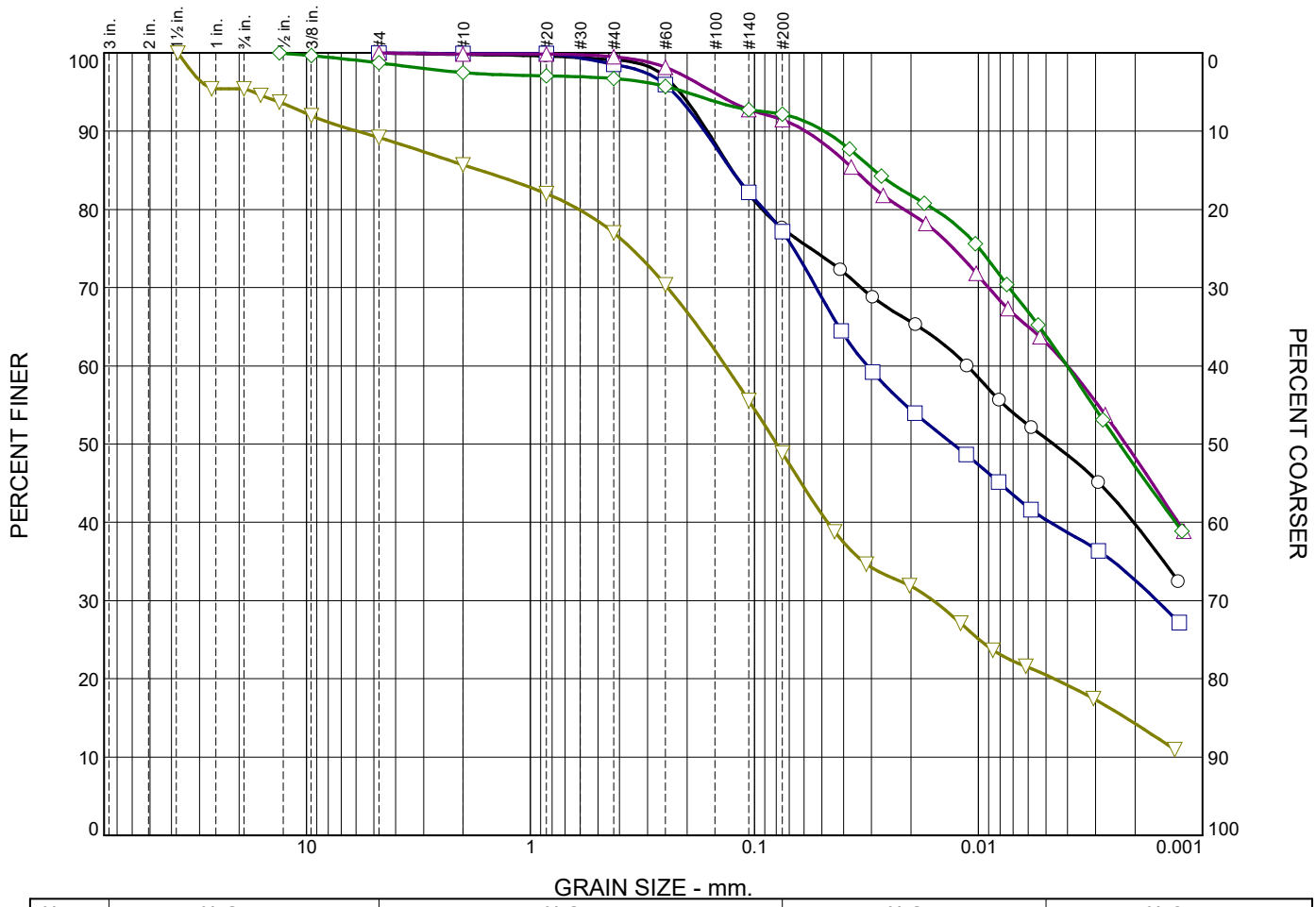
Non-Comformance's from Test Procedure: N/A

Comments:

Checked by: H.S.

Signature: H. Smith

Particle Size Distribution Report



	% +3"	% Gravel	% Sand	% Silt	% Clay
○	0.0	0.0	22.4	26.9	50.7
□	0.0	0.0	22.8	36.9	40.3
△	0.0	0.0	8.5	28.5	63.0
◇	0.0	1.3	6.5	28.3	63.9
▽	0.0	10.8	40.3	28.4	20.5

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	Edgewater St.	BH1801 SS4	6'-8'	Silty Sandy Clay	
□	Edgewater St.	BH1803 SS4	10'-12'	Sandy Clay and Silt	
△	Edgewater St.	BH1804 SS3	7.5'-9.5'	Silty Clay trace Sand	
◇	Edgewater St.	BH1805 ST4	10'-12'	Silty Clay trace Sand trace Gravel	CL
▽	Edgewater St.	BH1805 SS6	20'-22'	Silty Clayey Sand some Gravel	

McINTOSH PERRY

Client:

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON

Project No.: CP17-0635 **Figure**

Checked By: H.Smith

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 6'-8' **Sample Number:** BH1801 SS4
Material Description: Silty Sandy Clay
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
516.74	0.00	0.00	4.75mm	0.00	100.0	0.0
			2.00mm	1.02	99.8	0.2
55.66	0.00	0.00	0.850mm	0.11	99.6	0.4
			0.425mm	0.38	99.1	0.9
			0.250mm	1.60	96.9	3.1
			0.106mm	9.94	82.0	18.0
			0.075mm	12.39	77.6	22.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.8
Weight of hydrometer sample =55.66
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.750
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.7270 **-** 0.154 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	45.5	41.2	0.0131	44.5	9.9	0.0411	72.2	27.8
2.00	21.0	43.5	39.2	0.0131	42.5	10.2	0.0295	68.7	31.3
5.00	21.0	41.5	37.2	0.0131	40.5	10.5	0.0190	65.2	34.8
15.00	21.0	38.5	34.2	0.0131	37.5	11.0	0.0112	60.0	40.0
30.00	21.0	36.0	31.7	0.0131	35.0	11.3	0.0080	55.6	44.4
60.00	21.0	34.0	29.7	0.0131	33.0	11.6	0.0058	52.1	47.9
250.00	21.0	30.0	25.7	0.0131	29.0	12.3	0.0029	45.0	55.0
1440.00	20.0	23.0	18.5	0.0133	22.0	13.3	0.0013	32.4	67.6

Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	0.0	22.4	26.9	50.7

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0020	0.0046	0.0112	0.0925	0.1258	0.1624	0.2152

Fineness Modulus
0.14

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 10'-12' **Sample Number:** BH1803 SS4
Material Description: Sandy Clay and Silt
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
461.92	0.00	0.00	4.75mm	0.00	100.0	0.0
			2.00mm	0.22	100.0	0.0
55.81	0.00	0.00	0.850mm	0.00	100.0	0.0
			0.425mm	0.78	98.6	1.4
			0.250mm	2.23	96.0	4.0
			0.106mm	9.93	82.2	17.8
			0.075mm	12.72	77.2	22.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =55.81
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.734
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.1047 **-** 0.160 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	41.0	36.7	0.0131	40.0	9.7	0.0410	64.5	35.5
2.00	21.0	38.0	33.7	0.0131	37.0	10.2	0.0297	59.2	40.8
5.00	21.0	35.0	30.7	0.0131	34.0	10.7	0.0192	53.9	46.1
15.00	21.0	32.0	27.7	0.0131	31.0	11.1	0.0113	48.7	51.3
30.00	21.0	30.0	25.7	0.0131	29.0	11.5	0.0081	45.1	54.9
60.00	21.0	28.0	23.7	0.0131	27.0	11.8	0.0058	41.6	58.4
250.00	21.0	25.0	20.7	0.0131	24.0	12.3	0.0029	36.4	63.6
1440.00	20.0	20.0	15.5	0.0133	19.0	13.1	0.0013	27.2	72.8

Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	0.0	22.8	36.9	40.3

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0016	0.0048	0.0130	0.0314	0.0907	0.1262	0.1668	0.2298

Fineness Modulus
0.15

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 7.5'-9.5' **Sample Number:** BH1804 SS3
Material Description: Silty Clay trace Sand
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
396.50	0.00	0.00	4.75mm	0.00	100.0	0.0
			2.00mm	0.50	99.9	0.1
53.84	0.00	0.00	0.850mm	0.01	99.9	0.1
			0.425mm	0.20	99.5	0.5
			0.250mm	0.91	98.2	1.8
			0.106mm	3.83	92.8	7.2
			0.075mm	4.53	91.5	8.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =53.84
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.761
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.1047 **-** 0.160 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	51.5	47.2	0.0130	50.5	8.0	0.0370	85.4	14.6
2.00	21.0	49.5	45.2	0.0130	48.5	8.3	0.0266	81.8	18.2
5.00	21.0	47.5	43.2	0.0130	46.5	8.7	0.0172	78.2	21.8
15.00	21.0	44.0	39.7	0.0130	43.0	9.2	0.0102	71.8	28.2
30.00	21.0	41.5	37.2	0.0130	40.5	9.6	0.0074	67.3	32.7
60.00	21.0	39.5	35.2	0.0130	38.5	9.9	0.0053	63.7	36.3
250.00	21.0	34.0	29.7	0.0130	33.0	10.8	0.0027	53.7	46.3
1440.00	20.0	26.0	21.5	0.0132	25.0	12.1	0.0012	38.9	61.1

Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	0.0	8.5	28.5	63.0

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0013	0.0022	0.0040	0.0214	0.0356	0.0591	0.1531

Fineness Modulus
0.07

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 10'-12' **Sample Number:** BH1805 ST4
Material Description: Silty Clay trace Sand trace Gravel
USCS: CL
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
624.95	0.00	0.00	13.2mm	0.00	100.0	0.0
			9.5mm	2.12	99.7	0.3
			4.75mm	7.92	98.7	1.3
			2.00mm	15.66	97.5	2.5
54.78	0.00	0.00	0.850mm	0.24	97.1	2.9
			0.425mm	0.43	96.7	3.3
			0.250mm	0.99	95.7	4.3
			0.106mm	2.67	92.7	7.3
			0.075mm	2.99	92.2	7.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.5
Weight of hydrometer sample =54.78
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.779
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.7270 **-** 0.154 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	55.0	50.7	0.0130	54.0	8.4	0.0376	87.7	12.3
2.00	21.0	53.0	48.7	0.0130	52.0	8.7	0.0271	84.3	15.7
5.00	21.0	51.0	46.7	0.0130	50.0	9.0	0.0174	80.8	19.2
15.00	21.0	48.0	43.7	0.0130	47.0	9.5	0.0103	75.6	24.4
30.00	21.0	45.0	40.7	0.0130	44.0	10.0	0.0075	70.4	29.6
60.00	21.0	42.0	37.7	0.0130	41.0	10.4	0.0054	65.2	34.8
250.00	21.0	35.0	30.7	0.0130	34.0	11.5	0.0028	53.1	46.9
1440.00	20.0	27.0	22.5	0.0131	26.0	12.7	0.0012	38.9	61.1

Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	1.3	6.5	28.3	63.9

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0013	0.0023	0.0040	0.0157	0.0292	0.0487	0.2028

Fineness Modulus
0.20

GRAIN SIZE DISTRIBUTION TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 20'-22' **Sample Number:** BH1805 SS6
Material Description: Silty Clayey Sand some Gravel
Checked by: H.Smith

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
746.28	0.00	0.00	37.5mm	0.00	100.0	0.0
			26.5mm	34.22	95.4	4.6
			19.0mm	34.22	95.4	4.6
			16.0mm	40.36	94.6	5.4
			13.2mm	46.79	93.7	6.3
			9.5mm	59.88	92.0	8.0
			4.75mm	80.60	89.2	10.8
			2.00mm	106.79	85.7	14.3
61.20	0.00	0.00	0.850mm	2.62	82.0	18.0
			0.425mm	6.20	77.0	23.0
			0.250mm	10.95	70.4	29.6
			0.106mm	21.52	55.6	44.4
			0.075mm	26.30	48.9	51.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 85.7
Weight of hydrometer sample =61.20
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.725
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.1047 **-** 0.160 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	21.0	32.5	28.2	0.0132	31.5	11.1	0.0438	38.8	61.2
2.00	21.0	29.5	25.2	0.0132	28.5	11.5	0.0317	34.7	65.3
5.00	21.0	27.5	23.2	0.0132	26.5	11.9	0.0203	31.9	68.1
15.00	21.0	24.0	19.7	0.0132	23.0	12.4	0.0120	27.1	72.9
30.00	21.0	21.5	17.2	0.0132	20.5	12.8	0.0086	23.7	76.3
60.00	21.0	20.0	15.7	0.0132	19.0	13.1	0.0062	21.6	78.4
250.00	21.0	17.0	12.7	0.0132	16.0	13.5	0.0031	17.5	82.5
1440.00	20.0	12.5	8.0	0.0133	11.5	14.3	0.0013	11.0	89.0

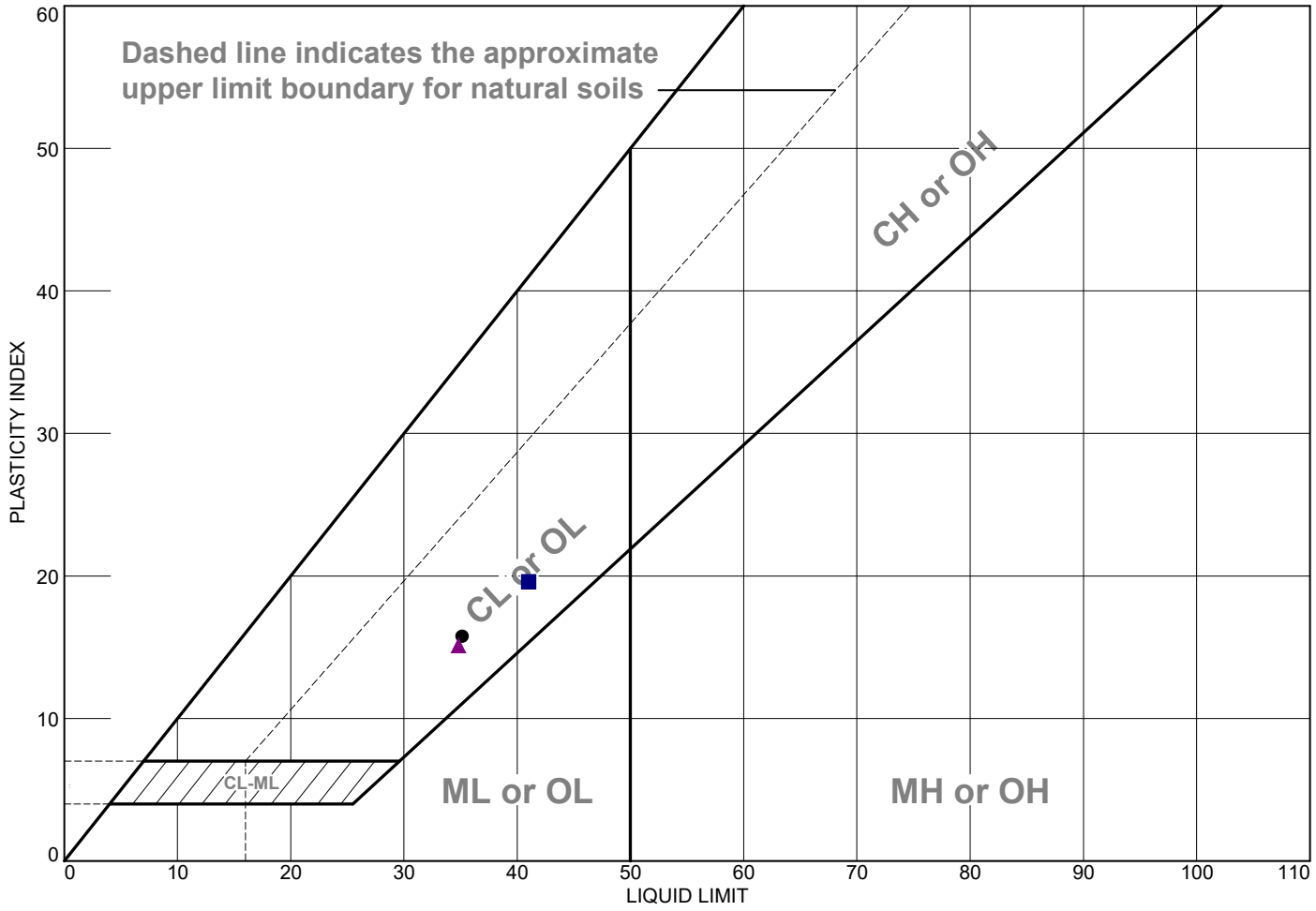
Fractional Components

Cobbles	Gravel	Sand	Silt	Clay
0.0	10.8	40.3	28.4	20.5

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0022	0.0046	0.0159	0.0471	0.0794	0.1345	0.6066	1.6815	5.9332	17.2074

Fineness Modulus
1.39

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Clay Low Plasticity	35.2	19.5	15.7			
■	Silty Clay trace Sand trace Gravel	41.0	21.4	19.6	96.7	92.2	CL
▲	Clay Low Plasticity	34.8	19.7	15.1			

Project No. CP17-0635 **Client:**

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON

Remarks:

●**Source of Sample:** Edgewater St. **Depth:** 15'-17' **Sample Number:** BH1803 SS5

■**Source of Sample:** Edgewater St. **Depth:** 10'-12' **Sample Number:** BH1805 ST4

▲**Source of Sample:** Edgewater St. **Depth:** 15'-17' **Sample Number:** BH1805 SS6

McINTOSH PERRY

Figure

Checked By: H.Smith

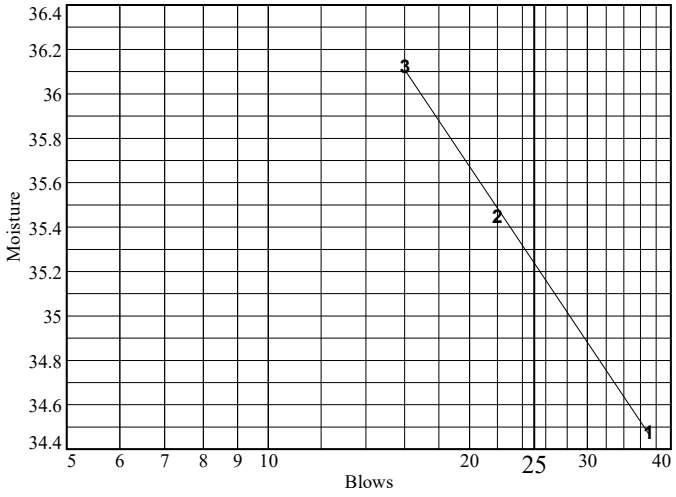
LIQUID AND PLASTIC LIMIT TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 15'-17'
Sample Number: BH1803 SS5
Material Description: Clay Low Plasticity
Checked by: H.Smith

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.73	30.32	31.01			
Dry+Tare	25.93	27.70	28.34			
Tare	20.71	20.31	20.95			
# Blows	37	22	16			
Moisture	34.5	35.5	36.1			



Liquid Limit= 35.2
Plastic Limit= 19.5
Plasticity Index= 15.7
Natural Moisture= 51.8
Liquidity Index= 2.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.90	22.82			
Dry+Tare	23.30	22.43			
Tare	20.25	20.42			
Moisture	19.7	19.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
787.02	570.55	152.69	51.8

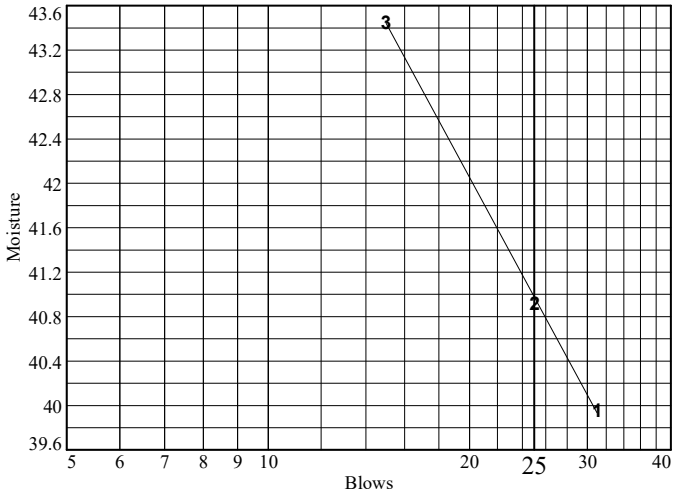
LIQUID AND PLASTIC LIMIT TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 10'-12' **Sample Number:** BH1805 ST4
Material Description: Silty Clay trace Sand trace Gravel
%<#40: 96.7 **%<#200:** 92.2 **USCS:** CL **AASHTO:** A-7-6(19)
Checked by: H.Smith

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.20	29.42	28.67			
Dry+Tare	25.95	26.78	26.18			
Tare	20.32	20.33	20.45			
# Blows	31	25	15			
Moisture	40.0	40.9	43.5			



Liquid Limit= 41.0
Plastic Limit= 21.4
Plasticity Index= 19.6
Natural Moisture= 61.7
Liquidity Index= 2.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.68	23.06			
Dry+Tare	22.26	22.58			
Tare	20.28	20.35			
Moisture	21.2	21.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
1143.86	758.21	133.26	61.7

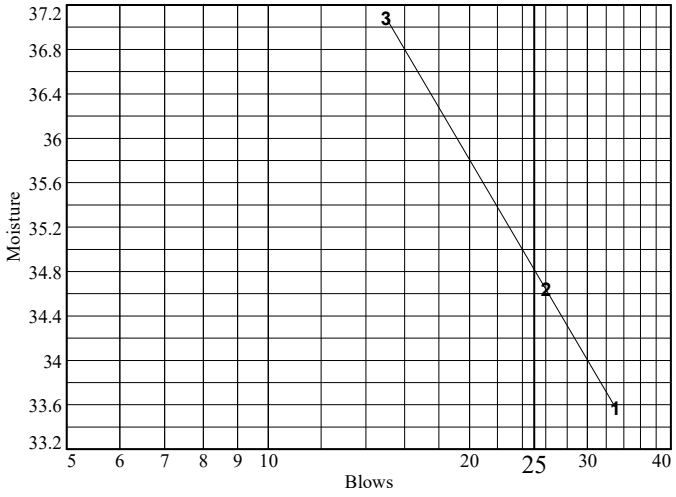
LIQUID AND PLASTIC LIMIT TEST DATA

2019-01-17

Project: Geotechnical Investigation - 6 Edgewater St. Ottawa, ON
Project Number: CP17-0635
Location: Edgewater St.
Depth: 15'-17'
Sample Number: BH1805 SS6
Material Description: Clay Low Plasticity
Checked by: H.Smith

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	37.86	28.08	37.60			
Dry+Tare	35.58	26.15	35.26			
Tare	28.79	20.58	28.95			
# Blows	33	26	15			
Moisture	33.6	34.6	37.1			



Liquid Limit= 34.8
Plastic Limit= 19.7
Plasticity Index= 15.1
Natural Moisture= 45.1
Liquidity Index= 1.7

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.60	23.87			
Dry+Tare	23.02	23.30			
Tare	20.13	20.35			
Moisture	20.1	19.3			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
885.08	652.54	136.53	45.1